University of Pennsylvania

Philadelphia, Pennsylvania
Reports on Federal Awards in
Accordance with OMB Uniform Guidance
June 30, 2018
Federal Entity Identification
Number 23-1352685

University of Pennsylvania
Reports on Federal Awards in Accordance with OMB Uniform Guidance
Index
June 30, 2018

I. Financial

Report of Independent Auditors

To the Trustees of the University of Pennsylvania:

Report on the Consolidated Financial Statements

We have audited the accompanying consolidated financial statements of the University of Pennsylvania (the "University"), which comprise the consolidated statements of financial position as of June 30, 2018 and 2017, and the related consolidated statements of activities and of cash flows for the years then ended, and the related notes to the financial statements.

Management's Responsibility for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on the consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the University's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the University's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, based on our audits, the consolidated financial statements referred to above present fairly, in all material respects, the consolidated financial position of the University of Pennsylvania as of June 30, 2018 and 2017, and the changes in their net assets and their cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Other Matters

Other Information

Our audit was conducted for the purpose of forming an opinion on the consolidated financial statements as a whole. The accompanying schedule of expenditures of federal awards for the year ended June 30, 2018 is presented for purposes of additional analysis as required by Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance) and is not a required part of the consolidated financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the consolidated financial statements. The information has been subjected to the auditing procedures applied in the audit of the consolidated financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the consolidated financial statements or to the consolidated financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditures of federal awards is fairly stated, in all material respects, in relation to the consolidated financial statements as a whole.

Our audit was conducted for the purpose of forming an opinion on the consolidated financial statements taken as a whole. The supplementary information included in the Schedule of Expenditures of Federal Awards Supplementary Schedule of the accompanying Consolidated Financial Statements for the year ended June 30, 2018 on page 121 is presented for purposes of additional analysis and is not a required part of the consolidated financial statements. Such information has not been subjected to the auditing procedures applied in the audit of the consolidated financial statements, and accordingly, we do not express an opinion or provide any assurance on it.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards,* we have also issued our report dated September 27, 2018 on our consideration of the University's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements and other matters for the year ended June 30, 2018. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing and not to provide an opinion on the effectiveness of internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the University's internal control over financial reporting and compliance.

September 27, 2018
Philadelphia, Pennsylvania

University of Pennsylvania
(in thousands)

	June 30, 2018	June 30, 2017
Assets		
Cash and cash equivalents	$ 1,431,172	$ 972,818
Accounts receivable, net	451,936	388,212
Patient receivables, net	758,472	696,591
Contributions receivable, net	280,634	241,352
Loans receivable, net	79,360	91,037
Other assets	360,640	263,850
Investments, at fair value	15,733,881	13,976,628
Property, plant and equipment, net	7,318,619	6,452,306
Total assets	$ 26,414,714	$ 23,082,794
Liabilities		
Accounts payable	$ 289,096	$ 242,260
Accrued expenses and other liabilities	2,290,303	1,993,775
Deferred income	206,436	215,613
Deposits, advances and agency funds	170,728	150,336
Federal student loan advances	68,686	82,009
Accrued retirement benefits	1,241,307	1,448,418
Debt obligations	3,574,192	2,702,950
Total liabilities	7,840,748	6,835,361
Net assets		
Unrestricted	11,152,992	9,466,538
Temporarily restricted	3,554,235	3,108,053
Permanently restricted	3,866,739	3,672,842
	18,573,966	16,247,433
Total liabilities and net assets	$ 26,414,714	$ 23,082,794

The accompanying notes are an integral part of these consolidated financial statements.

Consolidated Statements of Activities

University of Pennsylvania
for the years ended June 30, 2018 and 2017
(in thousands)

	2018	2017
Unrestricted		
Revenue and other support:		
Tuition and fees, net	$ 999,376	$ 937,868
Commonwealth appropriations	33,606	33,606
Sponsored programs	1,016,153	967,189
Contributions and donor support	267,450	194,539
Investment income	578,700	540,679
Net patient service revenue	6,245,081	5,702,819
Sales and services of auxiliary enterprises	120,816	120,265
Other income	755,364	619,183
Independent operations	77,385	78,040
	10,093,931	9,194,188
Expenses:		
Compensation and benefits	5,496,929	5,040,448
Depreciation and amortization	509,921	471,093
Interest on indebtedness	90,476	80,421
Other operating expenses	3,463,693	3,258,969
	9,561,019	8,850,931
Increase in net assets from operations	**532,912**	**343,257**
Nonoperating revenue, net gains, reclassifications and other:		
Return on investments, net of amounts classified as operating revenue	507,321	465,613
Pension, OPEB and other, net	201,838	175,366
Contributions and donor support for capital related activities	444,383	34,833
Total nonoperating revenue, net gains, reclassifications and other	1,153,542	675,812
Increase in unrestricted net assets	1,686,454	1,019,069
Temporarily Restricted		
Contributions	219,858	159,146
Return on investments, net	737,066	735,228
Net assets released from restrictions	(510,742)	(416,050)
Increase in temporarily restricted net assets	446,182	478,324
Permanently Restricted		
Contributions	177,413	203,286
Return on investments, net	16,484	34,165
Increase in permanently restricted net assets	193,897	237,451
Increase in net assets from nonoperating and restricted revenue, net gains, reclassifications and other	**1,793,621**	**1,391,587**
Increase in total net assets	**2,326,533**	**1,734,844**
Net assets, beginning of year	16,247,433	14,512,589
Net assets, end of year	$ 18,573,966	$ 16,247,433

The accompanying notes are an integral part of these consolidated financial statements.

University of Pennsylvania
for the years ended June 30, 2018 and 2017
(in thousands)

	2018	2017
Cash flows from operating activities:		
Increase in net assets	$ 2,326,533	$ 1,734,844
Adjustment to reconcile increase in net assets to net cash provided by operating activities:		
Depreciation and amortization	495,430	471,387
Provision for bad debts	172,670	201,231
Gain on investments, net	(1,383,213)	(1,358,190)
Loss on disposal of plant, property and equipment	680	87,153
Donated equipment	(2,057)	(937)
Proceeds from split-interest agreements designated for operations	82,844	22,515
Receipt of contributed securities	(53,070)	(113,317)
Proceeds from contributed securities	18,456	29,436
Receipt of contributions designated for the acquisition of long-lived assets and long-term investment	(612,028)	(177,858)
Pension, OPEB and other, net	(201,838)	(175,366)
Changes in operating assets and liabilities:		
Patient, accounts and loans receivable	(243,465)	(308,636)
Contributions receivable	(38,520)	914
Other assets	(36,867)	6,905
Accounts payable, accrued expenses and accrued retirement benefits	124,264	5,793
Deposits, advances and agency funds	20,034	(12,789)
Deferred income	(9,177)	5,282
Net cash provided by operating activities	660,676	418,367
Cash flows from investing activities:		
Purchase of investments	(12,390,888)	(7,879,448)
Proceeds from sale of investments	12,487,507	7,682,436
Purchase of property, plant and equipment	(868,479)	(781,421)
Cash acquired in Princeton HealthCare System (PHCS) membership substitution	46,440	-
Net cash used by investing activities	(725,420)	(978,433)
Cash flows from financing activities:		
Proceeds from contributions received designated for the acquisition of long-lived assets and long-term investment	192,153	179,000
Proceeds from contributed securities received designated for the acquisition of long-lived assets and long-term investment	34,208	83,278
Federal student loan advances	(13,323)	1,213
Repayment of long-term debt	(60,245)	(58,509)
Proceeds from issuances of long-term debt	370,305	200,300
Net cash provided by financing activities	523,098	405,282
Net increase (decrease) in cash and cash equivalents	458,354	(154,784)
Cash and cash equivalents, beginning of year	972,818	1,127,602
Cash and cash equivalents, end of year	$ 1,431,172	$ 972,818
Supplemental disclosure of cash flow information:		
Cash paid for interest, net of amounts capitalized	$ 90,727	$ 79,944
Contributed securities received	53,070	113,317
(Decrease) increase in accrued plant, property and equipment	(63)	32,301
Assets acquired in PHCS membership substitution	843,745	-
Liabilities assumed in PHCS membership substitution	426,836	-
Contribution received in PHCS membership substitution	416,909	-

The accompanying notes are an integral part of these consolidated financial statements.

1. Significant Accounting Policies

Organization

The University of Pennsylvania (University), located in Philadelphia, Pennsylvania, is an independent, nonsectarian, not-for-profit institution of higher learning founded in 1740. The University Academic Component (Academic Component) provides educational services, primarily for students at the undergraduate, graduate, professional and postdoctoral levels and performs research, training and other services under grants, contracts and similar agreements with sponsoring organizations, primarily departments and agencies of the United States Government. The University also operates an integrated health care delivery system, the University of Pennsylvania Health System (UPHS). The University is a tax-exempt organization under Section 501(c) (3) of the Internal Revenue Code.

Basis of Presentation

The consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (U.S. GAAP) and include the accounts of the University and its subsidiaries over which the University has a controlling financial interest or exercises control. All material transactions between the University and its subsidiaries are eliminated in consolidation. Investments in subsidiaries over which the University has the ability to exercise significant influence are reported using the equity method of accounting. Other investments in subsidiaries are reported using the cost method of accounting.

The net assets of the University are classified and reported as follows:

Unrestricted - Net assets that are not subject to donor-imposed restrictions.

Temporarily restricted - Net assets that are subject to legal or donor-imposed restrictions that will be met by actions of the University and/or the passage of time. These net assets include gifts donated for specific purposes and appreciation on permanent endowment, which is restricted by Pennsylvania law on the amounts that may be expended in a given year.

Permanently restricted – The original value of donor restricted net assets, the use of which is limited to investment and can only be appropriated for expenditure by the University in accordance with the Pennsylvania Uniform Principal and Income Act (Pennsylvania Act).

Expenses are reported as a decrease in unrestricted net assets. Gains and losses on investments are reported as increases or decreases in unrestricted net assets unless their use is restricted by explicit donor stipulation or by law. Donor-restricted resources intended for the acquisition or construction of long-lived assets are initially reported as temporarily restricted net assets and released from restrictions from temporarily restricted net assets to unrestricted net assets when the asset is placed in service or in accordance with donor-specified terms.

Expirations of temporary restrictions on contributions and investment income, reported as Net assets released from restrictions, and the corresponding amounts are included in the Consolidated Statements of Activities as follows (in thousands):

Temporarily Restricted Net Assets	**2018**	**2017**
Net assets released from restrictions	$ (510,742)	$ (416,050)

Unrestricted Net Assets	**2018**	**2017**
Contributions and donor support	$ 190,445	$ 118,077
Investment income	274,407	263,140
Contributions and donor support for capital related activities	45,890	34,833
Net assets released from restrictions	$ 510,742	$ 416,050

Gains or losses associated with investment activities are included in Return on investments, net. Gains or losses associated with property, plant and equipment disposals are included in Other operating expenses. Gains or losses associated with all other activities, such as debt retirements and pension and postretirement plan actuarial valuation adjustments, are reported in Pension, Other post-retirement employee benefits (OPEB) and other, net.

Fair Value

The University values certain financial and non-financial assets and liabilities by applying the FASB pronouncement on Fair Value Measurements. The pronouncement defines fair value and establishes a framework for measuring fair value that includes a hierarchy that categorizes and prioritizes the sources used to measure and disclose fair value. Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date (an exit price). The hierarchy is broken down into three levels based on inputs that market participants would use in valuing the asset or liability and are developed based on market data obtained from sources independent of the University as follows:

Level 1: Unadjusted quoted market prices in active markets for identical assets or liabilities.

Level 2: Unadjusted quoted prices in active markets for similar assets or liabilities, unadjusted quoted prices for identical or similar assets or liabilities in markets that are not active, or inputs other than quoted prices that are observable.

Level 3: Unobservable inputs for the asset or liability.

Inputs broadly refer to the assumptions that market participants use to make valuation decisions, including assumptions about risk. Inputs may include price information, volatility statistics, specific and broad credit data, liquidity statistics and other factors. The University is required by the pronouncement to maximize the use of observable inputs (Levels 1 and 2) and minimize the use of unobservable inputs (Level 3). The University considers observable data to be that market data which is readily available, regularly distributed or updated, reliable and verifiable, not proprietary and provided by independent sources that are actively involved in the relevant market. The categorization of a financial instrument within the hierarchy is based upon the pricing transparency of the instrument and does not necessarily correspond to the University's perceived risk of that instrument.

Assets and liabilities are disclosed in the Consolidated Notes to Financial Statements within the hierarchy based on the lowest (or least observable) input that is significant to the measurement. The University's assessment of the significance of an input requires judgment, which may affect the valuation and categorization within the fair value hierarchy. The fair value of assets and liabilities using Level 3 inputs are generally determined by using pricing models or discounted cash flow methods, which all require significant management judgment or estimation.

As a practical expedient, the University is permitted to estimate the fair value of an investment in an investment company at the measurement date using the reported net asset value (NAV). Adjustment is required if the University expects to sell the investment at a value other than NAV or if the NAV is not calculated in accordance with U.S. GAAP. The University holds investments in its portfolio which are generally valued based on the most current NAV. This amount represents fair value of these investments at June 30, 2018 and 2017. Investments reported at NAV, as a practical expedient, are not included within levels 1, 2, or 3 in the fair value hierarchy.

The University performs additional procedures, including due diligence reviews, on its investments in investment companies and other procedures with respect to the capital account or NAV provided to ensure conformity with US GAAP. The University has assessed factors including, but not limited to, managers' compliance with the *Fair Value Measurement* standard, price transparency and valuation procedures in place.

Cash and Cash Equivalents

Cash equivalents include short-term, highly liquid investments and are carried at cost which approximates fair value. Unrestricted short-term investments available for current operations with maturities of three months or less when purchased are classified as cash equivalents.

Investments, at Fair Value

The majority of the University's investments are held in the Associated Investments Fund (AIF). The AIF is invested in accordance with the investment policies set out by an Investment Board which has been appointed by the Trustees of the University of Pennsylvania (the Trustees). The Office of Investments is responsible for the day-to-day management of the AIF including identifying, selecting and monitoring a variety of external investment managers to implement the strategic asset allocation set forth by the Investment Board. The AIF may include marketable and not readily marketable securities that it intends to hold for an indefinite period of time. The University also holds other investments which are not invested in the AIF due to various restrictions. The majority of these investments are in highly liquid short-term and equity type investments. Changes in the fair value of investments are reported in Return on investments, net in the Consolidated Statements of Activities. The following is a summary of the investments held in the AIF by asset allocation as well as investment risk:

Short-Term

Short-term investments include cash equivalents and fixed income investments with maturities of less than one year. Short-term investments are valued using observable market data and are categorized as Level 1 based on quoted market prices in active markets. The majority of these short-term investments are held in a US Treasury money market account.

Equity

Equity investments consist of direct holdings of public securities in managed accounts as well as exchange traded funds and private funds. The securities held in managed accounts, along with exchange traded funds, are generally valued based on quoted market prices in active markets obtained from exchange or dealer markets for identical assets, and are accordingly categorized as Level 1. Private funds are valued at NAV.

Debt

Debt investments consist of direct holdings of securities in managed accounts and private funds. Securities such as US Treasuries, held in managed accounts, are valued based on quoted market prices in active markets and are categorized as Level 1. Securities such as corporate bonds, high yield bonds and bank loans, also held in managed accounts, are valued based on quoted market prices or dealer or broker quotations and are categorized as Level 2 or in the cases where inputs are unobservable as Level 3. Private funds are valued at NAV.

Absolute Return

Absolute return investments are made up of allocations to private funds. The fund managers of these private funds invest in a variety of securities, based on the strategy of the fund, which may or may not be quoted in an active market. Illiquid securities, if any, are generally designated as a side pocket by hedge fund managers and may be valued based on an appraised value, discounted cash flow, industry comparables or some other method. Private funds are valued at NAV.

Real Estate

Investments in real estate are primarily in the form of private funds. The fund managers of these private funds primarily invest in investments for which there is no readily determinable market value. The fund manager may value the underlying investments based on an appraised value, discounted cash flow, industry comparables or some other method. Private funds are valued at NAV.

Private Equity

Investments in private equity are in the form of close-ended private funds. The fund managers primarily invest in investments for which there is no readily determinable market value. The fund manager may value the underlying private investments based on an appraised value, discounted cash flow, industry comparables or some other method. These private fund investments are valued at NAV.

Natural Resources

Investments in natural resources are made up of private funds and securities in managed accounts. The fund managers of these private funds primarily invest in investments for which there is no readily determinable market value. The fund manager may value the underlying investments based on an appraised value, discounted cash flow, industry comparables or some other method. Private funds are valued at NAV. The securities held in the managed accounts are generally valued based on quoted market prices in active markets obtained from exchange or dealer markets for identical assets, and are accordingly categorized as Level 1.

Derivatives

The University, in the normal course of business, utilizes derivative financial instruments in connection with its investment activity. Derivatives utilized by the University include futures, options, swaps and forward currency contracts and are reflected at fair value following the definition of Level 1 and 2 assets and liabilities as previously described. Investments in derivative contracts are subject to foreign exchange and equity price risks that can result in a loss of all or part of an investment. In addition, the University is also subject to additional counterparty risk should its counterparties fail to meet the terms of their contracts.

Investment Risks

The University's investing activities expose it to a variety of risks including market, credit and liquidity risks. The University attempts to identify, measure and monitor risk through various mechanisms including risk management strategies and credit policies.

Market risk is the potential for changes in the fair value of the University's investment portfolio. Commonly used categories of market risk include currency risk (exposure to exchange rate differences between functional currency relative to other foreign currencies), interest rate risk (changes to prevailing interest rates or changes in expectations of futures rates) and price risk (changes in market value other than those related to currency or interest rate risk, including the use of NAV provided).

Credit risk is the risk that one party to a financial investment will cause a financial loss for the other party by failing to discharge an obligation (counterparty risk).

Liquidity risk is the risk that the University will not be able to meet its obligations associated with financial liabilities.

Endowment

The University's endowment consists of 6,364 donor-restricted permanent or term endowment funds and 895 unrestricted endowment funds established by management for a variety of purposes. The University reports all endowment investments at fair value. The majority of the endowment funds of the University have been pooled in the University's AIF. The endowment funds not pooled in the AIF are primarily invested in equities and bonds.

The Commonwealth of Pennsylvania has not adopted the Uniform Management of Institutional Funds Act (UMIFA) or the Uniform Prudent Management of Institutional Funds Act (UPMIFA). Rather, the Pennsylvania Act governs the investment, use and management of the University's endowment funds.

The Pennsylvania Act does not require the preservation of the fair value of a donor's original gift as of the gift date of a donor-restricted endowment fund, absent explicit donor stipulations to the contrary. However, based on its interpretation of the Pennsylvania Act and relevant accounting literature, the University classifies as permanently restricted net assets for reporting purposes: (i) the original value of gifts donated to the permanent endowment; (ii) the original value of subsequent gifts to the permanent endowment; and (iii) accumulations to the permanent endowment made in accordance with the direction of the applicable donor gift instrument at the time the accumulation is added to the fund. The remaining portion of the donor-restricted endowment fund that is not classified in permanently restricted net assets is classified as temporarily restricted net assets until those amounts are appropriated for expenditure by the University. The Pennsylvania Act allows a nonprofit to elect to appropriate for expenditure between 2% and 7% of the endowment fair value, determined at least annually and averaged over a period of three or more preceding years.

In accordance with the Pennsylvania Act, the University has elected to adopt and follow an investment policy seeking a total return for the investments held by the AIF, whether the return is derived from appreciation of capital or earnings and distributions with respect to capital or both. The endowment spending policy which the Board of Trustees has elected to govern the expenditure of funds invested in the AIF is designed to manage annual spending levels and is independent of the cash yield and appreciation of investments for the year. For Fiscal Year 2018, the spending rule target payout was based on the sum of: (i) 70% of the prior fiscal year distribution adjusted by an inflation factor; and (ii) 30% of the prior fiscal year-end fair value of the AIF, lagged one year, multiplied by 5.0% for all funds. The payout or allocation to operations exceeded actual income, net of expenses, by $516,034,000 in 2018 and by $485,860,000 in 2017.

Property, Plant and Equipment

Property, plant and equipment (PPE) is reported net of related depreciation. Donated PPE is reported based on estimated fair value at the date of acquisition. Capital leases are categorized as buildings or equipment and are reflected at the lower of the net present value of the minimum lease payments or the fair value of the leased asset at the inception of the lease. All other PPE is reported at cost. Depreciation is computed on the straight-line method over the estimated useful lives of the assets or the shorter of the lease term or estimated useful life of the asset for capital lease assets. Contributions of library materials, as well as rare books and other collectibles, are not recorded for financial statement presentation, while purchases are recorded as Other operating expenses on the Consolidated Statement of Activities in the period acquired.

Split-Interest Agreements

The University's split-interest agreements with donors consist of irrevocable charitable remainder trusts, charitable gift annuities, pooled income funds, perpetual trusts and charitable lead trusts. Assets are invested and payments are made to donors and/or other beneficiaries in accordance with the respective agreements.

The University recognizes assets contributed to charitable remainder trusts, charitable gift annuities and pooled income funds, where it serves as trustee, at fair value, recognizes a liability to the beneficiaries based on the present value of the estimated future payments to beneficiaries to be made over the estimated remaining life of those beneficiaries using current market rates at the date of the contribution, and recognizes the difference as contribution revenue. Subsequently, the trust assets, invested in equity and debt securities, are measured at fair value at quoted market prices, and are categorized as Level 1, with the changes reported as an adjustment to Investments, at fair value on the Consolidated Statements of Financial Position and Return on investments, net on the Consolidated Statements of Activities. Liabilities to beneficiaries are revalued based on current market rates, and are categorized as Level 2, with the changes reported as an adjustment to Accrued expense and other liabilities on the Consolidated Statements of Financial Position and Return on investments, net on the Consolidated Statements of Activities.

Charitable remainder trust assets, where the University does not serve as trustee, are initially valued using the current fair value of the underlying assets, using observable market inputs based on its beneficial interest in the trust, discounted to a single present value using current market rates at the date of the contribution. The initially contributed assets are categorized as Level 3, and reported as Investments, at fair value on the Consolidated Statements of Financial Position

and Contribution revenue on the Consolidated Statements of Activities. Subsequent valuation follows this same approach with changes in fair value reported as an adjustment to Investments, at fair value on the Consolidated Statements of Financial Position and Return on investments, net on the Consolidated Statements of Activities. The primary unobservable input used in the fair value measurement of the charitable remainder trust assets is the discount rate. Significant fluctuation in the discount rates utilized in this calculation could result in a material change in fair value.

Perpetual trust assets are initially valued at the current fair value of the underlying assets using observable market inputs based on its beneficial interest in the trust. The initially contributed assets are categorized as Level 3 and are reported as Investments, at fair value on the Consolidated Statements of Financial Position and as Contribution revenue on the Consolidated Statements of Activities. Subsequent valuation follows this same approach with changes in fair value reported as an adjustment to Investments, at fair value on the Consolidated Statements of Financial Position and Return on investments, net on the Consolidated Statements of Activities. The primary unobservable inputs used in the fair value measurement of the perpetual trust assets are the underlying securities held by the trust. Significant fluctuation in the market value of these underlying securities could result in a material change in fair value.

The University reports charitable lead trust assets by discounting future cash flows using current market rates at the measurement date, matched to the payment period of the agreement. The initially contributed assets are categorized as Level 3, and reported as Investments, at fair value on the Consolidated Statements of Financial Position and as Contribution revenue on the Consolidated Statements of Activities. Subsequent valuation follows this same approach with changes in fair value reported as an adjustment to Investments, at fair value on the Consolidated Statements of Financial Position and Return on investments, net on the Consolidated Statements of Activities. The primary unobservable input used in the fair value measurement of the charitable lead trust assets is the discount rate. Significant fluctuation in the discount rates utilized in this calculation could result in a material change in fair value.

Income Taxes

The University is a tax exempt organization under Section 501(c)(3) of the Internal Revenue Code. Most of its activities and income are related to its exempt purposes and are exempt from federal and state income taxes. None of its activities and income is subject to Pennsylvania income tax. Unrelated activities and income are subject to federal "Unrelated Business Income Tax."

The University regularly evaluates its tax position and does not believe it has any uncertain tax positions that require disclosure or adjustment to the consolidated financial statements.

Tuition and Fees

The University practices need-blind admissions for citizens and permanent residents of the United States, Canada and Mexico, meaning that qualified undergraduate applicants are admitted without regard to financial circumstances. This admissions policy is paired with a grant-based financial aid program, which meets the full demonstrated financial need of all undergraduate students with grants and work-study funding. Students and their families may still choose to borrow if they wish to help meet any expected family contribution. Tuition and fees have been reduced by certain grants and scholarships in the amount of $350,151,000 in 2018 and $333,582,000 in 2017.

Sponsored Programs

The University receives grant and contract revenue from governmental and private sources. In 2018 and 2017, grant and contract revenue earned from governmental sources totaled $730,368,000 and $713,113,000, respectively. The University generally recognizes revenue associated with the direct and the applicable indirect costs of sponsored programs as the related costs are incurred. The University negotiates its federal indirect rate with its cognizant federal agency. Indirect costs recovered on federally-sponsored programs are generally based on predetermined reimbursement rates which are stated as a percentage and distributed based on the modified total direct costs incurred. Indirect costs recovered on all other grants and contracts are based on rates negotiated with the respective sponsors. Funds received for sponsored

research activity are subject to audit. Based upon information currently available, management believes that any liability resulting from such audits will not materially affect the financial position or operations of the University.

Contributions

Unrestricted Contributions and donor support includes net assets released as a result of corresponding expenditures which met donor imposed restrictions. Contributions, including unconditional promises to donate cash and other assets, are recognized as revenue in the period received and are reported as increases in the appropriate net asset category based on donor restrictions. Contributions designated for the acquisition of long-lived assets and long-term investment are reported in Nonoperating revenue, net gains, reclassifications and other.

The University reports unconditional pledges at fair value by discounting future cash flows using current market rates at the measurement date, ranging from 2.87% to 3.90%, matched to the payment period of the agreement, and accordingly categorizes these assets as Level 3. The primary unobservable input used in the fair value measurement of the University's Contributions receivable is the discount rate. Significant fluctuation in the discount rates utilized in this calculation could result in a material change.

Net Patient Service Revenue

Net patient service revenue is derived from UPHS patient services and is accounted for at established rates on the accrual basis in the period the service is provided. Patient service revenue is net of charity care and community services. Certain revenue received from third-party payors is subject to audit and retroactive adjustment. Any changes in estimates under these contracts are recorded in operations currently.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates.

Recent Authoritative Pronouncements

Periodically, the Financial Accounting Standards Board (FASB) issues updates to the Accounting Standards Codification (ASC) which impacts the University’s financial reporting and related disclosures. The paragraphs which follow summarize a number of relevant updates. Unless otherwise noted, the University is currently evaluating the impact that these updates will have on the consolidated financial statements.

In May 2014, the FASB issued a standard on Revenue from Contracts with Customers. This standard implements a single framework for recognition of all revenue earned from customers. This framework ensures that entities appropriately reflect the consideration to which they expect to be entitled in exchange for goods and services by allocating transaction price to identified performance obligations and recognizing revenue as performance obligations are satisfied. Qualitative and quantitative disclosures are required to enable users of financial statements to understand the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers. The standard is effective for fiscal year 2019.

In June 2018, the FASB issued a standard on Clarifying the Scope and the Accounting Guidance for Contributions Received and Contributions Made. The new guidance explains how entities will determine whether to account for a transfer of assets as an exchange transaction (under other guidance) or a contribution. The FASB also clarified that a contribution is conditional if the agreement includes both a barrier (as defined) and a right of return or release. The standard is effective for fiscal year 2019.

In August 2016, the FASB issued a standard on the Presentation of Financial Statements of Not-for-Profit Entities. The new guidance requires that not-for-profit entities no longer distinguish between resources with temporary and permanent restrictions on the face of their financial statements, effectively presenting two classes of net assets instead of three. The guidance also changes how not-for-profit entities report certain expenses and provide information about their available resources and liquidity. The standard is effective for fiscal year 2019.

In February 2016, the FASB issued a standard on Leases. This standard requires lessees to recognize assets and liabilities for the rights and obligations created by leases with terms in excess of 12 months. The recognition, measurement, and presentation of expenses and cash flows arising from a lease will primarily depend on its classification as a finance or operating lease. The accounting by lessors remains largely unchanged. The standard is effective for fiscal year 2020.

In November 2016, the FASB issued a standard on Restricted Cash. This standard requires that the Consolidated Statement of Cash Flows explain the change during the period in the total of cash, cash equivalents and restricted cash. Additionally, a disclosure describing the nature of the restrictions and a reconciliation of total cash, cash equivalents and restricted cash to the amounts of Cash and cash equivalents presented on the Consolidated Statement of Financial Position is required. The standard is effective for fiscal year 2020.

In March 2017, the FASB issued a standard on Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost. This standard requires the bifurcation of net benefit cost, as follows: service cost continues to be reported in Compensation and benefits, while the remaining components of net benefit cost are reported in Pension, OPEB and other, net. The University early adopted this standard for fiscal year 2018. The adoption of the standard resulted in an increase to Net assets from operations of $11,256,000 for the year ended June 30, 2018, with a retrospective increase to Net assets from operations of $45,798,000 for the year ended June 30, 2017.

2. University of Pennsylvania Health System - Summarized Financial and Related Information

The Trustees formed Penn Medicine, the governance structure which oversees the activities of UPHS and the University of Pennsylvania Perelman School of Medicine (PSOM). The governing body operates, oversees and coordinates the academic, research and clinical missions of Penn Medicine.

UPHS is comprised of the following operating entities: Clinical Practices of the University of Pennsylvania; Clinical Care Associates; Hospital of the University of Pennsylvania; Penn Presbyterian Medical Center; Pennsylvania Hospital of the University of Pennsylvania Health System; Chester County Hospital and Health System; Lancaster General Health (LGH); Wissahickon Hospice of the University of Pennsylvania Health System; Franklin Casualty Insurance Company, a wholly owned Risk Retention Group; and, Quaker Insurance Company Ltd., a wholly owned offshore captive insurance company, (collectively referred to as RRG/Captive). In January 2018, through a membership substitution, Princeton HealthCare System (PHCS) became a part of UPHS.

Throughout the year, certain transactions (primarily billings for allocations of common costs, physicians' salaries and benefits, certain purchased services and support for PSOM) are conducted between UPHS and the University. Nonoperating, net, as shown below, includes transfers from UPHS to the University of $198,394,000 and $180,632,000 in 2018 and 2017, respectively, to further the research and educational activities of PSOM and $4,874,000 and $0 in 2018 and 2017, respectively, for other activities. In addition, UPHS recognized operating expenses of $19,844,000 and $19,351,000 in 2018 and 2017, respectively, to support academic operating activities in the clinical departments of PSOM.

The effect of all these transactions is included in the following summarized financial information of UPHS as of and for the years ended June 30, 2018 and 2017 (in thousands):

	2018	2017
Net patient service revenue	$ 6,417,674	$ 5,903,582
Provision for bad debt	(164,763)	(193,651)
Net patient service revenue less bad debts	6,252,911	5,709,931
Other revenue	529,240	428,721
Total expenses	(6,399,423)	(5,751,787)
Excess of revenue over expenses from operations	382,728	386,865
Nonoperating, net	728,454	275,059
Increase in net assets	$ 1,111,182	$ 661,924
Total current assets	$ 1,992,168	$ 1,481,230
Assets whose use is limited:		
Held by trustees	274,300	116,085
RRG/ Captive	207,403	195,982
Donor restricted and other	648,104	581,629
Designated	2,584,262	2,303,595
Property and equipment, net	4,103,777	3,309,820
Investments and other assets	1,204,215	962,164
Total assets	$ 11,014,229	$ 8,950,505
Total current liabilities	$ 1,110,380	$ 876,636
Long-term debt, net of current portion	2,274,859	1,451,816
Other liabilities	1,833,978	1,938,223
Total liabilities	$ 5,219,217	$ 4,266,675
Net assets		
Unrestricted	$ 5,137,511	$ 4,093,287
Temporarily restricted	456,528	406,073
Permanently restricted	200,973	184,470
Total net assets	$ 5,795,012	$ 4,683,830
Total liabilities and net assets	$ 11,014,229	$ 8,950,505

Net Patient Service Revenue

Net Patient Service Revenue (NPSR), net of contractual allowances and discounts, is as follows for the years ended June 30, 2018 and 2017 (in thousands):

	2018	2017
Third Party Payors	$ 6,359,410	$ 5,798,498
Self-Pay	58,264	105,084
Total All Payors	$ 6,417,674	$ 5,903,582

NPSR for the years ended June 30, 2018 and 2017 is derived from the following payers:

	2018	2017
Medicare (including Managed Medicare)	31%	30%
Medicaid (including Managed Medicaid)	11%	12%
Managed Care	37%	32%
Independence Blue Cross (IBC)	17%	20%
Commercial	3%	4%
Self Pay	1%	2%
	100%	100%

UPHS has agreements with the following third-party payers that provide for payments at amounts that differ from its established rates:

Inpatient acute care services and outpatient services rendered to Medicare program beneficiaries are paid at prospectively determined rates. These rates vary according to a patient classification system that is based on clinical, diagnostic, and other factors. Inpatient psychiatric services and medical education costs related to Medicare beneficiaries are paid based on a cost reimbursement methodology. UPHS is reimbursed for cost reimbursable items at a tentative rate with final settlement determined after submission of annual cost reports by each hospital and audits thereof by the Medicare fiscal intermediary.

Inpatient and outpatient services rendered to Medicaid program beneficiaries are paid at prospectively determined rates. Additional amounts are allocated to each hospital for training residents and serving a disproportionate indigent population.

Laws and regulations governing the Medicare and Medicaid programs are extremely complex and subject to interpretation. As a result, there is at least a reasonable possibility that recorded estimates will change by a material amount in the near term.

During 2017, UPHS and IBC reached agreement on terms of a five-year agreement. Payments made for inpatient services provided to IBC traditional and managed care subscribers are effected on a per case rate basis for most services. Payment for outpatient services is principally based upon negotiated fee schedules. Hospital and physician rates also provide for annual inflationary increases. In addition, incentives are paid for high performance with regard to clinical outcomes and patient quality. The agreement continues unless terminated by the parties.

During 2015, UPHS and Aetna reached agreement on terms of a five-year agreement. The terms of the agreement provide payments for inpatient hospital services on a per case rate basis. Payments for outpatient services continue to be predominantly based upon negotiated fee schedules.

UPHS also has reimbursement agreements with certain commercial insurance carriers, health maintenance organizations and preferred provider organizations. The basis for reimbursement under these agreements includes prospectively determined rates per discharge, discounts from established charges and prospectively determined per diem rates.

Charity Care

UPHS provides services to patients who meet certain criteria under its charity care policy without charge or at amounts less than UPHS' established rates. Because UPHS does not pursue collections, such amounts have been excluded from NPSR. UPHS estimates the costs of providing charity care services based on data derived from a combination of UPHS' cost accounting system and the ratio of costs to charges. Of the Total expenses reported above by UPHS, an estimated $19,189,000 and $16,134,000 were incurred as a result of providing services to charity patients for the years ended June 30, 2018 and 2017, respectively.

Provision for Bad Debt

The provision for bad debt is based on management's assessment of expected net collections considering economic conditions, historical experience, trends in health care coverage and other collection indicators. Included in this assessment are patients who do not have health insurance or do not meet the criteria to qualify for UPHS' charity care policy. UPHS pursues collection of these amounts, however certain amounts are deemed to be uncollectible. Periodically throughout the year, management assesses the adequacy of the allowances for uncollectible accounts based upon historical write-off experience by payor category, including not covered by insurance, and history of cash collections. The results of this review are then used to make any modifications to the provision for bad debt to establish an appropriate allowance for uncollectible accounts. No significant modifications were made for fiscal years 2018 or 2017. After satisfaction of amounts due from insurance and reasonable efforts to collect from patients have been exhausted, UPHS follows established guidelines for placing certain past-due patient balances with collection agencies, subject to terms of certain restrictions on collection efforts as determined by UPHS. Account receivables are written off after collection efforts have been followed in accordance with UPHS' policy. UPHS' allowances for uncollectible accounts totaled $271,700,000 and $225,244,000 at June 30, 2018 and 2017, respectively.

Medical Professional Liability Claims

The University is insured for medical professional liability claims through the combination of the Medical Care Availability and Reduction of Error Fund (Mcare), various commercial insurance companies and risk retention programs.

Mcare levies health care provider surcharges, as a percentage of the Pennsylvania Joint Underwriters Association rates for basic coverage, to pay claims and pay administrative expenses of Mcare participants. These surcharges are recognized as expenses in the period incurred. Mcare operates on a pay-as-you-go basis and no provision has been made for any future Mcare assessments in the accompanying financial statements, as the University's portion of the unfunded Mcare liability cannot be estimated.

Anticipated insurance recoveries and estimated liabilities for medical malpractice claims or similar contingent liabilities are presented separately on the Consolidated Statement of Financial Position in Accounts receivable, net of allowances and Accrued expenses and other liabilities, respectively. The University accrues for estimated risks arising from both asserted and unasserted medical professional liability claims. The estimate of the gross liability and corresponding receivable for unasserted claims arising from unreported incidents is based on analysis of historical claims data by an independent actuary, which is recorded utilizing a 2.25% to 3.50% discount rate as of June 30, 2018 and 2017. The gross liability recorded under this program is $734,383,000 and $714,363,000 at June 30, 2018 and 2017, respectively, with a corresponding receivable of $106,673,000 and $100,167,000 at June 30, 2018 and 2017, respectively.

PHCS Membership Substitution

Effective January 1, 2018, the University and PHCS entered into an affiliation agreement whereby the University became the sole corporate member of PHCS. PHCS is a comprehensive healthcare provider located in central New Jersey that principally includes the Medical Center of Princeton, a general acute care hospital facility in Plainsboro, New Jersey, with 319 inpatient beds (plus 24 newborn bassinets), and Princeton House Behavioral Health, which includes a 110 bed inpatient facility in Princeton, New Jersey, and four additional outpatient locations. PHCS includes approximately 1,200 physicians on staff and employs approximately 3,200 people.

No consideration was exchanged for the net assets contributed and acquisition costs are expensed as incurred. UPHS recorded non-operating contribution income of $398,493,000 in fiscal year 2018 reflecting the fair value of the contributed unrestricted net assets of PHCS on January 1, 2018. Additionally, Restricted contribution income of $8,254,000 and $10,162,000 were recorded in temporarily restricted and permanently restricted net assets, respectively as of January 1, 2018.

Total fair value of assets, liabilities and net assets contributed by PHCS and its subsidiaries at January 1, 2018 were as follows (in thousands):

	January 1, 2018
Cash and cash equivalents	$ 46,440
Patients accounts receivable, net	43,895
Prepaid expenses and other current assets	17,533
Investments and assets limited as to use	213,460
Property, plant and equipment, net	491,877
Other assets	30,540
Total assets acquired	$ 843,745
Accounts payable and accrued expense	$ 75,954
Accrued compensation and related benefits	32,962
Estimated third-party settlements	7,099
Long-term debt	293,861
Other liabilities	16,960
Total liabilities assumed	$ 426,836
Unrestricted	$ 398,493
Temporarily restricted	8,254
Permanently restricted	10,162
Total net assets	$ 416,909
Total liabilities and net assets	$ 843,745

A summary of the pro-forma combined financial results of UPHS and PHCS for the years ended June 30, 2018 and June 30, 2017, as if the affiliation had occurred on July 1, 2016 is as follows (unaudited and in thousands):

	2018	2017
Total operating revenue	$ 7,020,438	$ 6,610,678
Total operating expense	6,636,843	6,224,240
Operating gain	$ 383,595	$ 386,438
Nonoperating activity, net	275,329	237,958
Increase in unrestricted net assets	$ 658,924	$ 624,396

3. Accounts Receivable

Accounts receivable are reported at their net realizable value.; The major components of receivables, net of allowances for doubtful accounts of $20,363,000 and $17,980,000 at June 30, 2018 and 2017, respectively, are as follows (in thousands):

	2018	2017
Sponsored research	$ 140,790	$ 137,675
Malpractice	106,673	100,167
Student	25,298	13,193
Trade	96,181	53,272
Investment income	5,884	4,032
Other	77,110	79,873
Total Accounts receivable	$ 451,936	$ 388,212

4. Loans Receivable

Loans receivable, and related allowances for doubtful accounts, consist of the following at June 30, 2018 and 2017 (in thousands):

	2018		
	Receivable	Allowance	Net
Student Loans:			
Federally-sponsored	$ 57,562		$ 57,562
Other	14,160	$ 3,300	10,860
Total Student loans	$ 71,722	$ 3,300	$ 68,422
Other	11,168	230	10,938
Total	$ 82,890	$ 3,530	$ 79,360

	2017		
	Receivable	Allowance	Net
Student Loans:			
Federally-sponsored	$ 67,221		$ 67,221
Other	15,847	$ 2,936	12,911
Total Student loans	$ 83,068	$ 2,936	$ 80,132
Other	11,136	231	10,905
Total	$ 94,204	$ 3,167	$ 91,037

Loans receivable primarily consists of student loans. Student loans include federally-sponsored student loans and donor-restricted student loans with mandated interest rates and repayment terms. The federally-sponsored student loans represent amounts due from current and former students under various Federal Government funded loan programs offered to graduate and undergraduate students. Loans disbursed under these programs are able to be assigned to the Federal Government upon default by the borrower; therefore, no related allowance is considered necessary. Funding received under these programs is ultimately refundable to the Federal Government in the event the University no longer participates and accordingly is reported as a liability in Federal student loan advances in the Consolidated Statements of Financial Position. Determination of the fair value of student loans receivable is not practicable.

Loans receivable are reported at their net realizable value. The University regularly assesses the adequacy of the allowances for credit losses of its loans by performing ongoing evaluations, including such factors as aging, differing economic risks associated with each loan category, financial condition of specific borrowers, economic environment in which the borrowers operate, level of delinquent loans, value of collateral and existence of guarantees or indemnifications.

5. Contributions Receivable

A summary of contributions receivable at June 30, 2018 and 2017, is as follows (in thousands):

	2018	2017
Unconditional promises expected to be collected in:		
Less than one year	$ 134,133	$ 108,885
One year to five years	169,363	144,626
Over five years	29,896	36,588
	333,392	290,099
Less: Discount	(20,912)	(17,187)
Less: Allowances for doubtful amounts	(31,846)	(31,560)
Total Contributions receivable, net	$ 280,634	$ 241,352

At June 30, 2018 and 2017, the University has outstanding unrecorded conditional promises to give, including non-legally binding bequests, of $312,013,000 and $303,926,000, respectively. When they become unconditional promises to give or are received in cash, they will be recorded and generally will be restricted for operations, endowment and capital projects as stipulated by the donors.

6. Investments, at Fair Value

A summary of investments, including the AIF, measured at fair value in accordance with the *Fair Value Measurements* standard, as of June 30, 2018 and June 30, 2017 is as follows (in thousands):

Assets	Level 1	Level 2	Level 3	Investments at NAV	2018
Short-term	$ 996,590				$ 996,590
Equity:					
US equities	808,186			$ 998,766	1,806,952
International equities	353,369			1,027,747	1,381,116
Emerging market equities	163,933			960,603	1,124,536
Total Equity	1,325,488			2,987,116	4,312,604
Debt:					
US treasuries	1,668,642	$ 42,348			1,710,990
Corporate bonds	1,533	156,245		99,581	257,359
High yield				106	106
Total Debt	1,670,175	198,593		99,687	1,968,455
Split-interest agreements	77,817		$ 320,976		398,793
Absolute return				3,176,304	3,176,304
Real estate		59		687,727	687,786
Private equity			8,473	3,182,297	3,190,770
Natural resources	262,132			727,529	989,661
Derivative instruments		10,386			10,386
Other			2,532		2,532
Total assets	$ 4,332,202	$ 209,038	$ 331,981	$ 10,860,660	$ 15,733,881

Assets	Level 1	Level 2	Level 3	Investments at NAV	2017
Short-term	$ 983,371				$ 983,371
Equity:					
US equities	772,121	$ 31		$ 952,865	1,725,017
International equities	462,289			1,052,689	1,514,978
Emerging market equities	128,217			971,792	1,100,009
Total Equity	1,362,627	31		2,977,346	4,340,004
Debt:					
US treasuries	1,292,532	44,756			1,337,288
Corporate bonds	1,615	159,760		105,049	266,424
High yield				142	142
Total Debt	1,294,147	204,516		105,191	1,603,854
Split-interest agreements	74,469		$ 396,029		470,498
Absolute return				2,912,273	2,912,273
Real estate		60		696,563	696,623
Private equity			10,814	2,197,350	2,208,164
Natural resources	237,864	4,036		514,778	756,678
Derivative instruments	2,399	251			2,650
Other			2,513		2,513
Total assets	$ 3,954,877	$ 208,894	$ 409,356	$ 9,403,501	$ 13,976,628

Included in Short-term investments is $158,105,000 and $19,440,000 of amounts held by trustees under indenture and escrow agreements at June 30, 2018 and 2017, respectively.

At June 30, 2018 and 2017, Short-term investments include $70,708,000 and $59,705,000, respectively, of outstanding receivables from trading activities. At June 30, 2018 and 2017, Short-term investments include $50,961,000 and $44,196,000, respectively, of outstanding payables from trading activities.

As of June 30, 2018 and 2017 there were no transfers between Level 1 and 2.

Liabilities related to equity short positions of $289,977,000 and $197,681,000 at June 30, 2018 and 2017, respectively, are reported in Accrued expenses and other liabilities on the Consolidated Statements of Financial Position. These liabilities are valued using observable market data and are categorized as Level 1 based on quoted market prices in active markets.

The University has made investments in various long-lived partnerships and, in other cases, has entered into contractual agreements that may limit its ability to initiate redemptions due to notice periods, lock-ups and gates. The University has also made commitments to various limited partnerships. The University expects these funds to be called over the next 5 years. The total amount of unfunded commitments is $3,214,634,000 which represents 25.9% of the AIF value as of June 30, 2018.

Details on the fair value, remaining estimated life, outstanding commitments, current redemption terms and restrictions by strategy and type of investment are provided below (in thousands):

Strategy	Fair Value June 30, 2018	Fair Value June 30, 2017	Outstanding Commitments	Redemption Terms	Redemption Restrictions
Short-term	$ 996,590	$ 983,371		Daily	None
Equity					
Managed accounts	952,964	870,645		Daily, monthly, and semi-annually with varying notice periods	None
Mutual funds	378,636	364,519		Daily	None
Private funds (1)	2,981,004	3,104,840	$ 140,950	Weekly to annually with varying notice periods	Lock-up provisions ranging from 0 to 5 years; side pocket investments
Total Equity	4,312,604	4,340,004	140,950		
Debt					
Managed accounts	1,868,768	1,498,663		Daily	None
Private funds (1)	99,687	105,191		Daily to annually with varying notice periods	None; side pocket investments
Total Debt	1,968,455	1,603,854			
Absolute return	3,176,304	2,912,273	508,552	Range from monthly to annually and 16 close-ended funds not available for redemption	Lock-up provisions ranging from 0 to 5 years with earlier redemptions subject to redemption fee; 16 close-ended funds not available for redemption, and side pocket investments
Real estate	687,786	696,623	683,426	Close-ended funds not available for redemption	Close-ended funds not available for redemption
Private equity	3,190,770	2,208,164	1,732,395	Close-ended funds not available for redemption	Close-ended funds not available for redemption
Natural resources					
Managed accounts	222,670	202,763		Daily	None
Private funds (1)	766,991	553,915	149,311	Close-ended funds not available for redemption	Close-ended funds not available for redemption
Total Natural Resources	989,661	756,678	149,311		
Totals	$ 15,322,170	$ 13,500,967	$ 3,214,634		

(1) Private funds consist of close-ended and open-ended funds generally in the form of limited partnerships. Close-ended funds have varying remaining fund terms between 1 to 15 years.

Included in Level 1 split-interest agreement investments above are readily marketable assets invested by the University separately from the AIF where the University serves as trustee with an aggregate fair value of $77,817,000 and $74,469,000 at June 30, 2018 and 2017, respectively. Included in these amounts are assets related to the University Academic Component charitable gift annuities totaling $41,147,000 and $40,328,000 at June 30, 2018 and 2017, respectively. Level 3 split-interest agreement investments are managed and invested outside of the University by external trustees.

Invested in the AIF with an aggregate fair value of $167,480,000 and $155,291,000 at June 30, 2018 and 2017, respectively, is a perpetual trust managed by an external trustee who has delegated investment decisions to the University. The University invests the assets of this trust in accordance with its endowment policy.

Included in split-interest agreements are amounts held to meet legally mandated annuity reserves of $28,326,000 and $28,532,000 as of June 30, 2018 and 2017, respectively, as required by the laws of the following states where certain individual donors reside: California, New Jersey and New York.

A summary of Level 3 assets included in split-interest agreements, where the University is not trustee, measured at fair value, as of June 30, 2018 and 2017 is as follows (in thousands):

	2018	2017
Charitable remainder trusts	$ 17,239	$ 15,991
Charitable lead trusts	5,621	92,590
Perpetual trusts	298,116	287,448
Total	$ 320,976	$ 396,029

Changes to the reported amounts of split-interest agreements measured at fair value using unobservable (Level 3) inputs as of June 30, 2018 and 2017 are as follows (in thousands):

	Charitable Remainder Trusts	Charitable Lead Trusts	Perpetual Trusts	Total
June 30, 2017	$ 15,991	$ 92,590	$ 287,448	$ 396,029
Net realized gains			2,346	2,346
Net unrealized gains/(losses)	670	(4,110)	8,322	4,882
Acquisitions	622			622
Liquidations	(44)	(82,859)		(82,903)
June 30, 2018	$ 17,239	$ 5,621	$ 298,116	$ 320,976

	Charitable Remainder Trusts	Charitable Lead Trusts	Perpetual Trusts	Total
June 30, 2016	$ 11,113	$ 113,449	$ 275,483	$ 400,045
Net realized gains			516	516
Net unrealized gains	252	338	16,191	16,781
Acquisitions	4,626	1,340	2,229	8,195
Liquidations		(22,537)	(6,971)	(29,508)
June 30, 2017	$ 15,991	$ 92,590	$ 287,448	$ 396,029

The following tables set forth the fair value, related gains (losses) and notional amounts of the University's derivative instruments by contract type as of June 30, 2018 and 2017 (in thousands):

	2018			
	Notional Amount	Gross Derivative Assets	Gross Derivative Liabilities	Derivative Losses
Foreign currency contracts	$ 126,869	$ 302	$ 6,276	$ (29,513)
Futures contracts	(426,582)	10,084		(56,526)
Options contracts	(11)		153	
Total	$ (299,724)	$ 10,386	$ 6,429	$ (86,039)

	2017			
	Notional Amount	Gross Derivative Assets	Gross Derivative Liabilities	Derivative Losses
Foreign currency contracts	$ 299,533	$ 251	$ 7,976	$ (5,459)
Futures contracts	(348,650)	2,399		(62,062)
Total	$ (49,117)	$ 2,650	$ 7,976	$ (67,521)

The notional amount is representative of the volume and activity of the respective derivative type during the years ended June 30, 2018 and 2017.

Gross derivatives assets and liabilities are shown in Investments, at fair value and Accrued expenses and other liabilities on the Consolidated Statements of Financial Position, respectively. Derivative gains (losses) are shown in Return on investments, net on the Consolidated Statements of Activities, in the appropriate net asset classification.

A summary of the University's total investment return, net of external and direct internal investment expenses, for the years ended June 30, 2018 and 2017 is presented below (in thousands):

	2018	2017
AIF investment income	$ 100,290	$ 80,745
AIF realized and unrealized gains	1,349,913	1,294,544
Return on AIF	1,450,203	1,375,289
Other investment gains	114,961	137,256
Total Return on investments, net	$ 1,565,164	$ 1,512,545

7. Endowment

The composition and changes to the amount of the University's endowment at June 30, 2018 are as follows (in thousands):

	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Donor-restricted endowment funds		$ 3,099,924	$ 3,849,147	$ 6,949,071
Quasi-endowment funds	$ 6,828,370			6,828,370
June 30, 2018	$ 6,828,370	$ 3,099,924	$ 3,849,147	$ 13,777,441

	Quasi Unrestricted	Donor Restricted Temporarily	Donor Restricted Permanently	Total
Net assets, June 30, 2017	$ 5,931,351	$ 2,641,506	$ 3,640,350	$ 12,213,207
Investment return:				
Investment income, net of expenses	48,729	57,911	109	106,749
Gains, realized and unrealized	719,502	674,044	12,677	1,406,223
Total investment return	768,231	731,955	12,786	1,512,972
New gifts	13,786	398	167,495	181,679
Allocation of endowment assets for expenditure	(516,034)			(516,034)
Other investment allocation	(5,871)			(5,871)
Transfers to create board designated funds	198,535			198,535
Other transfers	(3,354)	(3,504)	18,369	11,511
PHCS membership substitution	163,024	8,271	10,147	181,442
Released from restriction	278,702	(278,702)		
Net assets, June 30, 2018	$ 6,828,370	$ 3,099,924	$ 3,849,147	$ 13,777,441

The composition and changes to the amount of the University's endowment as of June 30, 2017 are as follows (in thousands):

	Unrestricted	Temporarily Restricted	Permanently Restricted	Total
Donor-restricted endowment funds		$ 2,641,506	$ 3,640,350	$ 6,281,856
Quasi-endowment funds	$ 5,931,351			5,931,351
June 30, 2017	$ 5,931,351	$ 2,641,506	$ 3,640,350	$ 12,213,207

	Quasi	Donor Restricted		
	Unrestricted	Temporarily	Permanently	Total
Net assets, June 30, 2016	$ 5,161,319	$ 2,143,305	$ 3,410,740	$ 10,715,364
Investment return:				
Investment income, net of expenses	39,871	47,824	149	87,844
Gains, realized and unrealized	707,411	684,311	16,702	1,408,424
Total investment return	747,282	732,135	16,851	1,496,268
New gifts	11,623	29,980	201,970	243,573
Allocation of endowment assets for expenditure	(485,860)			(485,860)
Other investment allocation	(6,559)			(6,559)
Transfers to create board designated funds	245,471			245,471
Other transfers	(8,141)	2,302	10,789	4,950
Released from restriction	266,216	(266,216)		
Net assets, June 30, 2017	$ 5,931,351	$ 2,641,506	$ 3,640,350	$ 12,213,207

The fair value of certain permanently restricted endowment funds is less than the original donated value by $0 and $81,000 as of June 30, 2018 and 2017, respectively, and is reflected as a reduction of Temporarily restricted assets.

8. Property, Plant and Equipment, net

The components of PPE at June 30, 2018 and 2017 are as follows (in thousands):

	Estimated Useful Life in years	2018	2017
Land and land improvements	N/A to 20	$ 431,440	$ 366,960
Buildings and fixed equipment	5 to 50	9,357,800	8,426,732
Moveable equipment and other	4 to 20	1,935,319	1,942,076
Construction-in-progress		929,115	590,926
		12,653,674	11,326,694
Less: Accumulated depreciation		(5,335,055)	(4,874,388)
Property, plant and equipment, net		$ 7,318,619	$ 6,452,306

The University recorded $507,890,000 and $470,716,000 of depreciation expense for the years ended June 30, 2018 and 2017, respectively.

The University capitalized $19,027,000 and $11,272,000 of interest costs for the years ended June 30, 2018 and 2017, respectively.

The University has conditional asset retirement obligations of $20,364,000 and $23,332,000 as of June 30, 2018 and 2017, respectively, which primarily relate to asbestos contained in buildings and underground steam distribution piping and are included within Accrued expenses and other liabilities in the Consolidated Statements of Financial Position.

9. Split-Interest Agreements

Changes in the value of assets, liabilities and net assets pursuant to split-interest agreements as of June 30, 2018 and 2017 are as follows (in thousands):

2018	Assets	Liabilities	Net Assets
June 30, 2017	$ 470,498	$ (47,511)	$ 422,987
New contributions	3,682	(3,770)	(88)
Investment income	2,255	(1,388)	867
Realized and unrealized gain, net	10,920		10,920
Payments and settlements	(88,562)	6,972	(81,590)
Actuarial adjustment		(1,268)	(1,268)
Net change	(71,705)	546	(71,159)
June 30, 2018	$ 398,793	$ (46,965)	$ 351,828

2017	Assets	Liabilities	Net Assets
June 30, 2016	$ 471,768	$ (47,424)	$ 424,344
New contributions	9,647	(2,403)	7,244
Investment income	1,556	(1,470)	86
Realized and unrealized gain, net	22,672		22,672
Payments and settlements	(35,145)	7,081	(28,064)
Actuarial adjustment		(3,295)	(3,295)
Net change	(1,270)	(87)	(1,357)
June 30, 2017	$ 470,498	$ (47,511)	$ 422,987

10. Contingencies, Guarantees and Commitments

The University offers various loan programs for students and families to pay tuition, fees and other costs. Certain loans issued by private lending institutions are guaranteed by the University totaling $37,613,000 and $49,410,000 at June 30, 2018 and 2017, respectively. Upon default by the borrower, the University is required to pay all or a portion of the outstanding loan balance. The University recognizes a liability for the greater of the fair value of the guarantee or defaults in the portfolio of guaranteed loans. The recognized liability is $3,299,000 and $3,666,000 at June 30, 2018 and 2017, respectively and reflects the fair value of the guarantee on these outstanding loan balances.

Various lawsuits, claims and other contingent liabilities arise in the ordinary course of the University's education and health care activities. Based upon information currently available, management believes that any liability resulting therefrom will not materially affect the financial position or operations of the University.

The University is currently involved in various projects that have resulted in capital and property acquisition commitments from the University. As of June 30, 2018, approximately $419,016,000 has been committed by the University.

11. Pension and Other Postretirement Benefit Costs

Retirement benefits are principally provided to employees through contributory defined contribution plans. The Academic Component's policy with respect to its contribution is to provide up to 9% of eligible employees' salaries, while the UPHS contribution can be up to 6.5%. The University's contributions to these plans amounted to $194,597,000 and $176,023,000 as of June 30, 2018 and 2017, respectively.

The University also has non-contributory defined benefit pension plans. Benefits under the plans generally are based on the employee's years of service and compensation during the years preceding retirement. Contributions to the plans are made in amounts necessary to at least satisfy the minimum required contributions as specified in the Internal Revenue Service Code and related regulations. The Academic Component's plan was frozen to new full-time entrants effective July 1, 2000 and part-time entrants effective July 1, 2018. UPHS' primary plan was frozen to new entrants effective July 1, 2010; the benefit accruals for all participants of the LGH and PHCS plans were frozen effective June 30, 2013 and December 31, 2011, respectively.

During the year ended June 30, 2018, certain terminated vested participants in the UPHS and LGH defined benefits plans were fully paid out their pension benefits as part of a one-time vested termination cashout offering (VTCO). The PBO and ABO as of June 30, 2018 reflect the pay-out of benefits for these participants. The total lump sum payments from the VTCO were $156,928,000.

Additionally, the University provides certain healthcare and life insurance benefits (OPEB) for retired employees. Only a limited number of employees may become eligible for such benefits if they reach retirement age while working for the University. These and similar benefits for active and certain retired employees are provided through insurance contracts.

The University uses a measurement date of June 30 for its defined benefit pension and OPEB plans.

Change in Plan Assets/ Obligation and Funded Status

The funded status of the plans is measured as the difference between the plan assets at fair value and the projected benefit obligation (PBO) for Pension Benefits or accumulated postretirement benefit obligation (APBO) for Other Postretirement Benefits. The resulting net liability is recorded in Accrued retirement benefits on the Statements of Financial Position. The following shows changes in the benefit obligation, plan assets and funded status (in thousands):

2018	Pension Benefits	Other Postretirement Benefits	Total
Change in Plan Assets			
Fair value of plan assets, beginning of year	$ 2,371,317	$ 444,723	$ 2,816,040
University contributions	109,568	35,614	145,182
Plan participants' contributions	158	7,873	8,031
Actual return on plan assets	216,840	51,673	268,513
Acquisition	139,791		139,791
Benefits paid	(246,876)	(34,543)	(281,419)
Fair value of plan assets, end of year	$ 2,590,798	$ 505,340	$ 3,096,138

Change in Benefit Obligation			
Benefit obligation, beginning of year (PBO/APBO)	$ 3,262,668	$ 913,685	$ 4,176,353
Service cost	70,041	30,240	100,281
Interest cost	137,472	36,044	173,516
Plan participants' contributions	158	7,873	8,031
Acquisition	167,552		167,552
Net actuarial (gain)/loss	(71,366)	(36,932)	(108,298)
Benefits paid	(246,876)	(34,543)	(281,419)
Benefit obligation, end of year (PBO/APBO)	$ 3,319,649	$ 916,367	$ 4,236,016
Funded status, end of year	**$ 728,851**	**$ 411,027**	**$ 1,139,878**
Other retirement programs			101,429
Accrued retirement benefits			$ 1,241,307

2017	Pension Benefits	Other Postretirement Benefits	Total
Change in Plan Assets			
Fair value of plan assets, beginning of year	$ 2,082,315	$ 379,925	$ 2,462,240
University contributions	128,454	34,699	163,153
Plan participants' contributions	160	7,293	7,453
Actual return on plan assets	239,431	52,154	291,585
Benefits paid	(79,043)	(29,348)	(108,391)
Fair value of plan assets, end of year	$ 2,371,317	$ 444,723	$ 2,816,040
Change in Benefit Obligation			
Benefit obligation, beginning of year (PBO/APBO)	$ 3,165,114	$ 920,401	$ 4,085,515
Service cost	75,092	32,454	107,546
Interest cost	130,172	35,796	165,968
Plan participants' contributions	160	7,293	7,453
Plan amendments		(1,749)	(1,749)
Transfers		(3,285)	(3,285)
Net actuarial (gain)/loss	(28,827)	(47,877)	(76,704)
Benefits paid	(79,043)	(29,348)	(108,391)
Benefit obligation, end of year (PBO/APBO)	$ 3,262,668	$ 913,685	$ 4,176,353
Funded status, end of year	**$ 891,351**	**$ 468,962**	**$ 1,360,313**
Other retirement programs			88,105
Accrued retirement benefits			$ 1,448,418

The Accumulated Benefit Obligation for the Pension Benefits was $2,975,984,000 and $2,925,489,000 at June 30, 2018 and 2017, respectively.

Net Periodic Benefit Cost

The components of net periodic benefit cost for pension benefits and other postretirement benefits are as follows (in thousands):

2018	Pension Benefits	Other Postretirement Benefits	Total
Net Periodic Cost			
Service cost	$ 70,041	$ 30,240	$ 100,281
Interest cost	137,472	36,044	173,516
Expected return on plan assets	(176,009)	(32,726)	(208,735)
Amortization of:			
Net prior service cost		(323)	(323)
Net losses	40,827	5,971	46,798
Net periodic benefit cost	$ 72,331	$ 39,206	$ 111,537

2017			
Net Periodic Cost			
Service cost	$ 75,092	$ 32,454	$ 107,546
Interest cost	130,172	35,796	165,968
Expected return on plan assets	(156,124)	(28,674)	(184,798)
Amortization of:			
Net prior service cost		(121)	(121)
Net losses	53,220	11,529	64,749
Net periodic benefit cost	$ 102,360	$ 50,984	$ 153,344

Unrestricted Net Assets

The University recorded the following year-end valuation adjustments to its Pension and Other Postretirement Benefit Plans in Pension, OPEB and Other, net in the Consolidated Statements of Activities (in thousands):

2018	Pension Benefits	Other Postretirement Benefits	Total
Unrestricted Net Assets			
Net actuarial loss	$ 585,806	$ 115,078	$ 700,884
Net prior service cost/(credit)		(3,146)	(3,146)
Total	$ 585,806	$ 111,932	$ 697,738
Adjustment to unrestricted net assets (gain)/loss	$ (153,023)	$ (61,924)	$ (214,947)

2017			
Unrestricted Net Assets			
Net actuarial loss	$ 738,829	$ 177,325	$ 916,154
Net prior service cost/(credit)		(3,469)	(3,469)
Total	$ 738,829	$ 173,856	$ 912,685
Adjustment to unrestricted net assets (gain)/loss	$ (165,352)	$ (84,517)	$ (249,869)

The estimated amount that will be amortized from Unrestricted Net Assets into net periodic benefit cost in 2019 is as follows (in thousands):

	Pension Benefits	Other Postretirement Benefits
Amortization of prior service credit		$ (387)
Amortization of net losses	$ 30,984	2,461

Actuarial Assumptions

The expected long-term rate of return on plan assets is management's best estimate of the average investment return expected to be received on the assets invested in the plan over the benefit period. The expected long-term rate of return on plan assets has been established by considering historical and future expected returns of the asset classes invested in by the pension trust, and the allocation strategy currently in place among those classes.

	Pension Benefits		Other Postretirement Benefits	
Weighted-Average Assumptions Used to Determine Benefit Obligations at Year End	**2018**	**2017**	**2018**	**2017**
Discount rate	4.28%	4.19%	4.29%	4.00%
Salary increase	3.03%	2.91%	N/A	N/A
Weighted-Average Assumptions Used to Determine Net Periodic Benefit Cost				
Discount rate	4.24%	4.23%	4.00%	3.95%
Expected long-term return on plan assets	7.46%	7.52%	7.50%	7.50%
Salary increase	3.99%	3.82%	N/A	N/A
Assumed Health Care Cost Trend Rates				
Initial trend rate	N/A	N/A	6.54%	6.54%
Ultimate trend rate	N/A	N/A	4.71%	4.70%
Fiscal year end that ultimate trend rate is reached	N/A	N/A	2037	2037

Assumed health care cost trend rates have a significant effect on the amounts reported for the Other postretirement benefits. A one-percentage-point change in assumed health care trend rates would have the following effects on Other postretirement benefits (in thousands):

	1-Percentage Point Increase	1-Percentage Point Decrease
2018		
Effect on total of service and interest cost	$ 14,876	$ (11,261)
Effect on APBO	166,322	(130,445)

Expected Contributions

The University expects to contribute $86,865,000 and $34,187,000 for pension benefits and other postretirement benefits, respectively, during the fiscal year ending June 30, 2019.

Expected Benefits Payments (in thousands):

Expected benefit payments for the year ending:	Pension Benefits	Other Postretirement Benefits before Medicare Part D Subsidy	Impact of Medicare Part D Subsidy
June 30, 2019	$ 115,183	$ 27,709	$ 162
June 30, 2020	119,320	29,825	169
June 30, 2021	126,793	32,068	174
June 30, 2022	134,903	34,241	180
June 30, 2023	142,867	36,175	184
June 30, 2024 to June 30, 2028	847,669	212,314	973

Plan Assets and Allocations

The principal investment objectives for the pension and other postretirement benefits plans are to ensure the availability of funds to pay pension benefits as they become due under a broad range of future economic scenarios, to maximize long-term investment returns with an acceptable level of risk based on the pension obligations, and to invest the pension trust in a diversified manner.

The University's Office of Investments is responsible for the day-to-day management of the majority of the investments of the pension and other postretirement benefits. The investments are made in accordance with policies set out by the Investment Board which has been appointed by the Trustees. The pension and other postretirement benefit investments are similar in nature to those investments discussed in Notes 1 and 6 – Investments, at Fair Value. However, the actual allocations to specific investments within each asset class may vary due to certain restrictions imposed by investment managers and ERISA regulations.

A summary of plan assets, measured at fair value, as of June 30, 2018 and 2017, is as follows (in thousands):

Pension Benefits:

Assets	Level 1	Level 2	Level 3	Investments at NAV	2018
Short-term	$ 63,769				$ 63,769
Equity:					
US equities	307,663	$ 328		$ 150,046	458,037
International equities	142,875			250,654	393,529
Emerging market equities	6,395			141,825	148,220
Debt:					
US treasuries	288,406	8,400			296,806
Corporate bonds	36,829	79,764		154,097	270,690
Absolute return	13,335			520,465	533,800
Real estate				45,198	45,198
Private equity	3,868			179,116	182,984
Natural resources	105,564	1,210		91,116	197,890
Derivative instruments:					
Forward currency contracts		65			65
Total assets	$ 968,704	$ 89,767	$ -	$ 1,532,517	$ 2,590,988

Liabilities	Level 1	Level 2	Level 3	Investments at NAV	2018
Derivative instruments		$ 190			$ 190
Total liabilities	$ -	$ 190	$ -	$ -	$ 190

Assets	Level 1	Level 2	Level 3	Investments at NAV	2017
Short-term	$ 121,646				$ 121,646
Equity:					
US equities	284,518			$ 178,754	463,272
International equities	125,750			239,604	365,354
Emerging market equities	45,327			132,157	177,484
Debt:					
US treasuries	241,530	$ 8,577			250,107
Corporate bonds		67,783		154,745	222,528
Absolute return				457,776	457,776
Real estate				43,298	43,298
Private equity				97,601	97,601
Natural resources	92,926	1,353		77,935	172,214
Derivative instruments:					
Forward currency contracts		68			68
Total assets	$ 911,697	$ 77,781	$ -	$ 1,381,870	$ 2,371,348

Liabilities	Level 1	Level 2	Level 3	Investments at NAV	2017
Derivative instruments		$ 31			$ 31
Total liabilities	$ -	$ 31	$ -	$ -	$ 31

Other Postretirement Benefits:

Assets	Level 1	Level 2	Level 3	Investments at NAV	2018
Short-term	$ 26,269				$ 26,269
Equity:					
US equities	6,123			$ 57,429	63,552
International equities	6,878			83,354	90,232
Emerging market equities	3,240			40,349	43,589
Debt:					
US treasuries	25,351				25,351
Corporate bonds		$ 282		10,165	10,447
Absolute return				154,140	154,140
Real estate				14,337	14,337
Private equity				34,457	34,457
Natural resources	34,928	526		7,535	42,989
Derivative instruments:					
Forward currency contracts		34			34
Total	$ 102,789	$ 842	$ -	$ 401,766	$ 505,397

Liabilities	Level 1	Level 2	Level 3	Investments at NAV	2018
Derivative instruments		$ 57			$ 57
Total	$ -	$ 57	$ -	$ -	$ 57

Assets	Level 1	Level 2	Level 3	Investments at NAV	2017
Short-term	$ 36,651				$ 36,651
Equity:					
US equities	15,751			$ 57,364	73,115
International equities	7,189			76,747	83,936
Emerging market equities	13,647			32,985	46,632
Debt:					
US treasuries	18,977				18,977
Corporate bonds		$ 372		10,071	10,443
Absolute return				114,904	114,904
Real estate				8,732	8,732
Private equity				16,853	16,853
Natural resources	29,617	587		4,263	34,467
Derivative instruments:					
Forward currency contracts		24			24
Total	$ 121,832	$ 983	$ -	$ 321,919	$ 444,734

Liabilities	Level 1	Level 2	Level 3	Investments at NAV	2017
Derivative instruments		$ 11			$ 11
Total	$ -	$ 11	$ -	$ -	$ 11

As of June 30, 2018, the University has unfunded commitments to limited partnerships totaling $369,938,000, which are expected to be called over the next 5 years.

Transfers between leveled assets are based on the actual date of the event which caused the transfer. As of June 30, 2018 and 2017 there were no transfers between Level 1 and 2.

2018	Pension Benefits		Other Postretirement Benefits	
Allocation of Plan Assets	Target	Actual	Target	Actual
Short-term	0.0%	2.5%	0.0%	5.2%
Equity:				
US equities	16.6%	17.7%	13.0%	12.6%
International equities	14.9%	15.2%	19.0%	17.9%
Emerging markets equities	6.8%	5.7%	10.0%	8.6%
Debt:				
US treasuries	22.9%	11.5%	10.0%	5.0%
Corporate bonds	1.4%	10.4%	0.0%	2.1%
Absolute return	21.2%	20.6%	29.0%	30.5%
Real estate	2.1%	1.7%	3.0%	2.8%
Private equity	5.8%	7.1%	5.0%	6.8%
Natural resources	8.3%	7.6%	11.0%	8.5%
Total	100.0%	100.0%	100.0%	100.0%

12. Debt Obligations

Debt obligations at June 30, 2018 and 2017 are as follows (in thousands):

	Final Maturity	Effective Interest Rate at June 30, 2018	2018	2017
Academic Component:				
Fixed rate debt obligations:				
The Trustees of the University of Pennsylvania				
Series 2012 Taxable Bonds	09/2112	4.67%	$ 300,000	$ 300,000
Pennsylvania Higher Educational Facilities Authority (PHEFA)				
Series A of 2017 revenue bonds	08/2046	2.26% - 3.72%	178,395	178,395
Series A of 2016 revenue bonds	08/2041	0.78% - 2.93%	168,565	169,635
Series A of 2015 revenue bonds	10/2045	0.95% - 2.99%	196,110	200,985
Series B of 2015 revenue bonds	10/2038	0.95% - 3.38%	162,395	163,795
Series C of 2015 revenue bonds	10/2035	3.68%	8,020	8,020
Series A of 2011 revenue bonds	09/2021	2.92% - 3.68%	11,125	11,125
Series of 2010 revenue bonds	09/2033	3.99% - 4.15%	16,935	16,935
Series B of 2009 revenue bonds	09/2020	3.51% - 3.99%	6,545	8,570
Series C of 2009 revenue bonds	09/2019	3.51% - 3.70%	7,970	11,635
Other loans	05/2031	1.00% - 4.91%	12,663	914
Variable rate debt obligations:				
PHEFA Series of 1990 revenue bonds	12/2020	1.73%	6,500	6,500
Washington County Authority Series of 2004	07/2034	1.00%	53,400	53,400
Total Academic Component outstanding bonds payable			1,128,623	1,129,909
Unamortized issuance costs, premiums and discounts, net			73,032	78,304
Total Academic Component debt obligations			$ 1,201,655	$ 1,208,213
UPHS:				
Fixed rate debt obligations:				
Lancaster County Hospital Authority (LCHA)				
Series A of 2016 revenue bonds	08/2042	0.84% - 3.25%	$ 164,540	$ 168,585
Series B of 2016 revenue bonds	08/2046	1.43% - 3.22%	128,050	128,050
PHEFA				
Series A of 2017 revenue bonds	08/2047	2.60% - 3.68%	400,000	
Series C of 2016 revenue bonds	08/2041	0.62% - 3.08%	129,015	129,290
Series A of 2015 revenue bonds	08/2045	1.10% - 4.00%	300,445	324,855
Series A of 2012 revenue bonds	08/2042	1.66% - 4.08%	136,950	136,950
Series A of 2009 revenue bonds	08/2021	4.20% - 4.91%	33,005	43,110
Series B of 2008 revenue bonds	08/2037	5.65% - 6.00%	52,000	52,000
New Jersey Health Care Facilities Financing Authority (NJHCFFA)				
Princeton Healthcare System Series A of 2016	07/2045	1.51% - 4.08%	183,440	
University of Pennsylvania Health System Taxable Note	08/2047	4.08%	200,000	
Lancaster General Hospital 2015 Taxable Note	08/2022	2.66%	72,805	75,211
Build to suit lease, net of related interest	Various	N/A	122,860	123,013
Mortgages, notes and capital leases	Various	Various	25,986	23,443
Variable rate debt obligations:				
NJHCFFA Princeton Healthcare System Series B of 2016	07/2045	1.05% - 1.18%	65,000	
NJHCFFA Princeton Healthcare System Series C of 2016	07/2045	1.24% - 1.37%	20,000	
LCHA Series A of 2012 revenue bonds	08/2041	1.58%	22,775	23,375
PHEFA Series A of 2014 revenue bonds	08/2045	0.89%	100,000	100,000
PHEFA Series A of 2008 revenue bonds	08/2037	1.51%	69,995	69,995
Total UPHS outstanding bonds payable			2,226,866	1,397,877
Unamortized issuance costs, premiums and discounts, net			145,671	96,860
Total UPHS debt obligations			2,372,537	1,494,737
Total University debt obligations			$ 3,574,192	$ 2,702,950

Contractual maturities of debt obligations and build-to-suit lease payments are as follows (in thousands):

	Academic Component	UPHS			University
Fiscal Year	Bond and Other Loan Obligations	Bond and Other Loan Obligations	Build-to-Suit Lease Payments	Total	Total
2019	$ 31,348	$ 97,633	$ 10,742	$ 108,375	$ 139,723
2020	16,540	47,619	10,992	58,611	75,151
2021	27,490	49,708	11,249	60,957	88,447
2022	18,356	57,225	11,512	68,737	87,093
2023	21,907	113,316	11,781	125,097	147,004
Thereafter	1,012,982	1,738,505	145,633	1,884,138	2,897,120
Total Principal	1,128,623	2,104,006	201,909	2,305,915	3,434,538
Unamortized issuance costs, premiums and discounts, net	73,032	145,671		145,671	218,703
Build-to-suit lease related interest			(79,049)	(79,049)	(79,049)
Total debt obligation	$ 1,201,655	$ 2,249,677	$ 122,860	(a) $ 2,372,537	$ 3,574,192

(a) Present value of future lease payments

The University has letters of credit with various financial institutions to secure certain self-insured liabilities in the amount of $10,556,000 and $8,081,000 at June 30, 2018 and 2017, respectively. These letters of credit have evergreen provisions for automatic renewal. There have been no draws under these letters of credit.

Academic Component

On January 19, 2017, Pennsylvania Higher Educational Facilities Authority (PHEFA) issued Series A of 2017 revenue bonds (PHEFA 2017A bonds) with an aggregate principal amount of $178,395,000. The proceeds were used to fund or reimburse the University for the cost of various capital projects. Interest on the PHEFA 2017A bonds is fixed with coupons ranging between 4.00% to 5.00%.

The University has variable rate debt in the amount of $59,900,000 which is subject to optional tender by the holders upon seven days' notice. These bonds are reflected in the table above based on original scheduled maturities. In the event that the University receives notice of any optional tender on its variable rate demand bonds, the purchase price will be repaid from the remarketing of the bonds. However, in the event that the entire remarketing effort were to fail, the University would have the general obligation to purchase the bonds.

On June 14, 2016, the University entered into a five year agreement with a financial institution, whereby the institution has agreed to provide a line of credit in the amount of $100,000,000 for general purposes of the University. The University pays a fee annually on the unused amount of the line of credit. As of June 30, 2018, there have been no draws under the agreement.

UPHS

The PHEFA Revenue Bonds, Lancaster County Hospital Authority (LCHA) Revenue Bonds and New Jersey Health Care Facilities Financing Authority (NJHCFFA) Revenue Bonds are secured by master notes issued under the UPHS Master Trust Indenture (MTI). The MTI and related agreements contain certain restrictive covenants which limit the issuance of additional indebtedness, and among other things, require UPHS to meet an annual debt service coverage requirement of "income available for debt service" (excess of revenue over expenses plus depreciation, amortization, interest expense and extraordinary items) at an amount equal to 110% of the annual debt service requirements. If the coverage requirement for a particular year is not met, within six months of the close of that fiscal year, UPHS must retain the services of a consultant to make recommendations to improve the coverage requirement. UPHS must also implement the

recommendations of the consultant to the extent that they can be feasibly implemented. UPHS will not be considered to be in default of the provisions of the MTI so long as UPHS has sufficient cash flow to pay total operating expenses and debt service for the fiscal year. In both 2018 and 2017, UPHS met its debt service coverage requirement under the MTI. Additionally, UPHS has pledged its gross revenues to secure its obligation under the MTI.

The NJHCFFA PHCS Series A, B and C of 2016 were issued on January 20, 2016 for the purpose of refinancing a majority of the outstanding PHCS debt through bond issuance and direct placement obligations.

On December 13, 2017, PHEFA issued Series A of 2017 Health System revenue bonds (PHEFA UPHS 2017A bonds) with an aggregate principal amount of $400,000,000. Proceeds of $171,600,000 were used to fund or reimburse the Health System for the cost of various capital projects. The remaining proceeds of $269,200,000, including the issuance premium, were deposited in a capital project fund held by trustee to be drawn upon for future capital expenditures. This portion of the financing is reflected as a noncash transaction in the Statement of Cash Flows. Future reimbursements from the capital project fund will be accounted for as a cash inflow from investing activities in the Statement of Cash Flows. Interest on the PHEFA UPHS 2017A bonds is fixed with coupons ranging between 3.125% to 5.00%.

On December 13, 2017, The Trustees of the University of Pennsylvania issued 4.008% Taxable Health System Bonds. (UPHS Taxable 2017 bonds) with an aggregate principal amount of $200,000,000. The proceeds were used to fund or reimburse the Health System for the cost of various capital projects. Interest on the PHEFA UPHS 2017A bonds is fixed with coupon of 4.008%.

On August 25, 2016, PHEFA issued Series C of 2016 Health System refunding revenue bonds (PHEFA UPHS 2016C bonds) with an aggregate principal amount of $129,290,000. The proceeds were used to fund an escrow which will be used to refund $123,400,000 from PHEFA UPHS Series A of 2011 bonds. The refunded PHEFA UPHS Series A of 2011 bonds were legally defeased, and as such, are no longer included among UPHS's reported liabilities. Interest on the PHEFA UPHS 2016C bonds is fixed with coupons ranging between 2.00% to 5.00%.

As a result of the legal defeasance of debt associated with the issuance of PHEFA UPHS 2016C bonds, UPHS reported a loss on early extinguishment of debt in Pension, OPEB and other, net on the Consolidated Statements of Activities in the amount of $27,947,000 for the year ended June 30, 2017.

UPHS has variable rate debt in the amount of $69,995,000 which is subject to optional tender by the holders upon seven days' notice. These bonds are reflected in the debt obligations maturity table above based on original scheduled maturities. In the event that UPHS receives notice of any optional tender on its variable rate demand bonds, the purchase price will be repaid from the remarketing of the bonds. However, in the event that the entire remarketing effort were to fail, UPHS has in place a renewable direct pay letter of credit issued by Bank of America with an expiration date of April 15, 2023. In the event that the letter of credit cannot be drawn upon, UPHS would have the general obligation to purchase the bonds.

On April 13, 2016, UPHS entered into a three year agreement with a financial institution, whereby the institution has agreed to provide a line of credit in the amount of $100,000,000 for general purposes of UPHS. UPHS pays a fee annually on the unused amount of the line of credit. As of June 30, 2018, there have been no draws under the agreement.

Interest Rate Swap Agreements

The University enters into interest rate swap agreements to synthetically modify the interest rate terms of its long term debt portfolio. These agreements are not entered into for trading or speculative purposes. Fair value of these agreements is determined by obtaining quotes from Goldman Sachs Mitsui Marine Derivative Products, L.P. (GSMMDP) and Merrill Lynch, respectively, which are based on the income approach, using observable market data to discount future net payment streams and accordingly considers this to be a Level 2 measurement. The quotes provided also represent the amount the University would accept or be required to pay to transfer the agreement to GSMMDP and Merrill Lynch,

respectively, or exit price as defined by the Fair Value Measurements standard. The University also takes into account the risk of nonperformance. On January 1, 2018 UPHS exercised its option to terminate early the $69,995,000 notional value swap resulting in a market value adjustment gain of $164,000.

The following table summarizes the terms of the University's remaining interest rate swap agreements (in thousands):

	Academic Component	UPHS		
Notional Amounts	$ 101,950	$ 22,775	$ 21,395	$ 21,395
Trade Date	11/6/2007	7/28/2006	7/15/2009	1/7/2010
Maturity Date	7/1/2034	7/1/2041	8/15/2023	8/15/2023
Rates:				
Receive	67% of 1-Month LIBOR	70% of 1-month LIBOR	3.184%	2.902%
Pay	3.573%	3.980%	SIFMA index	SIFMA index

The following tables summarize the fair value of the interest rate swap agreements, not designated as hedging instruments, as of June 30, 2018 and 2017, and the related gains/(losses) on the interest rate swap agreements, both realized and unrealized, for the years ended June 30, 2018 and 2017 (in thousands):

Consolidated Statements of Position	**Line Item**	**2018**	**2017**
Asset interest rate swaps			
UPHS	Other assets	$ 1,292	$ 2,635
Total Asset interest rate swaps		$ 1,292	$ 2,635
Liability interest rate swaps			
Academic Component	Accrued expenses and other liabilities	$ 15,922	$ 21,929
UPHS	Accrued expenses and other liabilities	4,799	7,524
Total Liability interest rate swaps		$ 20,721	$ 29,453

Consolidated Statements of Activities	**Line Item**	**2018**	**2017**
Academic Component	Return on investments, net	$ 3,175	$ 6,424
UPHS	Return on investments, net	(323)	(767)
Total		$ 2,852	$ 5,657

13. Net Assets

The major components of net assets at June 30, 2018 and 2017 are as follows (in thousands):

2018	Unrestricted	Temporarily restricted	Permanently restricted	Total
General operating	$ 4,259,171	$ 306,506		$ 4,565,677
Sponsored programs	57,502			57,502
Capital		118,493		118,493
Student loans	7,949			7,949
Planned giving agreements		29,312	$ 17,592	46,904
Endowment	6,828,370	3,099,924	3,849,147	13,777,441
Total	$ 11,152,992	$ 3,554,235	$ 3,866,739	$ 18,573,966

2017	Unrestricted	Temporarily restricted	Permanently restricted	Total
General operating	$ 3,482,264	$ 267,246		$ 3,749,510
Sponsored programs	42,749			42,749
Capital		84,411		84,411
Student loans	10,174	1,291	$ 17,152	28,617
Planned giving agreements		113,599	15,340	128,939
Endowment	5,931,351	2,641,506	3,640,350	12,213,207
Total	$ 9,466,538	$ 3,108,053	$ 3,672,842	$ 16,247,433

14. Operating Leases

The University leases research labs, office space and equipment under operating leases expiring through December 2043. Rental expense for the years ended June 30, 2018 and 2017 totaling $114,060,000 and $99,417,000, respectively, is included in the accompanying Consolidated Statements of Activities.

At June 30, 2018, future minimum lease payments under existing operating leases were as follows (in thousands):

2019	$ 97,936
2020	82,488
2021	74,077
2022	63,582
2023	52,951
Thereafter	338,454
Total Minimum lease payments	$ 709,488

15. Functional Classification of Expenditures

Expenses for the years ended June 30, 2018 and 2017 are categorized on a functional basis as follows (in thousands):

	2018					2017
	Compensation and benefits	Depreciation and amortization	Interest on indebtedness	Other operating expense	Total	Total
Instruction	$ 893,751	$ 66,893	$ 5,952	$ 442,956	$ 1,409,552	$ 1,333,880
Research	439,251	41,647	22,284	336,450	839,632	798,539
Hospital and physician practices	3,634,858	309,259	54,800	2,378,661	6,377,578	5,736,697
Auxiliary enterprises	35,030	35,347	5,879	88,028	164,284	160,193
Other educational activities	148,560	14,504	686	39,256	203,006	183,973
Student services	55,044	-	149	43,437	98,630	98,527
Academic support	38,816	16,209	239	36,669	91,933	179,571
Management and general	243,557	20,130	310	40,086	304,083	287,445
Independent operations	8,062	5,932	177	58,150	72,321	72,106
Total	$ 5,496,929	$ 509,921	$ 90,476	$ 3,463,693	$ 9,561,019	$ 8,850,931

Operation and maintenance of PPE and depreciation are allocated to functional classifications based on square footage. Interest expense is allocated to the functional classifications of the activity that directly benefited from the proceeds of the debt.

16. Subsequent Events

The University has evaluated subsequent events for the period from June 30, 2018 through September 27, 2018, the date the consolidated financial statements were issued.

Schedule of Expenditures of Federal Awards

University of Pennsylvania
Schedule of Expenditures
For the year ended June 30, 2018

Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Research and Development Cluster							
DEPARTMENT OF AGRICULTURE							
DEPARTMENT OF AGRICULTURE							
Microbial culture studies to develop a stable human microbiota community	10.001		58-8072-6-027		9,748		9,748
10.001 Total					**9,748**		**9,748**
Maintenance of Membership Laboratory Requirements	10.025		AP17VSNVSL00C010		112,125		112,125
Maintenance of Membership Laboratory Requirements	10.025		AP18VSNVSL00C025		591		591
10.025 Total					**112,716**		**112,716**
95-1801: EXPERIMENTAL CAMPYLOBACTER VACCINE	10.206		95-37201-1980		-126		-126
10.206 Total					**-126**		**-126**
PENV FORMULA CIP GRANT FY16	10.207		2016-36100-05148		17,666		17,666
10.207 Total					**17,666**		**17,666**
Food Retailers' Response to SNAP	10.250		58-4000-5-0092		46,171		46,171
10.250 Total					**46,171**		**46,171**
Allelic variation of Salmonella colonization factors	10.310		2013-67015-21285		1,545		1,545
Improving honey bee queen quality using in vitro artificial selection and sociogenomics	10.310		2014-67013-21725	12,079	122,250		122,250
Robot Swarms and Human Scouts for Persistent Monitoring of Specialty Crops	10.310		2015-67021-23857	37,737	222,149		222,149
Role of fish immunoglobulin IgT in skin and gill mucosal immune and protective responses	10.310		2013-67015-21225		7,131		7,131
Engineering Cellulose Nanomaterials with High Toughness	10.310		2017-67021-26601		59,135		59,135
Nanostructure-Enhanced Solution-Phase Nanoplasmonic Biosensing Devices For Rapid Detection of Foodborne Pathogens	10.310	UNIVERSITY OF NEVADA, LAS VEGAS	17-22RD-1			28,634	28,634
Fish mucosal CD4+ T cells and their association with B cells: Implications for the induction of mucosal immune responses	10.310		2017-67015-26910		133,865		133,865
Deciphering the crosstalk between bacteria-archaea interactions in the rumen and methane-yield phenotype of dairy cows	10.310		2018-67015-27494		3,603		3,603
10.310 Total				**49,816**	**549,678**	**28,634**	**578,312**
Evaluating Nutrient Cycling in the Urban Environment: A Collaborative Research Approach	10.679		14-JV-11242308-138		12,945		12,945
10.679 Total					**12,945**		**12,945**
USDA FORMULA FUNDS	10.RD				-177		-177
10.RD Total					**-177**		**-177**
DEPARTMENT OF AGRICULTURE Total				49,816	748,621	28,634	777,255
DEPARTMENT OF AGRICULTURE Total				***49,816***	***748,621***	***28,634***	***777,255***
DEPARTMENT OF COMMERCE							
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY							
Proposal for Codes and Standards Public Policy Case Studies	11.620		70NANB15H344		18,159		18,159
Proposal for Course Modules on Codes, Standards, and the Law	11.620		70NANB15H343		22,530		22,530
11.620 Total					**40,689**		**40,689**
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY Total					40,689		40,689
DEPARTMENT OF COMMERCE Total					***40,689***		***40,689***
DEPARTMENT OF DEFENSE							
AIR FORCE OFFICE OF SCIENTIFIC RESEARCH							
Deep Lifelong Reinforcement Learning for Resilient Control and Coordination	12.300		FA8750-16-1-0109		279,900		279,900
12.300 Total					**279,900**		**279,900**
ACTIVE METASURFACES FOR ADVANCED WAVEFRONT ENGINEERING AND WAVEGUIDE	12.800	HARVARD UNIVERSITY	123885-5079398			118,010	118,010
Atomic Force Microscopy and Surface Spectroscopy Instrumentation to Enable Nanoscale Tribology and Materials Research	12.800		FA9550-16-1-0525		39,127		39,127
Fundamental Studies of Endothermic Reforming Reactions on Acid Catalysts	12.800		FA9550-14-1-0302		91,162		91,162
Neural Bases of Persuasion and Social Influence in the U.S. and the Middle East	12.800	UNIVERSITY OF CALIFORNIA, LOS ANGELES	0875 G SA495			153,871	153,871
THREE APPROACHES TO THE CONTROL OF INTELLIGENT SENSING	12.800	WRIGHT STATE UNIVERSITY	669737-1			547,664	547,664
ULTRALOW POWER, ULTRAFAST, INTEGRATED NANO-OPTOELECTRONICS	12.800	UNIVERSITY OF TEXAS AT AUSTIN	UTA16-001254			156,434	156,434
Ultrastrong Carbon Thin Films from Diamond to Graphene under Extreme Conditions: Probing Atomic-Scale Interfacial Mechanisms to Achieve Ultralow Friction and Wear	12.800		FA2386-15-1-4109		19,896		19,896
UNDERSTANDING COGNITIVE DECISION MAKING VIA NEAREST NEIGHBOR ALGORITHMS IN MACHINE LEARNING	12.800		FA9550-15-1-0002	60,000	155,623		155,623
Variable Topology Truss for Robotic Humanitarian Missions	12.800		FA2386-17-1-4656		140,564		140,564
Non-Hermitian Topological Photonics	12.800		FA9550-18-1-0133		42,079		42,079
Quantum Metaphotonics and Metamaterials: From Single Emitters to Strongly Correlated Systems	12.800	BROWN UNIVERSITY	00000555/PO #P280816			8,133	8,133
12.800 Total				**60,000**	**488,451**	**984,112**	**1,472,563**
Scalable and Highly Sensitive Transistors Using 2-D Materials	12.RD	GRAPHENE FRONTIERS	S-875-191-005			-6,895	-6,895
Specification and Correct-By-Construction Synthesis of ControlProtocols for Adaptable, Human-Embedded Autonomy	12.RD		FA8650-15-C-2546	19,990	95,702		95,702
12.RD Total				**19,990**	**95,702**	**-6,895**	**88,807**
AIR FORCE OFFICE OF SCIENTIFIC RESEARCH Total				79,990	864,053	977,217	1,841,270
ARMY RESEARCH OFFICE							
4.1 Nano- and Bio-Electronics: Strain Engineered Topological Phases of 2D Materials and Their Heterostructures	12.431		W911NF-16-1-0447		105,876		105,876
ARO: 2D MATERIAL-BASED ELECTRO-OPTIC MODULATION ON A SILICON PLATFORM	12.431	GEORGE WASHINGTON UNIVERSITY	38850-1-CCNS21590F			51,953	51,953
Dynamic Network Neuroscience: Probing Adaptation of Large-Scale Neural Circuits	12.431		W911NF-14-1-0679		103,997		103,997
Integrating edX, GIFT, and CTAT	12.431	CARNEGIE MELLON UNIVERSITY	1130203-373301			57,509	57,509
QUANTUM CONTROL AND ENGINEERING OF DEFECTS IN BORON NITRIDE	12.431		W911NF-15-1-0589		179,092		179,092
W911NF-12-R-0012-03: A general theory of social structure integrating demography and decisions on social networks	12.431		W911NF-17-1-0017		109,227		109,227
W911NF-12-R-0012-04 ARO Mathematics Topic 3.3.1 (Fundamental Laws of Biology): Inferring the role of epistasis in molecular evolution	12.431		W911NF-17-1-0083		100,527		100,527
A Pilatus3 R X-ray Detector System to Study Hierarchical Structures in Functional Polymers	12.431		W911NF-17-1-0282		149,573		149,573
Nonlinearity beats Damping: A New Class of Soft Active Metamaterials for Mechanical Logic, Signal Processing, and Autonomous Systems	12.431	CALIFORNIA INSTITUTE OF TECHNOLOGY	52-1097908			81,563	81,563
ARO Topic 4.1: Engineering the Properties of Orbitronic Nanomaterials	12.431		W911NF-17-1-0436		101,295		101,295
Supersymmetry in linear and nonlinear optics	12.431	STATE UNIVERSITY OF NEW YORK, BUFFALO	R1109172			104,100	104,100
Broadband light source and detector to study optical modulation properties of exciton-polaritons in two-dimensional materials by real and Fourier space microscopy	12.431		W911NF1810192		9,112		9,112
Quantum Optical Spectroscopy System for Materials in Extreme Environments	12.431		W911NF1810224		618		618
12.431 Total					**859,317**	**295,125**	**1,154,442**
Semantics, Formal Reasoning, and Tool Support for Quantum Programming	12.800	TULANE UNIVERSITY	TUL-SCC-553957-15/16			208,713	208,713
12.800 Total						**208,713**	**208,713**

University of Pennsylvania
Schedule of Expenditures
For the year ended June 30, 2018

Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Distinguishing Brain States and Resolving State Transitions	12.RD	DCS CORPORATION	APX02-0006 - TASK ORDER 001	22,032		570,086	570,086
Robotic Perception, Intelligence, and Dexterous Manipulation & Unique Mobility	12.RD	GENERAL DYNAMICS ROBOTIC SYSTEMS	PO #40228149			940,462	940,462
12.RD Total				**22,032**		**1,510,548**	**1,510,548**
ARMY RESEARCH OFFICE Total				22,032	859,317	2,014,386	2,873,703
DEFENSE ADVANCED RESEARCH PROJECTS AGENCY							
Large-scale Paraphrasing for Natural Language Understanding	12.300	JOHNS HOPKINS UNIVERSITY	2001801140 / FA8750-13-2-0017			246,549	246,549
Petablox: Large-Scale Software Analysis and Analytics Using Datalog	12.300	GEORGIA INSTITUTE OF TECHNOLOGY	RF228-G2			607,877	607,877
SPARCS: Synthesis of Platform-Weve Attache-Resilient Control Systems	12.300		FA8750-12-2-0247		45,459		45,459
Synthesizing Data Wranglers	12.300	PRINCETON UNIVERSITY	SUB0000142			95,153	95,153
12.300 Total					**45,459**	**949,579**	**995,038**
Identifying the Neural Substrates of Emotional Arousal: Towards a Path to Stress Resistance	12.431	CHILDREN'S HOSPITAL OF PHILADELPHIA	321104-01-02 / 950826RSUB			2	2
Cognitively Coherent Human-Computer Communication	12.431	UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN	0078446-16767			131,557	131,557
12.431 Total						**131,559**	**131,559**
Biochronicity: Time, Evolution, Networks and Function	12.910	DUKE UNIVERSITY	12-DARPA-1068			5,358	5,358
DeDOS: Declarative Dispersion-Oriented Software	12.910		HR0011-16-C-0056	445,537	917,298		917,298
Exploiting Quantitative Universals for Unsupervised Acquisition of Language Structure (EQUUALS)	12.910		HR0011-15-2-0023		482,904		482,904
FALCON: Fast, Aggressive, Lightweight flight in CONstrained environments	12.910		HR0011516626/HR0011516850	763,990	1,959,733		1,959,733
Immediate and Persistent E-DNA Protection Against Dengue	12.910		W31P4Q-13-1-0003	295,450	339,793		339,793
Learning Applications in Biological Dynamics	12.910		HR0011624364-00		153,898		153,898
Memory Enhancement with Modeling, Electrophysiology, and Stimulation (MEMES)	12.910		N66001-14-2-4032	1,708,695	4,226,336		4,226,336
Neural mechanisms of influence, deterrence and message propagation	12.910		D14AP00048		2,528		2,528
ReORIENT: Resources for Operationally Relevant Information Extraction from Non-Explicit Text	12.910		FA8750-13-2-0045	336,561	1,468,604		1,468,604
The ProteOhmic Smart-Patch: Transcutaneous Monitoring of Molecular Levels in Blood Using Flexible and Natural Substrates	12.910	RUTGERS UNIVERSITY	5911			119,777	119,777
The statistical mechanics of crowds - tools for predictive modeling in the social sciences	12.910		HR0011623730 & HR0011623730-1	723,031	1,594,418		1,594,418
Thunder: Tolerant Hosts Using Novel Drug-Enhanced Resilience	12.910	COLUMBIA UNIVERSITY	1(GG010681-01)			268,721	268,721
Exploring the Optimal Forecasting Frontier: How Much Room is There to Improve Subjective Forecasting Accuracy?	12.910	UNIVERSITY OF CALIFORNIA, BERKELEY	DIIPC20061/00007645			-9,749	-9,749
TempIST: Temporal Image Segmentation with Topology	12.910		HR00111710004		129,595		129,595
Duke DARPA Pandemic Prevention Platform (P3)	12.910	DUKE UNIVERSITY	3130755			358,053	358,053
INCIDENTAL SUPERVISION FOR INFORMATION EXTRACTION IN LOW RESOURCE LANGUAGES	12.910	UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN	077822-16726			256,548	256,548
OPTICAL PHASED ARRAYS WITH SUB-WAVELENGTH ELEMENT SIZE AND SPACING (OPA-SWESS)	12.910		FA8650-18-1-7828		123,819		123,819
GOCHoP: Geometric Optimization & Combinatorial-Homological Programming	12.910		FA8650-18-2-7840		73,453		73,453
Lifelong Learning of Perception and Action in Autonomous Systems	12.910		FA8750-18-2-0117		208		208
Engineering Therapies that Evolve to Autonomously Control Epidemics	12.910	GLADSTONE INSTITUTES	R2451-E			1,908	1,908
12.910 Total				**4,273,264**	**11,472,587**	**1,000,616**	**12,473,203**
BRASS	12.RD	BAE SYSTEMS	921073			225,411	225,411
DCOMP	12.RD	APPLIED COMMUNICATION SCIENCE	PO-0011396			343,474	343,474
DISTRIBUTED ENCLAVE DEFENSE USING CONFIGURABLE EDGES (DEDUCE)	12.RD	APPLIED COMMUNICATION SCIENCE	PO-0004103			233,386	233,386
EXPLOITING LANGUAGE INFORMATION FOR SITUATIONAL AWARENEESS (ELISA)	12.RD	UNIVERSITY OF SOUTHERN CALIFORNIA	67104157			30,170	30,170
HETEROGENEOUSLY INTEGRATED OPTICAL SYNTHESIZER (HiOS)	12.RD	UNIVERSITY OF CALIFORNIA, BERKELEY	00008779			216,652	216,652
LOW OVERHEAD OBSERVATIONS KEEPING OPERATIONAL UNDER THREATS (LOOKOUT)	12.RD	APPLIED COMMUNICATION SCIENCE	PO-0008421			4,451	4,451
Phase I, Open-Label, Study to Evaluate the Safety, Tolerability , and Immunogenicity of INO-4212 and its Components, INO-4201, Given with or without INO-9012, Administered IM or ID Followed by Electroporation in Healthy Volunteers	12.RD	INOVIO PHARMACEUTICALS, INC.	EBOV-001			4,687	4,687
SIREN-IL: Specialized Intra/Interlingual Resources for Emergent News - Incident Languages	12.RD		HR0011-15-C-0123	347,007	3,111,976		3,111,976
SQUAD-X	12.RD	KITWARE, INC.	K001306-00-S03			57,827	57,827
TAMBA: TESTING AND MODELING OF BRANDEIS ARTIFACTS	12.RD	GALOIS, INC.	2015-016			112,783	112,783
TerraSwarm Research Center (TSRC)	12.RD	UNIVERSITY OF CALIFORNIA, BERKELEY	00008165/PO#BB00144165			240,029	240,029
Incidental Supervision for Information Extraction in Low Resource Languages	12.RD	BBN SYSTEMS AND TECHNOLOGIES	SUB TO HR0011-15-C-0113			144,567	144,567
CAIRO-MS: Conflicting Account Information Resources in Omnivorous Media Streams	12.RD		FA8750-18-C-0013		325,750		325,750
IBIS: Implantable bioluminescence interface system for an all-optical neuroprosthesis to the visual cortex	12.RD	PIERCE (JOHN B.) LABORATORY	275-F			31,704	31,704
Causal Hypotheses from Analysis of Obscure Systems (CHAOS)	12.RD	TWO SIX LABS, LLC	FA8750-17-C-0231-03			39,738	39,738
Scenario-Based Design and Verification of Resilient Cyber-Physical Systems	12.RD		N6600118C4007		106,814		106,814
Multi-Source Activity Graph Latent Uncovering & Merging (MAGNUM)	12.RD	LOCKHEED MARTIN CORPORATION	SUB TO FA8750-17-C-0157			2,314	2,314
System Security Integrated Through Hardware and firmware (SSITH)	12.RD	DRAPER LABORATORY	SUB TO HR001118C0011			53,734	53,734
Integrated Static and Dynamic Approaches to High-Assurance for Learning-Enabled Cyber-Physical Systems	12.RD		FA8750-18-C-0090		99,344		99,344
Multiphysics Modeling and Characterization of Lithium Niobate Waveguides	12.RD	DRAPER LABORATORY	DRAPER			10,860	10,860
12.RD Total				**347,007**	**3,643,884**	**1,751,787**	**5,395,671**
DEFENSE ADVANCED RESEARCH PROJECTS AGENCY Total				4,620,270	15,161,930	3,833,541	18,995,471
DEFENSE THREAT REDUCTION AGENCY							
Phase II: VECTOR - AAV Expressed Chemical Threat ProtectOR	12.RD		HDTRA1-15-C-0023	373,833	646,215		646,215
12.RD Total				**373,833**	**646,215**		**646,215**
DEFENSE THREAT REDUCTION AGENCY Total				373,833	646,215		646,215
DEPARTMENT OF DEFENSE							
Investigating the Neurologic Effects of Training Associated Blast (i-TAB)	12.750	HENRY M. JACKSON FOUNDATION	307226-1.00-64373			79,630	79,630
12.750 Total						**79,630**	**79,630**
Management of Suicidal-Related Events During Deployment	12.RD	RESEARCH FOUNDATION FOR MENTAL HYGIENE, INC.	PO #110520			181,384	181,384
Transforming Research and Clinical Knowledge in TBI (TRACK-TBI) – High Definition Fiber Tracking Neuroimaging, Biospecimen and Data Informatics Repositories	12.RD	UNIVERSITY OF PITTSBURGH	0043845-11			234,691	234,691
Graduate Student Research in FY17 in support of Verification and Validation of Autonomous Systems	12.RD	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	7000382057			49,999	49,999
Fuel-Efficient Nano Fluid Gear Oil	12.RD	PIXELLIGENT TECHNOLOGIES	10053480			94,228	94,228
12.RD Total						**560,302**	**560,302**
DEPARTMENT OF DEFENSE Total						639,932	639,932
DEPARTMENT OF THE AIR FORCE							
(MURI-10) Science of Cyber Security: Modeling, Composition and Measurement	12.800	STANFORD UNIVERSITY	29183000-51677-A			-145	-145
Electron and Energy Transfer Dynamics in Homogeneous and Inhomogeneous Environments	12.800		FA9550-13-1-0157		134,903		134,903
Geometry and Topology of Complex Networks	12.800		FA9550-13-1-0097	278,362	302,882		302,882
INFORMATION DYNAMICS AS THE FOUNDATION FOR NETWORK MANAGEMENT	12.800	PRINCETON UNIVERSITY	MOD 3 UNDER SUBAWARD #00001714			-27,388	-27,388
PREDISSOCIATION AND QUENCHING DYNAMICS OF ELECTRONICALLY EXCITED HYDROGEN RADICALS	12.800		F49620-01-1-0095		-25		-25
12.800 Total				**278,362**	**437,760**	**-27,533**	**410,227**
DEPARTMENT OF THE AIR FORCE Total				278,362	437,760	-27,533	410,227
DEPARTMENT OF THE ARMY							
A Cell-Based Approach to Early Pancreatic Cancer Detection	12.420		W81XWH-15-1-0457		18,728		18,728
B cell activation and tolerance mediated by B cell receptor, Toll like receptor, and survival signal cross talk in SLE pathogenesis	12.420		W81XWH-14-1-0305		122,673		122,673

University of Pennsylvania
Schedule of Expenditures
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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
BC123187: Organtropic Metastatic Secretomes and Exosomes in Breast Cancer	12.420		W81XWH-13-1-0426		332,618		332,618
BC150998 - Correcting the Anti-HER-2 CD4 Th1 Response in Breast Cancer Therapy to Prevent Recurrence	12.420	MOFFITT CANCER CTR	12-18717-99-1-G2			75,002	75,002
CA110449: Listeria vaccines for pancreatic cancer	12.420		W81XWH-12-1-0411		-1,637		-1,637
Comparative Effectiveness of Acupuncture for Chronic Pain and Comorbid Conditions	12.420	SLOAN-KETTERING INSTITUTE FOR CANCER RESEARCH	BD521423			17,114	17,114
Cooperativity between Oncogenic PKC epsilon and Pten Loss in Prostate Cancer Progression	12.420		W81XWH-14-1-053530		19,127		19,127
Cyclin E1 as a Therapeutic Target in Women with High-Grade Serious Ovarian Cancer and Primary Treatment Failure	12.420	UNIVERSITY OF MELBOURNE	SUB TO W81XWH-15-1-0160			49,794	49,794
Defining the pathophysiological role of tau in experimental TBI	12.420		W81XWH-14-1-0275		145,267		145,267
Detection of Early Lung Cancer Among Military Personnel (DECAMP)	12.420	BOSTON UNIVERSITY	9500300580			-26,456	-26,456
Developing gene silencing for the study and treatment of dystonia	12.420	CHILDREN'S HOSPITAL OF PHILADELPHIA	FP00018899_SUB01_02			7,453	7,453
Diffuse and Focal Brain Injury in a Large Animal Model of PTE: Mechanisms Underlying Epileptogenesis	12.420		W81XWH-16-1-0675		347,655		347,655
Discovery of host factors and pathways utilized in hantaviral infection	12.420		W81XWH-14-1-0204		160,983		160,983
DM120237-A Randomized, Controlled, Ascending Dose Clinical Trial of a Bismuth-Thiol (BT) Topical Anti-Infective Drug for Treatment of Post-Surgical Orthopedic Infections	12.420		W81XWH-12-2-0100	80,440	95,717		95,717
Effects of Traumatic Brain Injury (TBI) and Post Traumatic Stress Disorder (PTSD) on Alzheimer's Disease (AD) in Veterans Using Imaging and Biomarkers in the AD Neuroimaging Initiative (ADNI)	12.420	NORTHERN CALIFORNIA INSTITUTE FOR RESEARCH AND EDUCATION	1686			638	638
Effects of traumatic brain injury and posttraumatic stress disorders on Alzheimer's disease AD in Veterans with mild cognitive impairment MCI using the Alzheimer's Disease Neuroimaing Initiative	12.420	NORTHERN CALIFORNIA INSTITUTE FOR RESEARCH AND EDUCATION	1820			14,499	14,499
Implementation of Prolonged Exposure in the Army: Is Consultation Necessary for Effective Dissemination	12.420		W81XWH-12-2-0116	406,212	984,215		984,215
Improved Field Management and Safe Ground Transport of Patients with head and Spine Injuries	12.420	GENEVA FOUNDATION	S-1326-04			41,428	41,428
Improving Ischemia Reperfusion Injury in Vascularized Composite Tissue Allotransplantation Via Histone Deacetylase Modulation	12.420		W81XWH-16-1-0780	13,962	168,107		168,107
Investigation of a novel PARP inhibitor PET tracer in ovarian carcinoma	12.420		W81XWH-17-1-0092		192,060		192,060
Mechanisms and Treatment of Oligometastases	12.420		W81XWH-09-1-0339		6,065		6,065
Melanopsin-Specific Contributions to Photophobia in Brain Trauma	12.420		W81XWH-15-1-0447		353,236		353,236
Military Suicide Research Consortium Dissemination and Implementation Core	12.420	UNIVERSITY OF WASHINGTON	UWSC9138			24,697	24,697
NADPH-generating enzymes as potential targets for prostate cancer therapy	12.420		W81XWH-15-1-0678		270,519		270,519
NOVEL BIOCOMPATIBLE WOUND DRESSINGS FOR CHRONIC PAIN MANAGEMENT	12.420		W81XWH-15-2-0013		361,315		361,315
Overcoming PARP inhibitor resistance by targeting the ATR-CHK1 pathway in BRCA 1/2 deficient ovarian cancer	12.420		W81XWH-16-1-0399		137,582		137,582
Positioning Vascularized Composite Allotransplantation in the Spectrum of Transplantation	12.420	CHILDREN'S HOSPITAL OF PHILADELPHIA	321113 / PO #960955RSUB			140,721	140,721
PR120935P1: Enhancing the Efficacy of Targeted Radiotherapy for Neuroblastoma	12.420		W81XWH-13-1-0406		108,008		108,008
Preventing risky drinking in veterans treated with prescription opioids	12.420		W81XWH-14-1-0060	26,589	482,216		482,216
Prostate Cancer Research Program, Synergistic Idea Development Award	12.420	THOMAS JEFFERSON UNIVERSITY	080-27000-X15001			64,858	64,858
PROTON THERAPY DOSE CHARACTERIZATION AND VERIFICATION	12.420		W81XWH-09-2-0174		67,858		67,858
PT110785: Tau Accumulation in TBI: Mechanisms and Treatment	12.420		W81XWH-13-1-0052		336,135		336,135
PT140178-The Efficacy of 90-minute vs 60-minute sessions of Prolonged Exposure for PTSD: A Randomized Control Trial in Active Duty Military Personnel	12.420		W81XWH-15-1-0555	398,622	514,654		514,654
Repair of Major Nerve Trauma Using Tissue-Engineered Nerve Grafts: IND-Enabling Nonclinical Efficacy Studies in Swine	12.420	RUTGERS UNIVERSITY	Sub # 5299 AFIRM			269	269
Role of HMGB1 in Transfusion-Mediated Lung Inflammation	12.420		W81XWH-15-1-0363		609,737		609,737
Role of urokinase-type plasminogen activator (uPA) in progression of TSC tumors	12.420		W81XWH-16-1-0187		108,224		108,224
Small-molecule enhancers of the human protein-disaggregase machinery for ALS	12.420		W81XWH-17-1-0237		459,051		459,051
Supplemental Perioperative Oxygen to Reduce Surgical Site Infection After High Energy Fracture Surgery	12.420	JOHNS HOPKINS UNIVERSITY	8487			120	120
Targeted Re-Polarization of Tumor-Associated Macrophages in Lung Cancer	12.420		W81XWH-15-1-0362		78,354		78,354
Targeting anti-viral and NOTCH3 pathways to inhibit stroma-mediated treatment resistance	12.420		W81XWH-14-1-0450	7,786	205,640		205,640
The Myc regulated long non-coding RNA DANCR in prostate cancer	12.420		W81XWH-15-1-0630		27,942		27,942
The NCAA-DoD Grand Alliance: Concussion Assessment, Research and Education (CARE) Study	12.420	CHILDREN'S HOSPITAL OF PHILADELPHIA	8901940917			36,583	36,583
The Strong Star Consortium in Alleviate PTSD: CAP- Project Remission: Maximizing Outcomes with Intensive Outpatient Treatments for PTSD	12.420	UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT SAN ANTONIO	161083-155536			148,365	148,365
THE STRONG STAR MULTIDISCIPLINARY PTSD RESEARCH CONSORTIUM	12.420		W81XWH-08-2-0111	50,890	96,165		96,165
Tissue Engineering Strategies to Maintain Distal Target Efficacy and Promote Full Functional Recovery Following Major Peripheral Nerve Injury	12.420		W81XWH-16-1-0796	288,878	1,048,872		1,048,872
Tissue-Engineered Nerve Grafts for Repair of Currently Untreatable Peripheral Nerve Injury	12.420		W81XWH-15-1-0466		164,509		164,509
Tumor-Associated Neutrophils in Human Lung Cancer	12.420		W81XWH-15-1-0717		44,306		44,306
Understanding the immune-biology of checkpoint inhibitors to develop new strategies for therapy	12.420	WISTAR INSTITUTE	35521-02-314; Xu			17,399	17,399
Web-PE: Internet-Delivered Prolonged Exposure Therapy for PTSD	12.420		W81XWH-14-1-0008	602,077	711,478		711,478
Combinatorial Strategies to Overcome Resistance to Immune Checkpoint Blockade in Breast Cancer	12.420		W81XWH-17-1-0264		347,778		347,778
Peritransplant Treg-based Immunomodulation to Improve VCA Outcomes	12.420	CHILDREN'S HOSPITAL OF PHILADELPHIA	FP00021361_SUB01_01			13,000	13,000
Investigating the molecular mechanisms of acquired resistance to BET bromodomain inhibitors in castration-resistant prostate cancer	12.420		W81XWH-17-1-0404		157,174		157,174
Dynamic response of disseminated tumor cells and circulating tumor markers to targeted adjuvant therapy	12.420		W81XWH-17-1-0594		394,522		394,522
Dynamic response of disseminated tumor cells and circulating tumor markers to targeted adjuvant therapy	12.420		W81XWH-17-1-0595		18,596		18,596
Rescue Hematopoietic Stem and Progenitor Cell Functions in Bone Marrow Failure Syndromes	12.420	CHILDREN'S HOSPITAL OF PHILADELPHIA	3211220719			26,725	26,725
Pathogenesis of Myopathies Caused by Novel Mitochondrial Phosphate Carrier Mutations	12.420	THOMAS JEFFERSON UNIVERSITY	08004000X16001			26,489	26,489
TBI Endpoints Development (TED)	12.420	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	10225sc			144,608	144,608
UPCC 01117: Diversity in the Tumor Genome and Microenvironment as Drivers of DCIS Progression	12.420	DUKE UNIVERSITY	SUB TO W81XWH-14-1-0473			9,449	9,449
Towards Precision Prevention: Testing a Novel Risk Prediction Algorithm in Pancreatic Cancer	12.420	FOX CHASE CANCER CENTER	27799-01			19,610	19,610
Design of a 3D Mammography System in the Age of Personalized Medicine	12.420		W81XWH-18-1-0082		21,180		21,180
Spreading Depolarizations II (SDII): Development and Validation of Spreading Depolarization Monitoring for TBI Management	12.420	UNIVERSITY OF CINCINNATI	010376-003			14,888	14,888
Neuropathological mechanisms of epileptogenesis in Post-Traumatic Epilepsy	12.420	CITIZENS UNITED FOR RESEARCH IN EPILEPSY	CURE			2,904	2,904
DOD/Army Medical Research	12.420	National Trauma Institute	NTI-CLOTT17-04			5,946	5,946
12.420 Total				**1,875,456**	**9,716,629**	**876,103**	**10,592,732**
AM3 Autonomous Multifunctional Mobile Microsystems	12.431	BAE SYSTEMS	316106	36,842		325,637	325,637
Evolution of Cultural Norms and Dynamics of Socio-Political Change	12.431		W911NF-12-1-0509	648,381	699,303		699,303
Granularity and Jamming: A new approach to understanding and predicting near-threshold sediment transport	12.431		W911NF-13-1-0458		2,306		2,306
II, A, 2, 9.1: Curvature Directed Assembly of Particles into Reconfigurable Structures at Fluid Interfaces	12.431		W911NF-16-1-0288		190,142		190,142
Neural foundations of expertise based on optimal decision-making, physical control and responses to stress	12.431	UNIVERSITY OF CALIFORNIA, SANTA BARBARA	KK1711			107,202	107,202
Rapid Screening of New Precise Copolymers: Morphology and Ionic Conductivity	12.431		W911NF-13-1-0363		79,349		79,349
The Physics of Mud	12.431		W911NF-16-1-0290		309,030		309,030
The spatiotemporal resolution of cognitive signals revealed through high-density uECoG mapping	12.431		W911NF-14-1-0173	13,684	9,948		9,948
Compositional Framework for Complex Real-Time Systems on Multicore Platforms	12.431		W911NF-11-1-0403		-18		-18
Topic 1.3 Morphological Computing in Machines and Animals	12.431		W911NF-17-1-0229	83,952	245,147		245,147
Geometric and Graph Structures in Information Characterization and Extraction	12.431		W911NF-17-1-0438		229,275		229,275
12.431 Total				**782,858**	**1,764,482**	**432,839**	**2,197,321**
Arches: Autonomous Resilient Cognitive Heterogeneous Swarms	12.630		W911NF-17-2-0181	25,201	731,209		731,209
Semantic Information Technologies	12.630	BBN SYSTEMS AND TECHNOLOGIES	SUB TO W911NF-09-2-0053			103,595	103,595
The Disruptive Effects of Autonomy: Ethics, Trust, and Organizational Decision-making	12.630		FA9550-18-1-0194		45,878		45,878
12.630 Total				**25,201**	**777,087**	**103,595**	**880,682**
Insight: A silicon neural probe visual prosthesis	12.RD	SCIENTIFIC AND BIOMEDICAL MICROSYSTEMS, LLC	2017-PENN-001			53,820	53,820
Infrascan 3000: Near-Infrared Spectroscopy (Model 3000) in Severe Brain Injury	12.RD	INFRASCAN INC.	Kalanuria - 827947			8,840	8,840
12.RD Total						**62,660**	**62,660**
DEPARTMENT OF THE ARMY Total				2,683,516	12,258,198	1,475,197	13,733,395
DEPARTMENT OF THE NAVY							
LOCAL-to-GLOBAL: Algebraic Topology for Data, Networks, and Systems	12.300		N00015-16-1-2010		276,749		276,749
New Paradigms for Scalable Online Decentralized Optimization	12.300		N00014-12-1-0997	275,955	283,285		283,285

University of Pennsylvania
Schedule of Expenditures
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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Perception-Based, Reactive, Temporal-Logic Planning for Autonomous Deck Operations	12.300		N00014-13-1-0778		11,503		11,503
NANOTUBE/POLYMER COMPOSITES: MATERIALS SELECTION AND PROCESS DESIGN	12.300		N00014-00-1-0720-P00001		-31		-31
IRONCLAD C/C++: Enforcing Memory Safety to Prevent Low-Level Security Vulnerabilities	12.300		N00014-11-1-0596		766		766
12.300 Total				**275,955**	**572,272**		**572,272**
Pilot Study-AMP Cells in EAE Model Multiple Dosing	12.RD	NOVEOME BIOTHERAPEUTICS	NOVEOME			38,275	38,275
12.RD Total						**38,275**	**38,275**
DEPARTMENT OF THE NAVY Total				275,955	572,272	38,275	610,547
MARYLAND PROCUREMENT OFFICE							
SONICVIPER	12.RD		H98230-15-C-0825		1,230,811		1,230,811
12.RD Total					**1,230,811**		**1,230,811**
MARYLAND PROCUREMENT OFFICE Total					1,230,811		1,230,811
NATIONAL SECURITY AGENCY							
UPenn 2017 Hindi-Urdu StarTalk Program	12.900	NATIONAL FOREIGN LANGUAGE CENTER UNIVERSITY OF MARYLAND	H98230-17-1-0049			73,733	73,733
12.900 Total						**73,733**	**73,733**
NATIONAL SECURITY AGENCY Total						73,733	73,733
OFFICE OF NAVAL RESEARCH							
A Multiscale Theoretical and Experimental Platform for Understanding Cavitation Deformation Dynamics	12.300	UNIVERSITY OF MASSACHUSETTS-AMHERST	17-009730 A 00			113,369	113,369
Active Semantic Distributed Perception	12.300		N00014-17-1-2093		209,532		209,532
Anytime Resource Optimization with Sliding Performance for Mission Planning and Sensor Management	12.300	CARNEGIE MELLON UNIVERSITY	1141265-356580			160,969	160,969
Cognitive Computations: A Network Perspective	12.300		N00014-15-1-2516		125,690		125,690
Coupling of Metabolic and Mechanical Function in Cell Physiology	12.300		N00014-14-1-0538		227,665		227,665
Cyber Protocols in the Physical Environment	12.300		N00014-15-1-2047		90,212		90,212
DEFECT ENGINEERING OF PHASE CHANGE MATERIALS FOR ULTRA-LOW POWER DEVICES	12.300		N00014-16-1-2350		87,375		87,375
Development of Control-Aware Cyber Techniques for Attack-Resilient Industrial Control & Combat Systems	12.300		N00014-17-1-2012	274,656	816,243		816,243
DYNAMIC, REAL-TIME VIRTUALIZATION AND CLOUD COMPUTING	12.300		N00014-16-1-2195		281,995		281,995
First-Principles and Multi-Scale Modeling of Dynamic Ionic and electronic Processes in Hybrid and Halide Perovskites	12.300		N00014-17-1-2574		180,976		180,976
Homogenization models for the rheology and microstructure evolution of sea ice	12.300		N00014-17-01-2076		114,032		114,032
Materials for Extreme Manipulation of Light, Sound and Heat	12.300		N00014-15-1-2029		746,535		746,535
PROBALOGICAL HYBRID DEFENSE (PHD): A new approach to automated reasoning and its application to cyberdefense	12.300		N00014-15-1-2006		485,458		485,458
Robot Ecologies: Biologically Inspired Heterogeneous Teams	12.300	GEORGIA INSTITUTE OF TECHNOLOGY	RF683-G1			73,059	73,059
Robotics: Toward the New Science of Programmable Work	12.300		N00014-16-1-2817		607,370		607,370
SynCrypt: Automated Synthesis of Cryptographic Constructions	12.300	STANFORD UNIVERSITY	61127466-107-484			208,298	208,298
Top-down and bottom-up processes in auditory preception	12.300		N00014-16-1-2539		266,672		266,672
Topological Representations and Algorithms for Robot Swarms	12.300		N00014-14-1-0510	54,313	95,628		95,628
Understanding the Photovoltaic Efficiency of Organometallic Perovskites	12.300		N00014-14-1-0761	90,634	49,259		49,259
Utilizing Synthetic Biology to Create Programmable Micro-Bio-Robots	12.300	BOSTON UNIVERSITY	4500000554			19,621	19,621
S5: Small, Safe, Smart, Speedy, Swarms of Aerial Robots	12.300		N00014-17-1-2437		422,080		422,080
Mitochondrial Stress and Cellular Protection in Undersea Medicine	12.300		N00014-17-1-2643		232,338		232,338
New phase change materials for photonics: from in-silico design to novel device concepts	12.300		N00014-17-1-2661	483,593	777,743		777,743
REVOLVER: Recurrent EVOLution and Verification of Encapsulated Rights	12.300		N00014-17-1-2930		247,855		247,855
Towards Learning Analytics on US Navy Training Data	12.300		N00014-17-1-2662		46,563		46,563
Synchronous Rendezvous for Heterogeneous Robotic Sensor Networks in Geophysical Flows	12.300		N00014-17-1-2690	44,783	209,808		209,808
ASPIRE: Automatically Subsetting Protocol Implementations Reliably and Efficiently	12.300		N00014-18-1-2021		6,827		6,827
Blueprint for design and assembly of multifunctional, adaptive materials using the nanocrystal periodic table	12.300		N00014-18-1-2497		50,015		50,015
Accountable Protocol Customization	12.300		N00014-18-1-2618		206		206
12.300 Total				**947,979**	**6,378,077**	**575,316**	**6,953,393**
Autonomous Unmanned Vehicles Applied Research program: UPENN Sub-proposal to Johns Hopkins Prime	12.RD	JOHNS HOPKINS UNIVERSITY	125027			3,877	3,877
Progressive Model Generation for Adaptive Resilient System Software	12.RD	GRAMMATECH	GT S14-04			150,658	150,658
12.RD Total						**154,535**	**154,535**
OFFICE OF NAVAL RESEARCH Total				947,979	6,378,077	729,851	7,107,928
DEPARTMENT OF DEFENSE Total				***9,281,937***	***38,408,633***	***9,754,599***	***48,163,232***
DEPARTMENT OF INTERIOR							
NATIONAL PARK SERVICE							
Celebrating the NPS Centennial through the Investigation, Analysis, and Treatment of the Facade of Mission San Jose de Tumucacori, TUMA	15.945		P14AC00965		221		221
Conservation Assessment and Treatment Testing and Recommendations for Petrified Fossil Tree Stumps	15.945		P16AC01266		16,562		16,562
Conservation of Interior Surface Finishes in Mission San Jose de Tuma II	15.945		P16AC00931		61,999		61,999
Cultural Landscapes Inventory – Washington DC Historic Golf Courses- NCRO	15.945		P16AC01138		5,629		5,629
Development of a Historic Preservation Training Curriculum and Fundamentals Course for the Vanishing Treasures Program	15.945		P15AC01523		29,184		29,184
Documentation & Risk Analysis of Conditions & Treatment at Fort Union National Monument	15.945		P15AC01619		1,410		1,410
Documentation and Risk Analysis of Conditions and Treatments at Fort Union National Monument; Phase II	15.945		P14AC00921		3,338		3,338
Jackson Lake Lodge Historic Structures Report, Part 3	15.945		P16AC01176/UPE-29		557		557
Provide Interns with Experiential Learning Opportunities in Historic Preservation	15.945		P14AC00921		42,295		42,295
Mesa Verde NP/Historic Structure Report: QUARTERS 5 & 6	15.945		P17AC01321		25,169		25,169
Cultural Landscapes Inventory & Ethnographic Assessment- DC Small Park Reservations	15.945		P17AC00788		70,015		70,015
NPS Knowledge Transfer	15.945		TASK #P17AC00699		13,533		13,533
Exterior Stucco Assessment and Pilot Conservation Treatment for the John Moulton Homestead-Grand Teton	15.945		P17AC01226		26,108		26,108
Monitoring Protocols 3- Fort Union III	15.945		P17AC01710		27,696		27,696
Provide Experiential Learning Opportunities in Historic Preservation to Emerging Professionals	15.945		P17AC01226		1,718		1,718
Condition Assessment and Historic Preservation Guide for the Pecos Pueblo and Mission Complex, Pecos NHP	15.945		P18AC00723		9,125		9,125
15.945 Total					**334,559**		**334,559**
NATIONAL PARK SERVICE Total					334,559		334,559
U.S. GEOLOGICAL SURVEY							
Immune Reagent Network for Aquacultured species	15.808		G16AC00332		-25,262		-25,262
15.808 Total					**-25,262**		**-25,262**
U.S. GEOLOGICAL SURVEY Total					-25,262		-25,262
DEPARTMENT OF INTERIOR Total					***309,297***		***309,297***
DEPARTMENT OF JUSTICE							
NATIONAL INSTITUTE OF JUSTICE/DEPARTMENT OF JUSTICE							
Applying Promising Evidence to New Settings: An Experimental Evaluation of Summer Jobs in Philadelphia	16.560		2016-R2-CX-0049		64,761		64,761
Instilling a Culture of Continuous Learning From Criminal Justice System Errors: A Multi-Stakeholder Sentinel Event Review of Process in Philadelphia	16.560		2015-R2-CX-K040		110,414		110,414

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Space-time study of youth and school violence	16.560		2014-CK-BX-0008	103,768	740,973		740,973
Suspension practices in the context of PBIS: Implications for K-8 students in the School District of Philadelphia	16.560		2015-CK-BX-0013	68,132	168,290		168,290
PBIS in Challenging Contexts: Evaluating a Replicable Implementation Approach in Philadelphia	16.560		2017-CK-BX-0016		67,009		67,009
A National Coordinator for Sentinel Event Reviews to Support the Sentinel Events Initiative Demonstration Project	16.560		2017-MU-MU-K021		32,294		32,294
16.560 Total				**171,900**	**1,183,741**		**1,183,741**
NATIONAL INSTITUTE OF JUSTICE/DEPARTMENT OF JUSTICE Total				171,900	1,183,741		1,183,741
DEPARTMENT OF JUSTICE Total				***171,900***	***1,183,741***		***1,183,741***
U.S. DEPARTMENT OF STATE							
U.S. DEPARTMENT OF STATE							
The Internet Policy Observatory: A Monitoring and Civil Society Capacity-Building Project	19.345		S-LMAQM-13-GR-1052	22,003	466,110		466,110
19.345 Total				**22,003**	**466,110**		**466,110**
Shahrvand Abad: Enabling Online Civic Participation	19.RD	ASL19	ASL 19 INC			-40	-40
19.RD Total						**-40**	**-40**
U.S. DEPARTMENT OF STATE Total				22,003	466,110	-40	466,070
U.S. DEPARTMENT OF STATE Total				***22,003***	***466,110***	***-40***	***466,070***
DEPARTMENT OF TRANSPORTATION							
DEPARTMENT OF TRANSPORTATION							
Comparative Effectiveness of Alternative Smartphone-based Nudges to Reduce Cellphone Use While Driving	20.200		693JJ31750012	28,807	240,410		240,410
20.200 Total				**28,807**	**240,410**		**240,410**
MOBILITY 21: A NATIONAL UNIVERSITY TRANSPORTATION CENTER FOR IMPROVING MOBILITY	20.701	CARNEGIE MELLON UNIVERSITY	1080376-379208			221,998	221,998
T-SET: Technologies for Safe and Efficient Transportation	20.701	CARNEGIE MELLON UNIVERSITY	1080311-341328			627,492	627,492
University Transportation Center(Tier 1: Cooperative Mobility for Competitive Mega-regions))	20.701	UNIVERSITY OF TEXAS AT AUSTIN	UTA17-000185			180,319	180,319
20.701 Total						**1,029,809**	**1,029,809**
DEPARTMENT OF TRANSPORTATION Total				28,807	240,410	1,029,809	1,270,219
FEDERAL AVIATION ADMINISTRATION							
Pilot study on aircraft noise and sleep disturbance	20.109		13-C-AJFE-UPENN		209,100		209,100
20.109 Total					**209,100**		**209,100**
National sleep study technical support	20.RD	CSRA, INC.	SRAS002489-1			91,536	91,536
20.RD Total						**91,536**	**91,536**
FEDERAL AVIATION ADMINISTRATION Total					209,100	91,536	300,636
DEPARTMENT OF TRANSPORTATION Total				***28,807***	***449,510***	***1,121,345***	***1,570,855***
DEPARTMENT OF TREASURY							
FEDERAL RESERVE SYS							
Federal Reserve Financial Literacy Project (FLP- Year 3)	21.RD		FEDERAL RESERVE SYS		67,904		67,904
21.RD Total					**67,904**		**67,904**
FEDERAL RESERVE SYS Total					67,904		67,904
DEPARTMENT OF TREASURY Total					***67,904***		***67,904***
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION							
JET PROPULSION LABORATORY							
An Extreme Precision Doppler Spectrometer for the US O/IR System	43.RD	PENNSYLVANIA STATE UNIVERSITY	5405-UP-JPL-7612			581,045	581,045
43.RD Total						**581,045**	**581,045**
JET PROPULSION LABORATORY Total						581,045	581,045
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION							
A Balloon-borne Doppler Spectrometer For Discovering Earth-like Planets Orbiting Low-Mass Stars	43.001		NNX13AI79G		166,859		166,859
Balloon-borne Large Aperture Submillimeter Telescope - BLAST	43.001		NNX13AE50G	49,522	650,569		650,569
Discerning the details of the cosmic dark sector	43.001	CORNELL UNIVERSITY	71105-10295			51,759	51,759
Flood Regimes and Carbon Cycling in Anthropogenic Landscapes of the Bolivian Amazon	43.001		NNX13AQ07G	71,712	87,605		87,605
Individualized Real-Time Neurocognitive Assessment Toolkit for Space Flight Fatigue	43.001	NATIONAL SPACE BIOMEDICAL RESEARCH INSTITUTE	NBPF02501			-390	-390
Laboratory Investigations of the Effects of Particulates on the Flow of Ice	43.001		NNX15AM69G	10,355	99,501		99,501
PVT SELFTEST ON ISS	43.001		NNX08AY09G		48,430		48,430
Reliving the Past: Experimental Evolution of Major Transitions in the History of Life	43.001	GEORGIA INSTITUTE OF TECHNOLOGY	RH809-G1			133,158	133,158
Reliving the Past: Experimental Evolution of Major Transitions in the History of Life	43.001	UNIVERSITY OF MONTANA	PG15-26850-04	0		2,834	2,834
The Spectroscopic Terahertz Airborne Receiver for Far-InfraRed Exploration (STARFIRE): a Next-Generation Experiment for Galaxy Evolution Studies	43.001		NNX17AH24G		40,212		40,212
The Balloon-borne Large Aerture Telescope for Polarization - BLASTPol	43.001		80NSSC18K0481		69,290		69,290
Astrophysical Imprints of A Richer Dark Sector	43.001		80NSSC18K0694		23,717		23,717
43.001 Total				**131,589**	**1,186,183**	**187,361**	**1,373,544**
Cognitive performance and crew cohesion during confinement in NASA's Human Research Program Human Exploration Research Analog (HERA)	43.003		NNX14AH98G		2,933		2,933
HERO Twin Astronaut Study Consortium (TASC) Project: Cognition on monozygotic twin on Earth	43.003		NNX14AH27G		33,702		33,702
Hybrid training - A sensory stimulation countermeasure for long duration space exploration missions	43.003		NNX16AI53G		285,582		285,582
Neurostructural, cognitive, and physiologic changes during a 1-year Antarctic winter-over mission	43.003		NNX14AM81G	24,091	203,066		203,066
Standardized behavioral measures for detecting behavioral health risks during exploration missions	43.003		NNX15AK76G	192,017	533,808		533,808
NSCOR for evaluating risk factors and biomarkers for adaptation and resilience to spaceflight: Emotional valence and social processes in ICC/ICE environments	43.003		80NSSC17K0644		338,916		338,916
Laptop calibration tool for speed precise measurements in spaceflight and space analog environments	43.003		NNX16AI53G		15,786		15,786
43.003 Total				**216,108**	**1,413,793**		**1,413,793**
Biomarkers as predictors of resiliency and susceptibility to stress in space flight	43.007		NNX14AN49G	49,317	211,372		211,372
FOAM: Foam Optics and Mechanics (The Melting of Optic Foams)	43.007		NNX14AM99G		103,669		103,669
Low Volume Fraction Entropically Driven Colloidal Assembly (Phase 2)	43.007		NNX13AL27G		198,298		198,298
43.007 Total				**49,317**	**513,339**		**513,339**
Developing Kinetic Inductance Detectors for the Balloon-bourne Large Aperture SubmillimeterTelescope –BLAST	43.009		NNX14AN63H		88,415		88,415
Kinetic Inductance Detectors for Far-Infrared Spectroscopy	43.009		NNX13AL68H		25,815		25,815
Monocular SLAM for Smart SPHERES	43.009		NNX14AM10H		76,044		76,044
43.009 Total					**190,274**		**190,274**
Development of Inflation Probe Technologies for the Advanced ACT Experiment	43.012		NNX15AQ74H		67,917		67,917

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43.012 Total					**67,917**		**67,917**
DES16C2nm: Is the Highest-Redshift Supernova to Date also the Most Luminous?	43.RD	SPACE TELESCOPE SCIENCE INSTITUTE	HST-GO-14899.001-A			6,511	6,511
Free-Form Models for the Six Hubble Frontier Fields Clusters	43.RD	SPACE TELESCOPE SCIENCE INSTITUTE	STScI-49726			13,306	13,306
LGM2605 as a mitigator of space radiation-induced vascular damage	43.RD	LIGNAMED	SUB TO NNX17CL73P			41,250	41,250
Cogniton SME for BHP standard measures	43.RD	WYLE LABORATORIES, INC.	SUB TO NNJ15HK11B			12,470	12,470
Revealing the Environmental Dependence in Superluminous Supernovae Diversity	43.RD	SPACE TELESCOPE SCIENCE INSTITUTE	HST-GO-15303.001-A			18,874	18,874
43.RD Total						**92,411**	**92,411**
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION Total				397,014	3,371,506	279,772	3,651,278
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION Total				***397,014***	***3,371,506***	***860,817***	***4,232,323***
NATIONAL SCIENCE FOUNDATION							
DIRECTORATE FOR BIOLOGICAL SCIENCES/NSF							
A Novel Anchoring Mechanism for Prokaryotic Surface Proteins	47.074		MCB-1413158		178,409		178,409
Bilateral BBSRC-NSF/BIO Collaborative Research: ABI Development: ACritical Assessment of Protein Function Annotation	47.074		DBI-1458390	123,125	141,507		141,507
CAREER: Developing novel social systems-level approaches with a new ant model to study the genetic, behavioral, and evolutionary basis of social traits	47.074		IOS-1452520		149,012		149,012
CAREER: Establishing novel signaling transmission modes of LOV photoreceptors	47.074		MCB-1652003		104,363		104,363
CAREER: Unraveling homeostatic mechanisms in gene expression regulation: Integrating research and scientific communication	47.074		MCB-1350601		139,927		139,927
Cis and trans determinants of Polycomb recruitment in plants	47.074		MCB-1614355		319,532		319,532
Collaborative Research: Ecological consequences of the effects of a zoonotic pathogen on its reservoir host	47.074		DEB-1354184		23,194		23,194
Collaborative research: Risk and reward of high mutation rate: why large populations favor mutators while small populations inhibit them	47.074		1556168		35,120		35,120
Digitization TCN: The Mid-Atlantic Megalopolis: Achieving a greater scientific understanding of our urban world	47.074		DBI-1601697	22,249	173,980		173,980
EAGER: Revealing the function of the epitranscriptome in plant pathogen defense	47.074		MCB-1623887		169,015		169,015
Evolution of mucosal B cell immunity: Novel roles of IgT+ B cells in the control of host-pathogen interactions	47.074		IOS-1457282	20,684	99,991		99,991
INSPIRE Track 2: Discovery and Development of Optimized Photonic Systems for High Volume, Low Surface Area Solar Energy Harvesting: Learning from Giant Clams	47.074		IOS-1343159		555,737		555,737
LTREB Renewal: Experimental tests of alternative states on rocky intertidal shores	47.074	UNIVERSITY CORPORATION, THE	A16-0018-S001			27,582	27,582
LTREB:Experimental tests of alternative states on rocky intertidal shores	47.074		DEB-1020480		-1,536		-1,536
MICROETCHING OF THE HUMAN BRAIN	47.074		IOS-1443767		23,377		23,377
Neural bases of song preference and reproductive behavior in a female songbird	47.074		1557499		241,154		241,154
New Tools for Genetic Analysis in Arabidopsis thaliana	47.074		MCB-1614191		81,540		81,540
Paying the piper: how two fish species adjust calcium cycling for different mating calls	47.074		IOS-1145981		-148		-148
Protein folding: mechanism and principles	47.074		MCB-1409137		173,935		173,935
Regulation of Flower Initiation and Development	47.074		IOS-1257111		-189		-189
RESEARCH-PGR: Dissecting the genetic networks underlying Kranz anatomy in C4 grasses	47.074	DONALD DANFORTH PLANT SCIENCE CENTER	23020-P			58,770	58,770
Signaling mechanisms that regulate attractive axon guidance at the CNS midline	47.074		IOS-1355181		248,070		248,070
Structural, functional, and evolutionary analysis of long non-coding RNAs in control of stress response and the epigenome in diverse plant species	47.074		IOS-1444490	471,663	775,530		775,530
The role of the 'antiflorigen' TFL1 in Arabidiopsis development	47.074		1557529		379,084		379,084
US-France Research Proposal: Predicting odorant-dependent and independent olfactory neuron activation based on receptor dynamics	47.074		IOS-1515930		53,365		53,365
CONSTRUCTION OF A COMPLETE MAP OF THE ARABIDOPSIS GENOME	47.074		BIR94-06943		-18		-18
94-1204: STATISTICAL AND COMPUTATIONAL METHODS FOR DATA MANAGEMENT AND ANALYSIS IN MOLECULAR...	47.074		BIR94-13215		-101		-101
Collaborative Research: Digitization TCN: The Mid-Atlantic Megalopolis: Achieving a greater scientific understanding of our urban world	47.074		DBI-1743744	6,953	24,385		24,385
Examining the role of the endomembrane in transcription factor movement	47.074		MCB-1243945		45,809		45,809
47.074 Total				**644,674**	**4,134,044**	**86,352**	**4,220,396**
DIRECTORATE FOR BIOLOGICAL SCIENCES/NSF Total				644,674	4,134,044	86,352	4,220,396
DIRECTORATE FOR COMPUTER AND INFORMATION SCIENCES AND ENGINEERING/NSF							
AF: Small: Small Space Algorithms and Representations for Graph Optimization Problems	47.070		CCF-1552909		71,815		71,815
AF: Small: Sublinear Algorithms for Graph Optimization Problems	47.070		CCF-1617851		143,817		143,817
BD Spokes: Spoke: NorthEast: Collaborative: Grand Challenges for Data-Driven Education	47.070		IIS-1661987		108,279		108,279
BIGDATA: F: DKA: Spectral Analysis and Control of Evolving Large-Scale Networks	47.070		IIS-1447470		50,074		50,074
BIGDATA: F: Graph Sketching and Optimization Problems	47.070		1546151		66,099		66,099
CAP: CSCL 2017 Making a Difference: Prioritizing Equity and Access in CSCL Doctoral Consortium and Early Career Workshops	47.070		IIS-1637021		15,775		15,775
CAREER: EVIDENCE IN FEDERATED DISTRIBUTED SYSTEMS	47.070		CNS-1054229		105,676		105,676
CAREER: Foundations for Modeling and Verification of Medical Cyber-Physical Systems	47.070		CNS-1253842		34,838		34,838
CAREER: THE ALGORITHMIC FOUNDATIONS OF DATA PRIVACY	47.070		CNS-1253345		117,757		117,757
Career: Adaptive Large-Scale Program Analysis	47.070		1743116		153,372		153,372
CICI: Data Provenance: Provenance-Based Trust Management for Collaborative Citizen Science Data Curation	47.070		1547360		230,996		230,996
CIF: Small: Rich Type Inference for Functional Programming	47.070		CCF-1319880		122,524		122,524
CIF21 DIBBs: EI: mProv: Provenance-based Data Analytics Cyberinfrastructure for High-frequency Mobile Sensor Data	47.070	UNIVERSITY OF MEMPHIS	1640813			329,033	329,033
CI-NEW: Collaborative Research: A Modular Platform for Enabling Computing Research in Socially Intelligent Human-Robot Interaction	47.070		CNS-1513108		275,016		275,016
Collaborative Research: Expeditions in Computer Augmented Program Engineering (ExCAPE): Harnessing Synthesis for Software Design	47.070		CCF-1138996		29,884		29,884
Collaborative Research: EXPEDITIONS IN COMPUTING: THE SCIENCE OF DEEP SPECIFICATION	47.070		CCF-1521539		784,717		784,717
Collaborative Research: Learning about Infectious Disease through Online Participation in a Virtual Epidemic	47.070		IIS-1506724		6,958		6,958
Collaborative Research: Printable Robots: An Expedition in Computing for Compiling Functional Physical Machines	47.070		CCF-1138847		448,571		448,571
CPS: Frontier: Collaborative Research: BioCPS for Engineering Living Cells	47.070		CNS-1446592		337,130		337,130
CPS: FRONTIER: Collaborative Research: Compositional, Approximate, and Quantitative Reasoning for Medical Cyber-Physical Systems	47.070		CNS-1446664		10,473		10,473
CPS:Large: Assuring the Safety, Security and Reliability of Medical Device Cyber Physical Systems	47.070		CNS-1035715		88,816		88,816
CRI: CI-Planning: Scalable Language Resource Creation through Novel Incentives and X-sourcing	47.070		CNS-1629923		24,381		24,381
CSR:NeTS: Medium: Network Functions Virtualization with Timing Guarantees	47.070		1563873		29,151		29,151
Cyber-Physical Systems Virtual Organization: Active Resources	47.070	VANDERBILT UNIVERSITY	3834-019899			209,442	209,442
EXP: Linguistic Analysis and a Hybrid Human-Automatic Coach for Improving Math Identity	47.070		1623730	121,623	219,088		219,088
III: Medium: Collaborative Research: Citing Structured and Evolving Data	47.070		IIS-1302212		201,463		201,463
INSPIRE: Legged Locomotion for Desert Research	47.070		IIS-1514882	59,972	63,588		63,588
MRI Development of an observatory for quantitative analysis of collective behavior in animals	47.070		1626008		148,596		148,596
NeTS: Medium: Collaborative Research: DEFIND: DEclarative Formal Interative Network Design	47.070		1513679		20,252		20,252
NeTS: Small: Collaborative Research: Competition, Neutrality and Service Quality in Cellular Wireless Access	47.070		1525457		2,919		2,919
NeTS: Small: Routing Design and Analysis with Incomplete Information	47.070		CNS-1218066		5,554		5,554
NRI: Collaborative: "Shall I Touch This?": Navigating the Look and Feel of Complex Surfaces	47.070		IIS-1426787		65,255		65,255
NRI: Collaborative: Robotics 2.0 for Disaster Response and Relief Operations	47.070		IIS-1426840		135,199		135,199
NRI-Large: Collaborative Research: Human-robot Coordinated Manipulation and Transportation of Large Objects	47.070		IIS-1328805		169,463		169,463
NSF EAGER: CONSTRUCTION OF SOCIAL INTERACTIONS IN 3D SPACE FROM FIRST PERSON VIDEOS	47.070		IIS-1651389		152,431		152,431
Open Data Ecosystem for Neuroscience	47.070		IIS-1649074		6,870		6,870
RET SITE: GRASP - Teacher Partnership in Robotics Education	47.070		CNS-1542301		201,300		201,300
RI: Small: Collaborative Research: Research Leading to Comprehensive Guidelines for Annotating Discourse Relations	47.070		IIS-1422186		41,644		41,644
SaTC Medium: HARDWARE-ASSISTED LIGHTWEIGHT CAPABILITY OPTIMIZATION (HALCYON)	47.070		CNS-1513687		584,760		584,760
SHF: Small: LUCID: Low-overhead, Unobtrusive Cache Contention Detection and Repair	47.070		CCF-1525296		43,788		43,788
SHF: Small: New Frontiers in Constraint-Based Program Analysis	47.070		1526270		182,656		182,656
SHF: Small: Nonstandard Computational Models of Linear Logic	47.070		CCF-1421193		68,649		68,649
SHF: Small: Random Testing for Language Design	47.070		CCF-1421243		75,441		75,441
Synergy: Collaborative Research: Security and Privacy-Aware Cyber-Physical Systems	47.070		1505799		481,675		481,675

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TC: SMALL: WATCHDOG: Hardware-Assisted Prevention of All Use-After-Free Security Vulnerabilities	47.070		CNS-1116682	5,942	5,148		5,148
TWC: MEDIUM: COLLABORATIVE RESEARCH: BLACK-BOX EVALUATION OF CRYPTOGRAPHIC ENTROPY AT SCALE	47.070		CNS-1408734		51,801		51,801
TWC: MEDIUM: CRYPTOGRAPHIC APPLICATIONS OF CAPACITY THEORY	47.070		1513671		280,877		280,877
TWC: Medium: Distributed Differential Privacy	47.070		CNS-1513694		162,200		162,200
TWC: Medium: Micro-Policies: A Framework for Tag-based Security Monitors	47.070		CNS-1513854		112,884		112,884
XPS: CLCCA: Improving Parallel Program Reliability Through Novel Approaches to Precise Data Race Detection	47.070		CCF-1337174		92,568		92,568
USING PARALLELISM AND RANDOMNESS IN THE ANALYSIS OF LARGE-SCALE REAL-TIME SYSTEMS	47.070		CCR93-11622 PRIME/9311622		-7		-7
HIERARCHIAL SPECIFICATION, ANALYSIS, AND TESTING ON REAL-TIME SYSTEMS	47.070		CCR94-15346		430		430
CAREER: Cryptographic Security at Internet Scale	47.070		1651344		86,093		86,093
CSR: SHF: Medium: Collaborative Research: New Horizon in Deterministic Execution	47.070		CNS-1703541		92,873		92,873
SHF: Medium: Collaborative Research: Formal Analysis and Synthesis of Multiagent Systems with Incentives	47.070		1703791		39,459		39,459
CI-NEW: NIEUW: Novel Incentives and Workflows in Linguistic Data Collection and Annotation	47.070		CNS-1730377		262,626		262,626
SHF: Medium: Collaborative Research: The Theory and Practice of Dependent Types in Haskell	47.070		1703835		74,056		74,056
RI: Small: Modern Machine Learning Algorithms for Ranking from Pairwise and Higher-Order Comparisons	47.070		IIS-1717290		103,972		103,972
NSF Student Travel Grant for 2018 Programming Languages Mentoring Workshop at POPL (PLMW-POPL-2018)	47.070		1749155		7,740		7,740
EAGER: Predicting Domain-level Reading Comprehension Ease to Support Adult Learning	47.070		1748771		36,465		36,465
RI: MEDIUM: COLLABORATIVE RESEARCH: Closed Loop Perceptual Planning for Dynamic Locomotion	47.070		1703319		82,854		82,854
CIF: SMALL: METRIC REPRESENTATIONS OF NETWORK DATA	47.070		1717120		42,748		42,748
Legal Barriers to Securing the Routing Architecture	47.070		CNS-1748362		207,187		207,187
Provenance for debugging performance issues in network applications	47.070	CARNEGIE MELLON UNIVERSITY	1122310-387866			109,335	109,335
The next generation pseudopotential development and high accuracy simulations for multifunctioning materials	47.070	VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY	479589-19314			16,920	16,920
S&AS: FND: COLLAB: Planning and Control of Heterogeneous Robot Teams for Ocean Monitoring	47.070		IIS-1812319		39,392		39,392
NeTS: Medium: Collaborative Research: Diagnosing Datacenter Networks with Quantitative Provenance	47.070		CNS-1703936		830		830
RAPID: COLLABORATIVE RESEARCH: Building Infrastructure to Prevent Disasters like Hurricane Maria	47.070		1809324		18,000		18,000
AF: MEDIUM: Collaborative Research: Foundations of Adaptive Data Analysis	47.070		1763314		23,070		23,070
CRII: CCF: Low-Complexity Coding at Optimal Length	47.070		17557077		24,738		24,738
CRII: RI: ROBUST VISUAL COMPUTING OF FRICTIONAL CONTENT	47.070		1755544		976		976
SCH: INT: Mining Drug-Drug Interaction Induced Adverse Effects from Health Record Databases	47.070		IIS-1827472		17,316		17,316
CCF: Medium: Enabling Real-Time Quantitative Decision Making over Streaming Data	47.070		1763514		23,675		23,675
AitF: Provenance with Privacy and Reliability in Federated Distributed Systems	47.070		CCF-1733794		56,320		56,320
CPS: Synergy: Collaborative Research: Safety-Feature Modeling and Adaptive Resource Management for Mixed-Critically Cyber-Physical Systems	47.070		CNS-		2,103		2,103
TC:Medium: Collaborative Research: Tracking Adversarial Behavior in Distributed Systems with Secure Networked Provenance	47.070		CNS-1065130		135,871		135,871
47.070 Total				**187,537**	**8,210,975**	**664,730**	**8,875,705**
DIRECTORATE FOR COMPUTER AND INFORMATION SCIENCES AND ENGINEERING/NSF Total				187,537	8,210,975	664,730	8,875,705
DIRECTORATE FOR EDUCATION AND HUMAN RESOURCES/NSF							
AMP V	47.076	DREXEL UNIVERSITY	235920			84,323	84,323
Collaborative Research: ET-ECS: Electronic Textiles for Exploring Computer Science with High School Students & Teachers to Promote Computational Thinking and Participation for All	47.076		DRL-1509245		285,849		285,849
Collaborative Research: The Role of Instructor and Peer Feedback in Improving the Cognitive, Interpersonal, and Intrapersonal Competencies of Student Writers in STEM Courses	47.076		DGE-1544130		7,721		7,721
Collaborative Research: Using Data Mining and Observation to derive an enhanced theory of SRL in Science learning environments	47.076		DUE-1665216	46,003	133,525		133,525
Developing Formative Assessment Tools and Routines for Additive Reasoning	47.076		DRL-1620888		149,483		149,483
EAGER: MAKER: bioMAKERlab: A Wetlab and Starter Activities for Promoting Synthetic Biology in High School Classes and Workshops	47.076		1623018		91,747		91,747
EXP: Collaborative Research: Designing the Impact Studio -- Dynamic Visualizations in the Write4Change Networked Community	47.076		1623258	25,879	97,648		97,648
Graduate Research Fellowship Program	47.076		DGE-1321851		3,274,526		3,274,526
IGERT: Complex Scene Perception	47.076		DGE-0966142		-49,199		-49,199
Making Math Tutors More Engaging and Effective through Interaction Design Patterns and Educational Data Mining	47.076	TEACHERS COLLEGE - COLUMBIA UNIVERSITY	513135			17,622	17,622
NRT-IGE: Penn Pathfinders	47.076		1545212		173,554		173,554
Systemic Formative Assessment to Promote Mathematics Learning in Elementary Schools	47.076		DRL-1621333	111,269	1,172,819		1,172,819
TERC Postdoctoral Fellowship	47.076	TERC	44174			60,678	60,678
The Effects of Education and Professional Development on Beginning STEM Teacher Persistence: a Longitudinal Study	47.076		DGE-1535175		310,688		310,688
Using Research-Based Formative Assessment to Improve Mathematics Teaching and Learning	47.076		DRL-1316527		-328		-328
Collaborative Research: Using Educational Data Mining Techniques to Uncover How and Why Students Learn from Erroneous Examples	47.076		1661153		41,976		41,976
Belief revision in early childhood: Learning about learning in the lab and museum	47.076		1660655	5,097	120,934		120,934
BioGraph 2.0 - Online Professional Development for High School Biology Teachers for Teaching and Learning About Complex Systems	47.076		1721003	199,643	298,632		298,632
Collaborative Research: Debugging by Design: Developing a Tool Set for Debugging with Electronic Textiles to Promote Computational and Engineering Thinking in High School	47.076		DRL-1742140		64,745		64,745
Collaborative Research: Building Enhanced Scientific Thinking through Modeling Ecosystems	47.076	MISSOURI BOTANICAL GARDEN	NSF1513043-UP			2,579	2,579
47.076 Total				**387,891**	**6,174,320**	**165,202**	**6,339,522**
DIRECTORATE FOR EDUCATION AND HUMAN RESOURCES/NSF Total				387,891	6,174,320	165,202	6,339,522
DIRECTORATE FOR ENGINEERING/NSF							
A wireless sensor-brain interface to restore finger sensation	47.041		CBET-1404041		123,038		123,038
Automated object contouring methods and software for head and neck radiotherapy planning	47.041	QUANTITATIVE RADIOLOGY SOLUTIONS, LLC	SUB TO 1549509			6,649	6,649
CAREER: Coupling Spin, Light, and Charge for Quantum Information Processing and Storage in Diamond	47.041		ECCS-1553511		54,140		54,140
CAREER: Functional adaptation of the maternal skeleton to reproduction and lactation	47.041		CMMI-1653216		24,733		24,733
CAREER: Time-domain encoding for highly parallel digital molecular sensing	47.041		CBET-1554200		81,852		81,852
CDS&E: Collaborative Research: Data-Driven Predictive Modeling of Flows Containing Aggregating Particles	47.041		CBET-1404826		120,641		120,641
Collaborative Research: I/UCRC for Robots and Sensors for the Human Well-being	47.041		IIP-1439681		51,950		51,950
Collaborative Research: Integration of Implantable MEMS Sensors and Computational Modeling to Assess Mechanical Regulation of Bone Regeneration	47.041		CMMI-1362652		-3,599		-3,599
Collaborative Research: Temperature-Dependence of Atomic-Scale Friction	47.041		CMMI-1401164		42,835		42,835
Collaborative Research: Ultrafast Carrier Dynamics in Semiconductor Nanocrystal Solar Cells	47.041		CBET-1335821		-182		-182
Development and Validation of the SafeClose™ Mesh Augmentation System for Hernia Prevention	47.041	PARADIGM SURGICAL, LLC	SUB TO 1648854			52,764	52,764
DMREF: Collaborative Research: High-throughput discovery, development,and demonstration of material systems to enable low-power NEMS-basedcomputation	47.041		CMMI-1334241		-682		-682
EFRI 2-DARE: Functionalized Monolayer Heterostructures for Biosensors with Optical Readout	47.041		EFMA-1542879	16	556,927		556,927
EFRI 2-DARE: Two-dimensional nanopores with electro-optical control for next generation biotechnological applications	47.041		EFMA-1542707	269,919	666,608		666,608
EFRI-ODISSEI: Cutting and Pasting - Kirigami in Architecture, Technology, and Science	47.041		EFRI-1331583	109,110	268,967		268,967
ESE RESEARCH COMMUNITY PLANNING GRANT	47.041		ECCS-1654985		7,343		7,343
GOALI/Collaborative Research: Manufacturing of Carbon NanotubeContacts for High-Performance Microelectromechanical Switches	47.041		CMMI-1463344		15,347		15,347
GOALI: Single droplet level understanding of phase inversion emulsification to enable continuous processing	47.041		CBET-1604536		110,953		110,953
Investigating the Unsteady Rheology and Evolving Microstructure of Suspensions of Swimming Microorganisms	47.041		CBET-1437482		42,761		42,761
LARGE-AREA, ALIGNMENT-FREE, 3D CHIRAL PLASMONIC NANOSTRUCTURES USING TEMPLATE-BASED FABRICATION TECHNOLOGY	47.041		1562884		112,450		112,450
Mechanistic Studies of Hydrodeoxygenation of Lignin-Derived Aromatic Oxygenates over Bimetallic Catalysts	47.041		CBET-1508048		89,733		89,733
Molecular modeling of failure in polymer nanocomposites	47.041		1536914		103,597		103,597
Molecular Modeling of Wetting and Dewetting Transitions on Nanotextured Surfaces	47.041		1511437		54,575		54,575
More efficient breast pumping through automated breast compression	47.041		IIP-1719290		17,173		17,173
Multiscale Modeling of Compositional Stresses in Nonstoichiometric Oxides	47.041		CMMI-1363203		143,963		143,963
NetEgg: Toolkit for Programming Network Policies by Examples	47.041		1564730		6,270		6,270
NNCI: Establishment of a Nanotechnology User Node at the University of Pennsylvania	47.041		ECCS-1542153	15,054	1,005,331		1,005,331
Nonlinear Homogenization of Porous Anisotropic Materials: Applications to Plastic and Magnetic Shape-Memory Alloys	47.041		CMMI-1332965		13,725		13,725
Parental Driving Behaviors of Child Passengers ages 4 – 10 years	47.041	CHILDREN'S HOSPITAL OF PHILADELPHIA	27065-212780717-12			2,432	2,432

University of Pennsylvania
Schedule of Expenditures
For the year ended June 30, 2018

Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
PFI:BIC Affordable and Mobile Assistive Robots for Elderly Care	47.041		IIP-1430216	70,296	138,700		138,700
Predicting the interfacial activity of complex grafted nanoparticles	47.041		CBET-1510635		113,953		113,953
Realizing non-close-packed colloidal crystals using directional-bonding superparticles	47.041		CBET-1403237		25,960		25,960
REU: SUNFEST: SUMMER UNDERGRADUATE RESEARCH IN SENSOR TECHNOLOGIES	47.041		EEC-1659190		175,249		175,249
Science and Technology Center for Mechano-Biology	47.041		CMMI-1548571	1,035,119	3,581,526		3,581,526
SNM: Scalable Manufacturing of Nanostructured Membranes for Fracking Wastewater Treatment	47.041		CBET-1449337	87,596	334,268		334,268
Structured Composite Materials with Variable Adhesion Properties	47.041		CMMI-1435745		196,900		196,900
The Penn I-Corps Site - Integrating Company Formation and Experiential Education	47.041		IIP-1450467		46,417		46,417
Understanding Continuum Models of Elasto-Plastic Deformations via Multiscale Analyses	47.041		CMMI-1401537		328		328
Urban Water Innovation Network (U-WIN):Transitioning Toward Sustainable Water Systems	47.041	COLORADO STATE UNIVERSITY	G-00973-12			77,628	77,628
Viscoelastic Fluids in Parallel Shear Flows at low Re: Instabilities, Bifurcations & Single Molecule Experiments	47.041		CBET-1336171		397		397
DEVELOPMENT OF BIODIAGNOSTIC DEVICES BASED ON DIFFERENTIAL ADHESION UNDER FLOW	47.041		BES99-86384		-507		-507
CAREER: Scalable Algorithms for Spectral Analysis of Massive Networked Systems	47.041		ECCS-1651433		85,317		85,317
CAREER: Computational Characterization of Protein Hydration and Interactions	47.041		CBET-1652646		66,883		66,883
Collaborative Research: Exploiting tunable stiffness for dynamic adhesion control at the macro- and micro-scale	47.041		1663037		3,117		3,117
Nanostructured Composite Coatings to Harden and Toughen Polymer Surfaces	47.041		CMMI-1662695		67,340		67,340
Allosteric interactions between proteins on DNA and membranes	47.041		1662101		16,289		16,289
Complexation of charged polymers and nanoparticles at all aqueous interfaces for functional membrane formation	47.041		CBET-1705891		47,354		47,354
Nanoparticle Diffusion in Complex and Dynamic Environments	47.041		CBET-1706014		87,160		87,160
Regulatory Roles of Decorin in the Aggrecan Content and Mechanical Properties of Cartilage	47.041	DREXEL UNIVERSITY	820095_2			3,332	3,332
NRI: INT: COLLAB: Co-Robotic Systems for GeoSciences Field Research	47.041				77,055		77,055
Roles of modeling- and remodeling-based bone formation in determining trabecular bone mechanics at multiple length scales	47.041		1661858		25,585		25,585
GOALI: Enabling Ultra-Low Viscosity Lubricants Through Fundamental Understanding of Additive Interactions and Tribofilm Growth Mechanisms: An In-Situ Study	47.041		1728360		138,580		138,580
EAGER: Collaborative Research: Environmentally responsive, water harvesting and self-cooling building envelopes	47.041		CMMI-1745912		1,472		1,472
EFRI NewLAW Preliminary Proposal: Topological acoustic metamaterials for programmable and high-efficiency one-way transport	47.041	UNIVERSITY OF MICHIGAN	3004604526			48,986	48,986
Collaborative Research: Improved Vehicle Autonomy in Geophysical Flows	47.041		CMMI-1760369		63,388		63,388
EFRI NewLAW: Mid-infrared Topological Plasmon-Polaritons with 2D Materials	47.041	UNIVERSITY OF MINNESOTA	A006382201			17,718	17,718
EFRI NewLaw: CMOS-Compatible Electrically Controlled Non-reciprocal Light Propagation With 2D Materials	47.041	NORTH CAROLINA STATE UNIVERSITY	2017-1-718-02			28,630	28,630
An Engineering Research Center for Cell Manufacturing Technologies (CMaT)	47.041	GEORGIA INSTITUTE OF TECHNOLOGY	RJ375-G1			11,410	11,410
NeuroFlow National I-Corps Proposal	47.041		1817579		46,574		46,574
GOALI: Collaborative Research: Model-Predictive Safety Systems for Predictive Detection of Operation Hazards	47.041		CBET-1704833		18,784		18,784
SBIR Phase I: Leveraging Predictive Analytics within Social Networks to Maximize Drug and Alcohol Treatment Efficacy and Relapse Prevention	47.041	SOBER GRID, INC.				21,177	21,177
High spatial resolution tactile sensing imager using optical exceptional point structures	47.041		ECCS-1811393		4,186		4,186
PFI: BIC: WearNet: Wearable Nanoplasmonic Biosensing Networks for Smart Health Monitoring & Diagnosis	47.041	UNIVERSITY OF BUFFALO	R1107943			1,332	1,332
AIR-AD: Help COPD patients breathe easy again	47.041		IIP-1822281		18,025		18,025
Vifant OKN Vision Test	47.041	VIFANT LLC	Sub to Grant # 1746353 ADV ACCT			6,807	6,807
47.041 Total				**1,587,110**	**9,090,749**	**278,865**	**9,369,614**
DIRECTORATE FOR ENGINEERING/NSF Total				1,587,110	9,090,749	278,865	9,369,614
DIRECTORATE FOR GEOSCIENCES/NSF							
Acquisition of New Thermal Analysis Instrumentation for Increased Capacity of Characterization of Organic Matter in Soils and Sediments	47.050		EAR-1541588		10,504		10,504
CAREER: Retention and Mobility of Beryllium in Soils and Sedimentary Environments	47.050		1554134		-2,211		-2,211
Collaborative Research: Converging on a Physical Basis for Rate and State Friction through Nano-to-Macro-Scale Friction and Adhesion Experiments on Geological Materials	47.050		EAR-1464714		51,196		51,196
Collaborative Research: A Multidisciplinary Study to Determine the Fundamental Mechanisms of Rock Friction through Coordinated Experiments and Simulations	47.050		EAR-1550112		67,872		67,872
EaSM-3: Integration of Decision-Making with Predictive Capacity for Decadal Climate Impacts	47.050		AGS-1419504		26,055		26,055
Hazards SEES: Risk Assessment and Risk Management: An Integrated Approach for Responding to Multiple Hazards from Tropical Cyclones in a Changing Climate	47.050	PRINCETON UNIVERSITY	SUB000091			108,376	108,376
Luquillo CZO: The Role of Hot Spots and Hot Moments in Tropical Landscape Evolution and Functioning of the Critical Zone	47.050	UNIVERSITY OF NEW HAMPSHIRE	14-064			164,700	164,700
WSC-Category 2 Collaborative: Robust decision-making for South Florida water resources by ecosystem service valuation, hydro-economic optimization and conflict resolution modeling	47.050		EAR-1204780		28,680		28,680
Collaborative Proposal: Constraints from Fault Roughness on the Scale-Dependent Strength of Rocks	47.050		1624504		1,006		1,006
ODM2 Admin- Pilot Project	47.050	CONSORTIUM OF UNIVERSITIES FOR THE ADVANCEMENT OF HYDROLOGIC SCIENCE, INC.	EAR- 1338606			49,899	49,899
Collaborative Research: Southern Ocean convection in climate models: controls and Impacts	47.050		OCE-1756808		20,756		20,756
47.050 Total					**203,858**	**322,975**	**526,833**
DIRECTORATE FOR GEOSCIENCES/NSF Total					203,858	322,975	526,833
DIRECTORATE FOR MATHEMATICS AND PHYSICAL SCIENCES/NSF							
Accurate Cosmological Measurements from the Dark Energy Survey	47.049		AST-1615555		79,926		79,926
Advanced ACTPol	47.049	PRINCETON UNIVERSITY	SUB0000032			284,598	284,598
Advances for Bayesian Model Selection and Inference	47.049		DMS-1406563		37,906		37,906
Algebraic, combinatorial and analytic applications of symmetric functions	47.049		1500834		30,003		30,003
Bioinspired Synthesis of Complex Molecular Systems	47.049		DMR-1066116		139,726		139,726
CAREER: Action-Minimizing Paths in the Space of Probability Measures	47.049		DMS-1554130		107,456		107,456
CAREER: Characterizing the First Billion Years of Galaxy Evolution with 21 cm Tomography	47.049		AST-1455151		54,417		54,417
CAREER: Flow, failure, fluctuations and the topology of vascular networks	47.049		PHY-1554887		124,656		124,656
CAREER: Free Surface Mobility and its Role in the Formation of Exceptionally Stable Glasses	47.049		DMR-1350044		129,680		129,680
CAREER: Linking Graph Topology of Learned Information to Behavioral Variability via Dynamics of Functional Brain Networks	47.049		PHY-1554488		96,787		96,787
CAREER: Mechanics of Ultra-Strength Nanomaterials: Revealing Deformation Mechanisms	47.049		DMR-1056293		15,283		15,283
CAREER: Nonparametric Eigenanalysis of High Dimensional Data	47.049		DMS-1352060		70,108		70,108
CAREER: Thiomides as Minimalist Chromophores to Monitor Protein Dynamics	47.049		CHE-1150351		-942		-942
CENTER OF EXCELLENCE FOR MATERIALS RESEARCH AND INNOVATION (CEMRI)	47.049		DMR-1120901	110,283	744,838		744,838
Characterizing the Physical Properties of High-redshift SN Ia Host Galaxies	47.049		1517742		141,386		141,386
Coalescing systems with random initial conditions	47.049		1612674		103,430		103,430
Collaborative Research: Novel Computational and Statistical Approaches to Prediction and Estimation	47.049		DMS-1521529		45,113		45,113
Collaborative Research: AGNES: Algebraic Geometry NorthEastern Series	47.049		DMS-1361706		5,999		5,999
Collaborative Research: Characterizing the Trans-Neptunian Solar System with the Dark Energy Survey	47.049		1515804		98,053		98,053
Collaborative Research: De novo Protein Constructs for Photosynthetic Energy Transduction	47.049		CHE-1412496		60,353		60,353
Collaborative Research: De novo Protein Constructs for Photosynthetic Energy Transduction	47.049		CHE-1709518		89,197		89,197
Collaborative Research: Directing Charge and Energy Flow in Discrete Nanocrystal-Dendrimer Hybrids and in Their Assemblies	47.049		1709827		70,478		70,478
Collaborative Research: Experimental and Theoretical Studies of the Biomechanics of Fibrin Polymer	47.049		DMR-1505662		161,733		161,733
Computationally designed synergistic protein-nanoparticle assemblies	47.049		CHE-1508318		184,977		184,977
Curvature gradient driven assembly of trapped and reconfigurable structures	47.049		DMR-1607878		113,114		113,114
Curvature, group actions and geometric flows	47.049		DMS-1506148		126,185		126,185
Degenerate Diffusions on Manifolds with Corners	47.049		DMS-1507396		79,281		79,281
Designing the Electronic Properties of PbSe Nanowires for Optoelectronic Devices	47.049		DMR-1309053		74,339		74,339
EAGER Renewal: Bio-Inorganic Chemistry of the Rare Earth Metals: Chemistry Relevant to the Cerium-Dependent Methanol Dehydrogenase	47.049		1608925		52,693		52,693
Elasticity, Deformation, Rearrangement & Assembly in Complex Fluids	47.049		1607378		-1,007		-1,007
Energy Landscape Approaches to Understanding Soft Glassy Materials	47.049		1609525		101,586		101,586
Engineering Stable Glass Films Using Molecular Design and Surface-Mediated Equilibration	47.049		1628407		605,040		605,040
Field-theoretic simulations with excluded volume correlations	47.049		DMR-1410246		16,363		16,363
FRG: Collaborative Research: Chern classes in Iwasawa Theory	47.049		DMS-1360767		98,154		98,154

University of Pennsylvania
Schedule of Expenditures
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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
FRG: Collaborative Research: Obstructions to Local-Global Principles and Applications to Algebraic Structures	47.049		DMS-1463733		178,418		178,418
From Photon to Neuron: a textbook on Light, Imaging, and Vision	47.049		PHY-1601894		55,243		55,243
High Resolution Observations of the Sunyeav-Zel'dovich Effect in Galaxy Clusters	47.049		AST-1615604		165,741		165,741
High Resolution Observations of the Synyaev-Zel-dovich Effect in Clusters of Galaxies at 90 GHz Using the GBT	47.049		AST-1309032		-36		-36
Jamming transitions and kinetic phenomena	47.049		DMR-1305199		180,230		180,230
Liberating T-Cell Mediated Immunity to Pancreatic Cancer	47.049		1545935	68,686	62,682		62,682
Magneto-Active Elastomers: Homogenization, Instabilities and Relaxation	47.049		1613926		92,623		92,623
Materials World Network: Mechanics and Durability of Diamond-Like Nanocomposites (MADDiLiN): An International Collaboration to Understand Tribo-Mechanical Multiphysical Phenomena	47.049		DMR-1107642		62,077		62,077
Measuring Weak Gravitational Lensing with the Dark Energy Survey	47.049		AST-1311924		41,695		41,695
Moduli of Abelian Varieties	47.049		DMS-1200271		41,116		41,116
MUSTANG2 - A Next Generation 90 GHz Receiver for Studying Galaxy Clusters	47.049		AST-1509093	21,429	21,429		21,429
Novel coupling reactions	47.049		1464744		249,802		249,802
Novel Polyfluoroalkylated Building Blocks	47.049		CHE-1362841		55,350		55,350
NSF Funding Request: An International Conference in Harmonic Analysis at the ICMS	47.049		DMS-1700938		7,173		7,173
NSF GeomFest 2013	47.049		DMS-1337391		19,156		19,156
NSF/DMR-BSF: Diffusion along Metal-Ceramic Interfaces: a combined theoretical and experimental study	47.049		DMR-1609267		155,118		155,118
NSF/DMR-BSF: Ultra-Tough Double-Network Hydrogels for Cartilage Repair	47.049		DMR-1610525		116,786		116,786
Oxidative Methods for C-C, C-N, and C-O Bond Formation	47.049		CHE-1464778		157,073		157,073
Penn-UPR Partnership for Research and Education in Materials	47.049	UNIVERSITY OF PUERTO RICO	DMR-1523463			86,166	86,166
Precise Copolymers and Ionomers: Conductivity in Layered and Percolated Morphologies and Mechanical Properties	47.049		1506726		114,847		114,847
Programmable pattern transformation of reconfigurable polymer membranes	47.049		DMR-1410253		-1,621		-1,621
Proof Theory: Finite Data from Infinite Mathematics	47.049		1600263		33,302		33,302
Quantum invariants, enhanced moduli, and integrable systems	47.049		1601438		36,384		36,384
QuarkNet	47.049	UNIVERSITY OF NOTRE DAME	SUB TO PHY-1219444			12,785	12,785
Radon transforms: geometric combinatorics, regularity, and applications	47.049		DMS-1361697		13,094		13,094
Reactive Metal-Ligand Multiple Bonds and Their Use in C-H Activation, Alkane Dehydrogenation and Coupling Processes	47.049		1464659		208,923		208,923
Research Collaboration: Modeling and simulation of the growth of graphene multilayers and Heterostructures	47.049		1522603		5,350		5,350
Research Experiences for Undergraduates (REU)-Site	47.049		DMR-1659512		77,493		77,493
Research Proposal in Algebraic Geometry and String Theory	47.049		DMS-1603526		89,577		89,577
Responsive Hybrid Oleosin Nanomaterials	47.049		1609784		167,085		167,085
Spectroscopy and Dynamics of Reaction Intermediates	47.049		CHE-1362835		48,006		48,006
Spectroscopy and Dynamics of Reaction Intermediates	47.049		1664572		181,123		181,123
Statistical Methods for High-resolution Multiscale analysis 3D DNA Interactions	47.049		1562665		300,562		300,562
String Math Conferences 2014	47.049		DMS-1401390		-226		-226
Structural and Chemical Changes Due to Electrical Stress in Phase-Change Nanowires: An In Situ Electron Microscopy Study	47.049		DMR-1505127		80,448		80,448
Sub-picosecond Stress-Induced Conductivity Transitions, Mechanical Transitions and Ferroelectric Transitions	47.049		DMR-1409114		61,101		61,101
Synthesis, Characterization and Reactivity Studies of Cerium Metal-Ligand Multiple Bonds	47.049		CHE-1664928		137,210		137,210
The Combinatorics of Macdonald Polynomials and Symmetric Function Operators	47.049		1600670		91,378		91,378
The Fundamental Physics of the Invisible and the Very Early Universe	47.049		PHY-1145525		39,366		39,366
Theoretical Studies of Mechanics in Active Matter	47.049		DMR-1506625		93,756		93,756
Theory and Methods for Estimation of Nonsmooth Functionals and Detection of Simultaneous Signals	47.049		DMS-1403708		6,224		6,224
Topics in Fluid dynamics with free boundaries, and Kinetic theory	47.049		DMS-1500916		66,243		66,243
Topological and Geometrical Problems in Soft Matter, Due 10/1/12	47.049		DMR-1262047		43,244		43,244
Topological Framework for Analysis and Visualization of Atomistic Materials Simulations	47.049		1507013		163,602		163,602
Transport & Dynamics of Swimming Microorganisms in Time-Dependent Flows	47.049		1709763		126,011		126,011
Valid Inference when Analytical Models are Approximations	47.049		DMS-1512084		164,789		164,789
Variational and Parabolic Phenomena in Differential Geometry	47.049		DMS-1737006		42,737		42,737
Vertically Oriented Anisotropic Nanoparticles in Polymer Matrices	47.049		1507713		144,911		144,911
Enhanced Sampling Methods for Characterizing Solvent Fluctuations in the Solvation Shells of Conformationally Flexible Molecules	47.049		CHE-1665339		3,670		3,670
The Interplay between electron and energy transfer in molecular nanosystems	47.049		CHE-1665291		142,272		142,272
Center for Enabling New Technologies through Catalysis (CENTC) Phase II Renewal	47.049	UNIVERSITY OF WASHINGTON	UWSC9828			300,307	300,307
Collaborative Research: Integrative Large Scale Data Analysis and Statistical Inference	47.049		1712735		147,276		147,276
MRI: Acquisition of an Ultra-Small-Angle to Wide-Angle Dual Source X-ray Scattering Instrument for Materials Characterization	47.049		1725969		554,236		554,236
A System of Minimalist Protein Labels for Fluorescence Studies	47.049		CHE-1708759		104,424		104,424
SuSChEM: GOALI: Enabling Photoredox Catalysis in the Industrial Setting	47.049		CHE-1664818		252,392		252,392
NSF/DMR-BSF Coordinated Theoretical and Raman Spectroscopic Probes of Excited-State Structural Dynamics of Halide Perovskites	47.049		1719353		101,300		101,300
CAREER: Effective Field Theories from String Compactification	47.049		PHY-1756996	45,801	96,044		96,044
CAREER: Stochastic processes in statistical physics and optimization	47.049		DMS-1757479		97,737		97,737
Materials Research Science and Engineering Centers - MRSEC	47.049		DMR-1720530		1,783,508		1,783,508
Fundamental Reactions Relevant to Selective Hydrocarbon Functionalization with Late-Transition Metals	47.049		CHE-1818513	58,559	133,934		133,934
Collaborative Research: Investigation of Rotation-Time and Inversion-Time Symmetries in Photonic Materials	47.049		1811370		104,933		104,933
PFC: Center for the Physics of Biological Function	47.049	PRINCETON UNIVERSITY	SUB0000223			3,083	3,083
Development of a high speed board to board communications over an ATCA backplane for the L1 Track and FTK++ trigger processor	47.049	STONY BROOK	76749/1136652/2/2R7D			6,071	6,071
NSF CTMC	47.049		CHE-1764365		44,410		44,410
A Materials Genome Approach to Structure and Function	47.049		DMR-1807127		54,520		54,520
47.049 Total				**304,756**	**11,673,562**	**693,010**	**12,366,572**
DIRECTORATE FOR MATHEMATICS AND PHYSICAL SCIENCES/NSF Total				304,756	11,673,562	693,010	12,366,572
DIRECTORATE FOR SOCIAL, BEHAVIORAL AND ECONOMIC SCIENCES/NSF							
Affordable Care Act and the Labor Market	47.075		1459353		76,254		76,254
Andean EGLN1, A Target of Natural Selection for Hypoxic Adaptation	47.075	UNIVERSITY OF MICHIGAN	3004216837			58,262	58,262
CAREER; DECISION-INDUCED BIASES IN VISUAL PERCEPTS	47.075		BCS-1350786		135,459		135,459
Cartel Birth, Death, and Detection	47.075		SES-1148129		-131		-131
Cognitive characteristics of the leaders of language change	47.075		1627972		48,198		48,198
Collaborative Research: Dynamic Rational Inattention: Theory and Applications	47.075		1461469		25,519		25,519
Collaborative Research: Good Booms, Bad Booms	47.075		1529586		98,996		98,996
Collaborative Research: Mapping and Control of Large-Scale Neural Dynamics	47.075		BCS-1430087		78,784		78,784
Collaborative Research: Monetary DSGE models at the Zero Lower Bound: Policy Analysis and Econometric.	47.075		SES-1424843		60,650		60,650
Computational Techniques for Studying Everyday Multiattribute Choice	47.075		SES-1626825		142,411		142,411
Doctoral Dissertation Research in DRMS: Attitudes to Genetically Modified Foods	47.075		SES-1559371		4,480		4,480
Doctoral Dissertation Research in DRMS: Why We Help the Wronged?	47.075		SES-1559320		-1,736		-1,736
Doctoral Dissertation Research: Archaeological Examinations of Political Violence and Everyday Life during Yucatan's Caste War, 1847-1901	47.075		1640392		-80		-80
Doctoral Dissertation Research: Gut Microbiomes of Cameroon Hunter-Gatherers: Roles of Diet and Helminths	47.075		BCS-1540432		12,646		12,646
Doctoral Dissertation Research: Investigating the mechanism of phonological change in progress: Allophonic restructuring of /ae/ in Philadelphia	47.075		1628408		6,233		6,233
Doctoral Dissertation Research: The Socio- and Psycholinguistics of a Consonant Merger: Seseo in Seville, Spain	47.075		BCS-1627973		1,435		1,435
Doctoral Dissertation Research: Variation and Change in Past Tense Negation in AAVE	47.075		1658547		16,756		16,756
EAGER - Complexity and Emergency Response in Abrupt Climate Change	47.075		BCS-1646822		3,329		3,329
Empirical Studies of Business-to-Business Bargaining: Evidence from Hospital Input Markets	47.075		SES-1559485		169,998		169,998
Forecasting and Political Discourse	47.075		SES-1559370		186,655		186,655
Integration Of Urban And Rural Population	47.075		BCS-1430404		-2,087		-2,087

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Macroeconomics of Labor Market Sorting	47.075		SES-1357903		21,696		21,696
Modelling the US Market for Higher Education: Theory and Estimation	47.075	CARNEGIE MELLON UNIVERSITY	1122062-327557			16,713	16,713
NCS-FO: Collaborative Research: A mechanistic model of cognitive control	47.075		BCS-1631550		35,417		35,417
NCS-FO: The role of noise in mental exploration for learning	47.075		1533623		329,528		329,528
Observing the Invisible: A Collaborative Investigation between Astrophysicists and Philosophers	47.075		SES-1557138		153,325		153,325
Postdoctoral Fellowship: Neuro-visions of the Prejudiced Mind: Implications and Challenges for Neuroscience Research on Implicit Bias	47.075		SES-1632596		69,965		69,965
Presuppositions in Online Language Comprehension	47.075		BCS-1349009		57,322		57,322
Spatial Intelligence and Learning Center (SILC)	47.075	TEMPLE UNIVERSITY	330161-18110-7341			77,522	77,522
Standard Research Grant: Probing Public Understanding and Acceptance of Evolution	47.075		SES-1455425		34,657		34,657
Subaward from University of Oregon - Supplemental application to NSF in support of NSF BCS-1358724	47.075	UNIVERSITY OF OREGON	2000U0A (NSF 1358724)			12,954	12,954
The Black Family Racial Socialization Project: A mixed methods, multimodal exploration of racial socialization processes in the 21st century	47.075		SMA-1606869		96,832		96,832
The Effects of Raw Material Variability and Heat Treatment on Flake Production and Use: A Controlled Experiment	47.075		BCS-1153192		-1,150		-1,150
Uncertainty in Models of Authority and Models of Matching	47.075		1559369		106,080		106,080
Analysis of decades of Flood Insurance Purchases Under the National Flood insurance Program	47.075		SES-1062039		-1,739		-1,739
The neural mechanisms underlying visual target and task switching	47.075		BCS-1265480		45,221		45,221
Doctoral Dissertation Research in DRMS: On the Evaluation of Beliefs: A Method for Assessing Credibility in Subjective Probability Judgment	47.075		1658685		4,828		4,828
Global Family Change	47.075		1729185		10,378		10,378
Digital News and the Consumption of Information Online	47.075		1729412		34,593		34,593
Re-examining the Roles of Beliefs and Information in Sovereign Debt Crises	47.075		1726976		53,975		53,975
Doctoral Dissertation Research: Epigenentic Signatures of Social Isolation in Free-Ranging Rhesus Macaques (M. mulatta)	47.075		BCS-1650850		2,937		2,937
US-German Collaboration: Roles of place and grid cells and phase precession in human spatial and episodic memory	47.075	COLUMBIA UNIVERSITY	1(GG008689)			57,877	57,877
Assessing Student Abilities and Enhancing Value Added in Higher Education for Disadvantaged Students: Evidence from the U.S. Military Academy in West Point	47.075	CARNEGIE MELLON UNIVERSITY	1122598-38829			30,326	30,326
Doctoral Dissertation Research: The Role of Mitochondrial DNA Background in HPV Infection and Cervical Cancer Precursor Risk	47.075		1751863		175		175
Documenting Neandertal Fire Signatures through High Resolution Analyses at Pech de l'Azé IV	47.075		BCS-1755237		4,045		4,045
Collaborative research: A Corpus of New York City English: Audio-aligned and parsed	47.075		1629348		26,658		26,658
47.075 Total					**2,148,512**	**253,654**	**2,402,166**
DIRECTORATE FOR SOCIAL, BEHAVIORAL AND ECONOMIC SCIENCES/NSF Total					2,148,512	253,654	2,402,166
NATIONAL SCIENCE FOUNDATION							
HERA: Illuminating Our Early Universe	47.078	UNIVERSITY OF CALIFORNIA, BERKELEY	00009389			182,611	182,611
CAREER: Hierarchical self-assembly of photonic devices from patchy colloids: deciphering the reflecting-photonic alphabet	47.078		DMR-1351935		96,349		96,349
47.078 Total					**96,349**	**182,611**	**278,960**
PIRE: Research and Education in Active Coatings Technologies (REACT) for the Human Habitat	47.079		OISE-1545884	1,279	727,924		727,924
47.079 Total				**1,279**	**727,924**		**727,924**
SI2-SSI: The Language Application Grid: A Framework for Rapid Adaptation and Reuse	47.080	BRANDEIS UNIVERSITY	4-02069			10,821	10,821
47.080 Total						**10,821**	**10,821**
Workshop on Assessing Performance and Developing an Accountability System for Broadening Participation	47.083		OIA-1639188		5,685		5,685
47.083 Total					**5,685**		**5,685**
Intergovernmental Personnel Act Assignment - Kimberly Gallagher	47.RD		IPA AGREEMENT		67,166		67,166
47.RD Total					**67,166**		**67,166**
NATIONAL SCIENCE FOUNDATION Total				1,279	897,124	193,432	1,090,556
NATIONAL SCIENCE FOUNDATION Total				***3,113,247***	***42,533,144***	***2,658,220***	***45,191,364***
DEPARTMENT OF VETERAN AFFAIRS							
DEPARTMENT OF VETERANS AFFAIRS							
Adam Marc IPA	64.RD		IPA ADAM D MARC		34,602		34,602
Beers - VA Merit Award	64.RD		IPA SURAFEL MULUGETA		178,439		178,439
Bioactive Injectable Implants for Functional Interverterbral Disc Regeneration	64.RD		IPA AGREEMENT		117,106		117,106
Cartilage Repair with Synovial Joint Precursors	64.RD		IPA - Henning		65,236		65,236
Cartilage response to compression injury: A platform for therapeutics discovery	64.RD		IPA AGREEMENT		142,801		142,801
Chart Review of the Insomnia Telehealth Program (IPA: James Findley)	64.RD		IPA JAMES FINDLEY		40,211		40,211
Chronic Neurodegenerative and Neurophysiological Sequela of Closed-Head TBI	64.RD		PO #642D36047		22,035		22,035
Cognitive Behavioral Therapy for Insomnia (IPA: James Findley)	64.RD		IPA AGREEMENT		5,403		5,403
Comparative Effectiveness Research in Veterans with PTSD (CERV-PTSD)	64.RD		VA268-15-C-0074		49,682		49,682
Culhane VA IPA (10/01/16 - 09/30/17)	64.RD		IPA AGREEMENT		154,886		154,886
Designing neuronal tissue constructs that mimic brain-specific architecture	64.RD		IPA JAMES LIM		46,108		46,108
Effect of Scaffold-delivery Growth Factors in Rotator Cuff Repair	64.RD		IPA AGREEMENT		23,918		23,918
Engineered Multi-Functional Nanofibrous Meniscus Implants	64.RD		IPA- Burdick/Schaer		240,245		240,245
FY17 VA IPA - Adam Mussell	64.RD		IPA ADAM MUSSELL		3,068		3,068
FY17 VA IPA-Daniel Del Alcazar	64.RD		IPA DANIEL DEL ALCAZAR		42,503		42,503
Implementing Goals of Care Conversations with Veterans in VA LTC Settings, Philadelphia, PA	64.RD		IPA		29,301		29,301
Incorporating Veterans' Preferences into Lung Cancer Screening Decisions	64.RD		IPA AGREEMENT		21,567		21,567
Insomnia during Recovery: is CBT-I efficacious and is Insomnia a Modifiable Risk Factor for Relapse?	64.RD		IPA AGREEMENT		7,100		7,100
Integrated Cognitive Behavioral Therapy to Improve Outcomes in Schizophrenia	64.RD		IPA PAUL M. GRANT		20,014		20,014
Integrated Cognitive Behavioral Therapy to Improve Outcomes in Schizophrenia	64.RD		IPA SARA ZGORAC		59,505		59,505
Integrated Cognitive Behavioral Therapy to Improve Outcomes in Schizophrenia	64.RD		IPA CATHERINE CONROY		67,379		67,379
Intraoperative Imaging of Pulmonary Adenocarcinoma	64.RD		IPA AGREEMENT		15,056		15,056
IPA - Barbara Cannon and Anna Kalota	64.RD		IPA - KALOTA/CANNON		17,644		17,644
IPA - Chris Petro DMU	64.RD		IPA AGREEMENT		2,463		2,463
IPA - Comparative Effectiveness of Delivery Methods for Caregiver Support Education	64.RD		IPA KNASHAWN MORALES		13,253		13,253
IPA - Kassondra Bertulis	64.RD		IPA KASSONDRA BERTULIS		8,512		8,512
IPA - Million Veteran Program (MVP)	64.RD		IPA DANISH SALEHEEN		33,829		33,829
IPA - Zuozhen Tian - Cell Therapy for the Degenerating Intervertebral Disc	64.RD		IPA TIAN ZUOZHEN		65,585		65,585
IPA Agreement for Daniel Traum	64.RD		IPA DANIEL TRAUM		53,342		53,342
IPA Aneeza Agha	64.RD		IPA ANEEZA AGHA		90,818		90,818
IPA Judy Shea	64.RD		IPA AGREEMENT		74,514		74,514
IPA Judy Shea	64.RD		IPA JUDY SHEA		54,385		54,385
IPA Michael Kallan	64.RD		IPA AGREEMENT		32,620		32,620
IPA Qing Liu	64.RD		IPA QING LIU		10,751		10,751
IPA Shimrit Keddem	64.RD		IPA SHIMRIT KEDDEM		125,204		125,204
IPA Sumedha Chhatre	64.RD		IPA AGREEMENT		19,234		19,234
IPA: Kaushal Desai	64.RD		IPA KAUSHAL DESAI		2,047		2,047
IPA: Lakshmi Prayosha Villa	64.RD		IPA LAKSHMI P VILLA		57,948		57,948
Mechanisms of Cortico-Limbic Network Dysfunction Underlying PTSD after TBI	64.RD		IPA MICHAEL R GROVOLA		5,711		5,711
Mental Illness Research, Education and Clinical Center	64.RD		IPA WADE H BERRETTINI		27,703		27,703
Microbiome and innate immunity with percutaneous osseointegrated prostheses	64.RD		VA259-16-C-0224		82,525		82,525

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Perioperative Post-Prostatectomy Incontinence Home Telehealth Program	64.RD		IPA - THOMAS BAVARIA		27,256		27,256
The effect of single TBI on PTSD related circuitry, neurophysiology, and behavior	64.RD		IPA AGREEMENT		5,609		5,609
The Role of Local NSAID Administration and Inflammation on Tendon Healing	64.RD		00979-R		145,556		145,556
The Role of TNF-Alpha in Cutaneous Integrity	64.RD		IPA AGREEMENT		42,933		42,933
The Role of TNF-Alpha in Cutaneous Integrity	64.RD		IPA MEENA SHARMA		28,515		28,515
VA Comprehensive End-of-Life Care's PROMISE Center	64.RD		IPA		73,772		73,772
VA Merit Award	64.RD		H LI/V ABRAHAM		94,595		94,595
IPA - MARY VALIGA	64.RD		IPA		88,554		88,554
VA IPA - Vu Nguyen	64.RD		IPA AGREEMENT		40,075		40,075
IPA-Holly Barilla	64.RD		IPA HOLLY BARILLA		20,152		20,152
Jan Dinnella CSP VA IPA	64.RD		IPA JANET DINNELLA		26,521		26,521
Tissue Engineered Total Disc Replacement in a Large Animal Model	64.RD		IPA J LACHLAN SMITH		91,378		91,378
Adam Marc IPA - Josh Baker	64.RD		IPA ADAM MARC		10,875		10,875
Effects of Cyclical Intermittent Hypoxia on Local (Primary Lung) and Distal (Metastases to the Brain) Tumors	64.RD		IPA AGREEMENT		20,000		20,000
IPA Andrea Segal	64.RD		IPA ANDREA SEGAL		23,035		23,035
IPA - Margaret Lawlace	64.RD		IPA MARGARET LAWLACE		29,219		29,219
Downing IPA-TOP	64.RD		IPA - Laurie Downing		21,217		21,217
Tissue-Engineered Constructs for Treatment of Intervertebral Disc Degeneration	64.RD		IPA AGREEMENT		41,324		41,324
Petro MIRECC IPA	64.RD		IPA CHRISTOPHER PETRO		20,864		20,864
Lynch PRIME IPA	64.RD		IPA KEVIN LYNCH		14,764		14,764
IPA-Petro	64.RD		IPA CHRISTOPHER PETRO		1,041		1,041
Lynch IPA - TOP	64.RD		IPA AGREEMENT		9,843		9,843
IPA-Timothy Pond	64.RD		IPA AGREEMENT		13,982		13,982
VA IPA Alejandro Paz	64.RD		IPA ALEJANDRO PAZ		15,342		15,342
Genetic Vulnerability of Multi-Substance Use in the MVP	64.RD		IPA AGREEMENT		21,401		21,401
IPA for Rebecca Hubbard	64.RD		IPA REBECCA HUBBARD		11,960		11,960
IPA Lindsey Norton	64.RD		IPA LINDSEY NICOLE NORTON		11,022		11,022
IPA Rory Francis Harte	64.RD		IPA RORY FRANCIS HARTE		15,423		15,423
IPA Randy Hastings	64.RD		IPA RANDY HASTINGS		40,178		40,178
IPA Olenga Anabui	64.RD		IPA OLENGA E ANABUI		4,188		4,188
IPA Casey Chanton	64.RD		IPA CASEY CHANTON		7,911		7,911
IPA Anthony Davis	64.RD		IPA AGREEMENT		40,179		40,179
IPA Vania Freire	64.RD		IPA AGREEMENT		21,397		21,397
IPA Cory Daniel Czuczman	64.RD		IPA CORY DANIEL CZUCZMAN		2,481		2,481
Evidence Based Psychotherapy Program	64.RD		IPA GREGORY K BROWN		22,075		22,075
Reducing Colorectal Cancer Death Through Mailed Outreach Screening	64.RD		IPA AGREEMENT		5,211		5,211
Transplantable Micro-Tissue Engineered Neural Networks to Restore the Nigrostriatal Pathway in Parkinson's Disease	64.RD		IPA AGREEMENT		47,244		47,244
Designing neuronal tissue constructs that mimic brain-specific architecture: IPA for JGAMADZE, DENIS.	64.RD		IPA AGREEMENT		43,825		43,825
Kaempf TOP IPA	64.RD		IPA GAIL KAEMPF		11,181		11,181
Oslin TOP IPA-Petro	64.RD		IPA CHRISTOPHER PETRO		9,182		9,182
IPA for Victoria A. (Tori) Hilbert	64.RD		IPA AGREEMENT		2,099		2,099
IPA: Xiaofeng Guo	64.RD		IPA AGREEMENT		14,852		14,852
VA Merit Award: Immune and Genetic Controls of Tissue Regeneration in Mice and Humans	64.RD		IPA AGREEMENT		2,056		2,056
MIRECC IPA Agreement Kember	64.RD		adv acct MIRECC IPA Agreement Kembe		3,293		3,293
64.RD Total					**3,407,833**		**3,407,833**
DEPARTMENT OF VETERANS AFFAIRS Total					3,407,833		3,407,833
DEPARTMENT OF VETERAN AFFAIRS Total					***3,407,833***		***3,407,833***
ENVIROMENTAL PROTECTION AGENCY							
ENVIRONMENTAL PROTECTION AGENCY							
ENABLING CITIZENS AND OWNERS TO INVEST IN GREEN INFRASTRUCTURE IN PHILADELPHIA	66.509		83555401	184,145	243,282		243,282
66.509 Total				**184,145**	**243,282**		**243,282**
Environmental Remediation Fund	66.RD	PHILADELPHIA INDUSTRIAL DEVELOPMENT CORPORATION	2019			299,751	299,751
66.RD Total						**299,751**	**299,751**
ENVIRONMENTAL PROTECTION AGENCY Total				184,145	243,282	299,751	543,033
ENVIROMENTAL PROTECTION AGENCY Total				***184,145***	***243,282***	***299,751***	***543,033***
DEPARTMENT OF ENERGY							
BROOKHAVEN NATIONAL LABORATORY							
Design and Fabrication of an Electronics for the 35 Tonne Prototype	81.RD		264851		94,916		94,916
RESEARCH FOR ATLAS EXPERIMENT	81.RD		80472		847,545		847,545
The Liquid Argon Construction	81.RD		243102		2,388		2,388
81.RD Total					**944,849**		**944,849**
BROOKHAVEN NATIONAL LABORATORY Total					944,849		944,849
DEPARTMENT OF ENERGY							
USAMP Low-Cost Mg Sheet Component Development and Demonstration Project	81.086	UNITED STATES AUTOMOTIVE MATERIALS PARTNERSHIP, LLC	AMP803			109,452	109,452
Energy Efficient Buildings Hub (EEB Hub) GPIC/HUB Task #2 Realtime Knowledge Repository on Practice & Performance GPIC/HUB Task #3 Economic Policy and Behavior Factors Influencing Build Energy Consumption	81.086	PENNSYLVANIA STATE UNIVERSITY	4338-UP-DOE-4261			-194	-194
81.086 Total						**109,258**	**109,258**
Cost-effective Manufacturing and Morphological Stabilization of Nanostructured Cathodes for Commercial SOFCs	81.089		DE-FE0023317	46,957	83,357		83,357
Cost-effective Stabilization of Nanostructured Cathodes by Atomic Layer Deposition (ALD)	81.089		DE-FE0031252		72,580		72,580
81.089 Total				**46,957**	**155,937**		**155,937**
High Efficiency Wafer-Scale Thermionic Energy Converters	81.135	STANFORD UNIVERSITY	61263892-120983			250,273	250,273
SynPLASTome 2.0: Synthetic Plastid Genome to Reprogram Chloroplast Function for the Production of Fuels and Chemicals	81.135	UNIVERSITY OF TENNESSEE	8500051700			575,356	575,356
81.135 Total						**825,629**	**825,629**
Research on the Front End Electronics and Electronics System Engineering for the Large Synoptic Survey Telescope (LSST) Camera Project	81.RD	STANFORD LINEAR ACCELERATOR CENTER	101288			-2,175	-2,175
Understanding Transport and Aging Mechanisms to Optimize Sandia's Ion-Conducting Polymer Electrolytes for Energy Applications	81.RD	SANDIA NATIONAL LABORATORY	1685286			20,259	20,259
A Micromechanical Investigation of Ion Irradiation Damage in Confined Volumes	81.RD	SANDIA NATIONAL LABORATORY	PO #1044465			-306	-306
Pipeline Infrastructure Operations Personnel effort for the LSST Dark Energy Science Collaboration	81.RD	STANFORD LINEAR ACCELERATOR CENTER	SUB TO DE-AC02-76SF00515			31,176	31,176
The WATCHMAN program- B626865	81.RD	LAWRENCE LIVERMORE NATIONAL LABORATORY	B626865			54,476	54,476
81.RD Total						**103,430**	**103,430**
DEPARTMENT OF ENERGY Total				46,957	155,937	1,038,317	1,194,254
LOS ALAMOS NATIONAL LABORATORY							

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ADVANCED ELECTRO-CATALYSTS THROUGH CRYSTALLOGRAPHIC ENHANCEMENT	81.RD		420085		86,696		86,696
Multi-scale observation and modeling of IP3/Ca signaling	81.RD		278443		129,444		129,444
81.RD Total					**216,140**		**216,140**
LOS ALAMOS NATIONAL LABORATORY Total					216,140		216,140
NATIONAL RENEWABLE ENERGY LABORATORY							
ENERGY FRONTIER RESEARCH CENTERS	81.RD	NATIONAL RENEWABLE ENERGY LABORATORY	XEJ-5-42261-01			8,419	8,419
81.RD Total						**8,419**	**8,419**
NATIONAL RENEWABLE ENERGY LABORATORY Total						8,419	8,419
OFFICE OF SCIENCE/DEPARTMENT OF ENERGY							
Advancing Separations of Rare Earth Elements through Coordination and (Photo)Redox Chemistry	81.049		DE-SC0017259		231,604		231,604
ATOMISTIC STUDY OF PLASTIC DEFORMATION OF TRANSITION METAL ALLOYS INCLUDING HIGH ENTROPY ALLOYS	81.049		DE-FG02-98ER45702		207,523		207,523
Center for the Computational Design of Functional Layered Materials	81.049	TEMPLE UNIVERSITY	254998			163,251	163,251
Design of functional materials based on new principles of disorder	81.049		DE-FG02-05ER46199		73,290		73,290
Detectors with Fast Timing via Electron Multiplication in Silicon and Gases	81.049	PRINCETON UNIVERSITY	SUB0000126			2,525	2,525
Development of Smart, Responsive Communicating and Motile Microcapsules	81.049		DE-SC0007063		159,994		159,994
Electric-Loading Enhanced Kinetics in Oxide Ceramics: Pore Migration, Sintering and Grain Growth	81.049		DE-SC0007064		2,400		2,400
High Energy Physics Research at the University of Pennsylvania	81.049		DE-SC0007901		2,912,348		2,912,348
Membrane-attached Electron Carriers in Photosynthesis and Respiration	81.049		DE-FG02-91ER20052		150,248		150,248
Modulating Thermal Transport Phenomena in Nanostructures via Elastic Strain at Extreme Limits of Strength	81.049		DE-SC0008135		55,001		55,001
Multi-Disciplinary Research and Training Program in Breast Cancer Molecular Imaging and Targeted Radiochemistry	81.049		DE-SC0012476		-57,583		-57,583
Nano-Structured Catalysts for Improved Oxide-Metal Interactions	81.049		DE-SC0009440		161,630		161,630
Photosynthetic Antenna Research Center (PARC)	81.049	WASHINGTON UNIVERSITY IN ST. LOUIS	WU-HT-10-10-MOD-6			139,774	139,774
Physical Analysis of the Bulk Photovoltaic Effect for Solar Harvesting Materials	81.049		DE-FG02-07ER46431		223,234		223,234
Polymer Conformations and Chain Dynamics under 1D and 2D Rigid Confinement	81.049		DE-SC0016421		197,924		197,924
Rational Design Of Innovative Catalytic Technologies For Biomass Derivative Utilization	81.049	UNIVERSITY OF DELAWARE	37849			278,201	278,201
SPECTROSCOPY AND DYNAMICS OF REACTION INTERMEDIATES IN COMBUSTION CHEMISTRY	81.049		DE-FG02-87ER13792		137,722		137,722
Structure and Electronic Properties of Dirac Materials	81.049		DE-FG02-84ER45118		102,167		102,167
Sudbury Neutrino Observatory	81.049		DE-FG02-88ER40479		862,482		862,482
Supernova Cosmology with the Dark Energy Survey	81.049		DE-SC0009890		98,344		98,344
Surface Science Studies of Nano-crystalline Metal Oxide and Metal-Metal Oxide Core-Shell Catalysts	81.049		DE-FG02-04ER15605		74		74
Synthesis and Exploratory Catalysis of 3D Metals: Group-Transfer Reactions, and the Activation and Functionalization of Small Molecules Including Greenhouse Gases	81.049		DE-SC0012486		185,040		185,040
Tracking Photochemical and Photophysical Processes for Solar Energy Conversion Via Multidimensional Electronic and Vibrational Spectroscopic Methods	81.049		DE-SC0016043		117,660		117,660
University of Pennsylvania Theoretical Program	81.049		DE-SC0013528		465,520		465,520
Hyperfast Silicon Detector for Direct Particle Detection	81.049	RMD	C17-07			-2	-2
New Ideas for the Dark Sector and the Early Universe	81.049		DE-SC0017804		102,000		102,000
Production of Radiohalogens: Bromine and Astatine for Imaging and Therapy	81.049		DE-SC0017646		77,781		77,781
Selective Oxidations Using Molecular Oxygen: Strategies for O-Atom Transfer to Olefins	81.049		DE-SC0018057		107,283		107,283
Structure and Electronic Properties of Dirac Material	81.049		DE-FG02-84ER45118		43,441		43,441
Center for Actinide Science and Technology (CAST)	81.049	FLORIDA STATE UNIVERSITY	R01865			66,415	66,415
Autonomous motility of synthetic protocells driven by biochemical catalysis	81.049		DE-SC0007063		58,811		58,811
The Low Energy Neutrino Physics Research Program at Penn	81.049		DE-FG02-88ER40479		44,413		44,413
81.049 Total					**6,720,351**	**650,164**	**7,370,515**
OFFICE OF SCIENCE/DEPARTMENT OF ENERGY Total					6,720,351	650,164	7,370,515
DEPARTMENT OF ENERGY Total				***46,957***	***8,037,277***	***1,696,900***	***9,734,177***
DEPARTMENT OF EDUCATION							
DEPARTMENT OF EDUCATION							
Fulbright-Hays Doctoral Dissertation Research Abroad Fellowship Program	84.022		P022A160006		58,290		58,290
84.022 Total					**58,290**		**58,290**
Fulbright-Hays Doctoral Dissertation Research Abroad Fellowship Program	84.022A		P022A170004 - 17A		53,707		53,707
84.022A Total					**53,707**		**53,707**
Adapting an Evidence-based Practice for Children At-Risk for Autism for Diverse Early Intervention Service Systems	84.324	UNIVERSITY OF CALIFORNIA, DAVIS	SUB TO R324A150211			3,697	3,697
84.324 Total						**3,697**	**3,697**
Validating the SunBay Middle School Digital Mathematics Program	84.411	SRI INTERNATIONAL	141-000013			45,204	45,204
84.411 Total						**45,204**	**45,204**
Include Me to Achieve	84.412	ELWYN FOUNDATION	LOA #RTTT CIZ 40			31,860	31,860
84.412 Total						**31,860**	**31,860**
DEPARTMENT OF EDUCATION Total					111,997	80,761	192,758
INSTITUTE OF EDUCATION SCIENCES							
Center on Standards, Alignment, Instruction, and Learning (C-SAIL)	84.305		R305C150007	981,799	1,431,062		1,431,062
Efficacy Evaluation of Zoology One: Kindergarten Research Labs	84.305		R305A160109	376,487	1,049,558		1,049,558
The Center for Research Use in Education	84.305	UNIVERSITY OF DELAWARE	40809			33,182	33,182
Evaluation of Organization Skills Training Program for Upper Elementary Students	84.305	CHILDREN'S HOSPITAL OF PHILADELPHIA	1R305A170052			28,121	28,121
Identifying Malleable Factors in Blended Learning Environments Using Automated Detectors of Engagement	84.305	AMERICAN INSTITUTE FOR RESEARCH	0440200001			83,632	83,632
Exploring adaptive cognitive and affective learning support for next generation STEM learning games	84.305	FLORIDA STATE UNIVERSITY	R011963			60,960	60,960
84.305 Total				**1,358,286**	**2,480,620**	**205,895**	**2,686,515**
INSTITUTE OF EDUCATION SCIENCES Total				1,358,286	2,480,620	205,895	2,686,515
DEPARTMENT OF EDUCATION Total				***1,358,286***	***2,592,617***	***286,656***	***2,879,273***
DEPARTMENT OF HEALTH & HUMAN SERVICES							
DEPARTMENT OF HEALTH & HUMAN SERVICES							
Dynamic supported mobility training for infants and toddlers with cerebral palsy	93.433	CHILDREN'S HOSPITAL OF PHILADELPHIA	961438-RSUB			1,884	1,884
93.433 Total						**1,884**	**1,884**
DEPARTMENT OF HEALTH & HUMAN SERVICES Total						1,884	1,884
DEPARTMENT OF HEALTH & HUMAN SERVICES Total						***1,884***	***1,884***
DEPARTMENT OF HEALTH AND HUMAN SERVICES							
AGENCY FOR HEALTHCARE RESEARCH AND QUALITY (AHRQ)							
Comparative and Cost Effectiveness of Strategies to Limit MRSA in Long Term Care	93.226		1-R01-HS-023794-01	146,010	304,482		304,482
Comparative Effectiveness of Home Care Environments for Diverse Elders' Outcomes	93.226	RUTGERS UNIVERSITY	5912			30,691	30,691
Comparative Effectiveness of Interventions for Depression in the Community	93.226		1-K02-HS-022124-01		175,009		175,009

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Electronic Health Record Use, Work Environments & Patient Outcomes	93.226		1-R21-HS-023805-01A1		108,316		108,316
Impact of Pediatric Trauma Centers on Outcomes of Injured Children	93.226	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200220120			12,232	12,232
Information Needs of Homecare Nurses During Admission and Care Planning	93.226	DREXEL UNIVERSITY	232683			22,422	22,422
Market and Organization Impact on Medical Technology Diffusion: Outcomes and Value	93.226		1-R01-HS-023615-01	11,079	188,381		188,381
Medical Failure-to-Rescue	93.226	CHILDREN'S HOSPITAL OF PHILADELPHIA	321060			8,202	8,202
NICU Performance: Missed Nursing Care and Infant Outcomes	93.226		1-R01-HS-024918-01	186,987	450,278		450,278
Participatory design of patient-centered depression and diabetes care	93.226		1-K18-HS-023445-01		70,184		70,184
Patient Safety in Nursing Homes: A Closer Look at Improvement	93.226	UNIVERSITY OF CHICAGO	FP063214-A			93,681	93,681
Predicting and Preventing Pediatric Hospital Readmissions	93.226	CHILDREN'S HOSPITAL OF PHILADELPHIA	3210810519			28,684	28,684
Prospective Comparative Effectiveness Trial for Malignant Bowel Obstruction	93.226		7-R01-HS-021491-04	62,592	190,391		190,391
Provider Characteristics and Quality of Prostate Cancer Care	93.226		1-R01-HS-024106-01		250,334		250,334
The effectiveness of post-acute care	93.226		1-R01-HS-024266-01	75,649	304,984		304,984
The geography of acute care	93.226		1-R01-HS-023614-01	54,110	248,601		248,601
The Impact of ACOs on Disparities	93.226		1-R01-HS-025184-01		242,383		242,383
Evaluation of the Group Decision-making Process of Clinical Guidelines Panels (1R01 HS024917-01)	93.226	UNIVERSITY OF SOUTH FLORIDA	6162-1016-00-A			2,857	2,857
Did the Medicare Modernization Act Cause Oncology Drug Shortages	93.226	UNIVERSITY OF CALIFORNIA, IRVINE	2017-3451			42,876	42,876
Examination of Readmissions after Cardiac Surgery in Pennsylvania: Development of Risk Models with Clinical Relevance	93.226		1-R03-HS-025038-01A1		86,282		86,282
SOARING: Studying Older Adults and Researching their Information Needs and Goals	93.226	UNIVERSITY OF WASHINGTON	BPO29066			10,803	10,803
93.226 Total				**536,426**	**2,619,625**	**252,448**	**2,872,073**
ECRI Institute - Penn Medicine AHRQ EPC Proposal	93.RD	ECRI	HHSA290201200111			-2,737	-2,737
Evidence-based Practice Centers V	93.RD	ECRI	SUB TO HHSA2902015000051			14,841	14,841
93.RD Total						**12,104**	**12,104**
AGENCY FOR HEALTHCARE RESEARCH AND QUALITY (AHRQ) Total				536,426	2,619,625	264,552	2,884,177
ASSISTANT SECRETARY FOR PLANNING AND EVALUATION/DHHS							
Understanding the Effects of State Safety Net and Labor Policies on Family Economic Stability	93.239	UNIVERSITY OF WISCONSIN - MADISON	SUB TO 1H79AE000103-01	7,088		24,883	24,883
93.239 Total				**7,088**		**24,883**	**24,883**
ASSISTANT SECRETARY FOR PLANNING AND EVALUATION/DHHS Total				7,088		24,883	24,883
BUREAU OF HEALTH PROFESSIONS/HRSA/DHHS							
Expanding Pediatric Training in Predoctoral Dental Education	93.059		1 D85HP30830-01-00		332,688		332,688
93.059 Total					**332,688**		**332,688**
Academic-Practice Partnership for the Underserved in Philadelphia, PA (AP4UP)	93.247		1-D09-HP-28672-01-00		442,419		442,419
Advanced Nursing Education Workforce (ANEW) Program	93.247		1 T94HP30898-0-100		358,625		358,625
93.247 Total					**801,044**		**801,044**
Academic units for primary care training and enhancement	93.884		1 UH1HP29964-01-00	11,000	717,782		717,782
Population Health and Primary Care: Integrating Public Health into Medical Education	93.884		1-T85-HP-24468-01-00		7,415		7,415
93.884 Total				**11,000**	**725,197**		**725,197**
BUREAU OF HEALTH PROFESSIONS/HRSA/DHHS Total				11,000	1,858,929		1,858,929
CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)							
Program Area B: TB/HIV	93.067		1-U2G-GH-001498-01		1,685,575		1,685,575
93.067 Total					**1,685,575**		**1,685,575**
Centers for Autism and Developmental Disabilities Research & Epidemiology (CADDRE): Study to Explore Early Development (SEED) Phase II	93.073		1-U01-DD-000752-01		3,987		3,987
93.073 Total					**3,987**		**3,987**
Community Counts: Public Health Surveillance for Bleeding Disorders	93.080	CHILDREN'S HOSPITAL OF PHILADELPHIA	8901210000			21,551	21,551
93.080 Total						**21,551**	**21,551**
Evaluation of MDRO Risk from Ertapenem Antimicrobial Prophylaxis	93.084	DUKE UNIVERSITY MEDICAL CENTER	2035588			94,851	94,851
Patterns of Utilization and Effect of Post-Operative Antibiotics in Common Surgeries	93.084	WASHINGTON UNIVERSITY IN ST. LOUIS	WU-17-160			111,680	111,680
Post-Sepsis Opt-Out Protocol to Improve Patient Outcomes	93.084	DUKE UNIVERSITY MEDICAL CENTER	2035586			161,410	161,410
Predictors of recurrent multidrug-resistant UTI and impact of FMT on recurrence	93.084	WASHINGTON UNIVERSITY IN ST. LOUIS	WU-17-159			166,811	166,811
Southestern Pennsylvania Adult and Pediatric Prevention Epicenter Network	93.084		1-U54-CK-000485-01	698,230	1,280,239		1,280,239
Microbiome and Clinical Predictors of Enteric MDRO Acquisition (MariMbA)	93.084	RUSH UNIVERSITY	15122902-SUB02			17,240	17,240
Chlorhexidine gluconate bathing evaluation and comparison project (CHECKuP)	93.084	RUSH UNIVERSITY	15122904-sub02			17,573	17,573
93.084 Total				**698,230**	**1,280,239**	**569,565**	**1,849,804**
University of Pennsylvania Prevention Research Center	93.135		1-U48-DP-005053-01	115,283	1,351,495		1,351,495
93.135 Total				**115,283**	**1,351,495**		**1,351,495**
Training in Occupational Medicine	93.262		2-T03-OH-008628-11		129,994		129,994
93.262 Total					**129,994**		**129,994**
MASTERS EDUCATION IN OCCUPATIONAL HEALTH NURSING	93.263		T01/CCT310445-01		-231		-231
93.263 Total					**-231**		**-231**
Southeastern Pennsylvania Adult and Pediatric Prevention Epicenter Network	93.283		1-U54-CK-000163-01		-210		-210
93.283 Total					**-210**		**-210**
Mobile Messaging Intervention to Present New HIV Prevention Options for MSM	93.941	EMORY UNIVERSITY	T652427			26,311	26,311
93.941 Total						**26,311**	**26,311**
CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC) Total				813,513	4,450,849	617,427	5,068,276
CENTERS FOR MEDICARE AND MEDICAID SERVICES/DHHS							
Kentucky HEALTH Analysis	93.RD	COMMONWEALTH OF KENTUCKY	FAP111-44-00			396,146	396,146
93.RD Total						**396,146**	**396,146**
CENTERS FOR MEDICARE AND MEDICAID SERVICES/DHHS Total						396,146	396,146
DEPARTMENT OF HEALTH & HUMAN SERVICES							
MH Base Unitary	93.667	CITY OF PHILADELPHIA	1720075			196,950	196,950
93.667 Total						**196,950**	**196,950**
RTOR-RadNuc-1003: Establishment of a Minipig Model of Ionizing Radiation-induced Thrombocytopenia, Coagulopathies and Measures of Associated Vascular and Organ Injury	93.RD	SNBL USA, LTD	SUB TO HHSO100201500006I			356,422	356,422
Support for the MACRA Physician-Focused Payment Model Technical Advisory Committee Request for Task Order Proposal 15-233-SOL-00661	93.RD	SOCIAL & SCIENTIFIC SYSTEMS, INC.	HPDA-SSS-S-16-005070			19,492	19,492
PROMOTING AND SUPPORTING INNOVATION IN TANF DATA	93.RD	MDRC	MRDC AA			69,956	69,956

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
93.RD Total						**445,870**	**445,870**
DEPARTMENT OF HEALTH & HUMAN SERVICES Total						642,820	642,820
FOGARTY INTERNATIONAL CENTER/NIH/DHHS							
Building Local Capacities in Ethics Training and IRB Review in Guatemala	93.989		1-R25-TW-009738-01	51,926	207,083		207,083
Dartmouth/MUHAS Research Ethics Training and Program Development for Tanzania (DMRET)	93.989	DARTMOUTH COLLEGE	R865			70,693	70,693
HIV Clinical Research Training for Botswana	93.989		1-D43-TW-009781-01	18,678	493,986		493,986
Injury and trauma research training for Guatemala	93.989		1-D43-TW-008972-01		63,349		63,349
Injury and Trauma Research Training Program For Botswana	93.989		1-D43-TW-010448-01	16,070	105,596		105,596
PALOP MENTAL HEALTH IMPLEMENTATION RESEARCH TRAINING	93.989	RESEARCH FOUNDATION FOR MENTAL HYGIENE, INC.	25941			19,089	19,089
Smart Cup: A Mobile Molecular Detection Device for Rapid Diagnosis of Hand Foot and Mouth Disease in China	93.989		1-R21-TW-010625-01		60,653		60,653
Preventing non-communicable diseases in Guatemala through sugary drink reduction and capacity building	93.989		1-R21-TW-010837-01		90,785		90,785
93.989 Total				**86,674**	**1,021,452**	**89,782**	**1,111,234**
FOGARTY INTERNATIONAL CENTER/NIH/DHHS Total				86,674	1,021,452	89,782	1,111,234
FOOD AND DRUG ADMINISTRATION							
Animal and Animal Food Diagnostic Sample Analysis in Support of FDA Vet-LRN Activities and Investigations	93.103		1-U18-FD-004625-01		7,306		7,306
Companion Animal and Animal Food Diagnostic Sample Analysis in Support of FDA Vet-LIRN Activities and Investigations	93.103		1-U18-FD-005164-01		15,672		15,672
Method validation and comparison for the detection of mycotoxins in novel animal feeds and tissues	93.103		1-U18-FD-005009-01		119,428		119,428
Plasma Exchange and Glucocorticoids for Treatment of ANCA-Associated Vasculitis	93.103		4-R01-FD-003516-05	141,642	358,434		358,434
Animal and Animal Food Diagnostic Sample Analysis in Support of FDA Vet-LIRN Activities and Investigations	93.103		1-U18-FD-006158-01		21,950		21,950
Development of biomarkers for trastuzumab-induced cardiotoxicity	93.103	MASSACHUSETTS GENERAL HOSPITAL	231104			4,956	4,956
Natural history of Friedreich ataxia in children	93.103	CHILDREN'S HOSPITAL OF PHILADELPHIA	FP23610 SUB01 01			17,849	17,849
93.103 Total				**141,642**	**522,790**	**22,805**	**545,595**
Detection and Analysis of Adverse Events Related to regulated Products in Automated Healthcare Data. Efforts to Develop the Sentinel Initiative	93.RD	HARVARD PILGRIM HEALTH CARE	HHSF223201400301			58,536	58,536
Assessment of Continued Opioid Efficacy in Patients on Chronic Opioids: An RCT Re-analysis	93.RD		HHSF223201710131C		121,654		121,654
Validation of Serious Infections Among an Immunocompromised Population	93.RD	HARVARD PILGRIM HEALTH CARE	SUB TO HHSF22301002T			83,976	83,976
Death Data Exploration	93.RD	HARVARD PILGRIM HEALTH CARE	HHSF223200910006I			19,695	19,695
A Reusable, Generalizable Method to Link Health Plan Claims Data with the National Death Index Plus to Examine the Association Between Medical Products and Death and Causes of Death	93.RD	HARVARD PILGRIM HEALTH CARE	HHSF223201710132C			10,151	10,151
93.RD Total					**121,654**	**172,358**	**294,012**
FOOD AND DRUG ADMINISTRATION Total				141,642	644,444	195,163	839,607
HEALTH RESOURCES & SERVICES ADMINISTRATION (HRSA)							
Autism Intervention Research Network for Behavioral Health	93.110	UNIVERSITY OF CALIFORNIA, LOS ANGELES	2000 G TC248			332,228	332,228
Hemophilia Treatment Centers	93.110	CHILDREN'S HOSPITAL OF PHILADELPHIA	320961-06-01			35,911	35,911
Multidisciplinary Intervention Navigation Team to Improve Access to Care for Children and Youth with Epilepsy in Eastern Pennsylvania and Transition Services (MINT-I-ACCE	93.110	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200410817			3,584	3,584
Leadership Education in Adolescent Health (LEAH)	93.110	CHILDREN'S HOSPITAL OF PHILADELPHIA	3258990618			25,366	25,366
93.110 Total						**397,089**	**397,089**
Occupational Medicine Residency at the University of Pennsylvania	93.117		1-D33-HP-25770-01-00		586,002		586,002
93.117 Total					**586,002**		**586,002**
Nurse Anesthetist Traineeship (NAT) Program	93.124		1 A22HP30987-01-00		22,320		22,320
93.124 Total					**22,320**		**22,320**
Center of Excellence for Diversity in Health Education and Research	93.157		1 D34HP24459-01-00	38,243	104,491		104,491
93.157 Total				**38,243**	**104,491**		**104,491**
National Research Service Award	93.186		6 T32HP10026-23-01		356,592		356,592
93.186 Total					**356,592**		**356,592**
Developing Geriatric Resource Nurse-Led Interprofessional Collaborative Practice	93.359		6-UD7H026041-01-03		6,854		6,854
93.359 Total					**6,854**		**6,854**
FY 2017 BHWET Competition	93.732		1 M01HP31346-01-00		203,606		203,606
93.732 Total					**203,606**		**203,606**
HEALTH RESOURCES & SERVICES ADMINISTRATION (HRSA) Total				38,243	1,279,865	397,089	1,676,954
NATIONAL CANCER INSTITUTE/NIH/DHHS							
OSU Center of Excellence in Regulatory Tobacco Science (OSU-CERTS)(Project 4)	93.077	OHIO STATE UNIVERSITY	60042253 / PO #RF01356877			38,175	38,175
UPENN TCORS: Tobacco Product Messaging in a Complex Communication Environment	93.077		1-P50-CA-179546-01	859,179	3,248,653		3,248,653
Using Eye Tracking to Understand and Improve Graphic Warning Label Effectiveness	93.077		1-R01-CA-180929-01		149,596		149,596
93.077 Total				**859,179**	**3,398,249**	**38,175**	**3,436,424**
Effect of Aspirin on Biomarkers of Barrett's Esophagus after Successful Eradication of Barrett's Esophagus with Radiofrequency Ablation	93.135	MD ANDERSON CANCER CENTER	00003356			2,883	2,883
93.135 Total						**2,883**	**2,883**
Crowdsourcing Mark-up of the Medical Literature to Support Evidence-Based Medicine and Develop Automated Annotation Capabilities	93.310	NORTHEASTERN UNIV	500473-78050			82,781	82,781
EXPLORER: Changing the Molecular Imaging Paradigm with Total Body PET	93.310	UNIVERSITY OF CALIFORNIA, DAVIS	20150115-01			554,290	554,290
Gene-engineered adoptive T cell immunotherapy of BBM	93.310		7-DP2-CA-174502-02		4,323		4,323
93.310 Total					**4,323**	**637,071**	**641,394**
Radiation and checkpoint blockade for cancer immune therapy	93.353		1-P01-CA-210944-01		1,343,864		1,343,864
Area B: Multi-Tracer Volumetric PET (MTV-PET) to Measure Tumor Glutamine and Glucose Metabolic Rates in a Single Imaging Session	93.353		1-R33-CA-225310-01		116,775		116,775
Enhancing Chimeric Antigen Receptor T Cell Therapies for Hematologic Malignancies: Beyond CART 19	93.353		1-P01-CA-214278-01		1,056,505		1,056,505
A phase II trial of MK-3475 (pembrolizumab) and interferon gamma 1-b combination immunotherapy in patients with previously MF/SS	93.353	HUTCHINSON (FRED) CANCER RESEARCH CENTER	0000916484			30,412	30,412
Coordinating Center for Canine Immunotherapy Trials and Correlative Studies	93.353		1-U24-CA-224122-01		192,869		192,869
Disrupting the Immune and Drug-privileged Microenvironment in Pancreas Cancer	93.353	HUTCHINSON (FRED) CANCER RESEARCH CENTER	0000921427			45,093	45,093
COTC026: Evaluation of a recombinant, attenuated Listeria monocytogenes expressing a chimeric human HER2/neu protein in dogs with osteosarcoma in the adjuvant setting	93.353	MORRIS ANIMAL FOUNDATION	D17CA-501			28,328	28,328
Rational approaches to cancer therapy	93.353	WISTAR INSTITUTE	25451-05-314; Xu			7,703	7,703
Rational approaches to cancer therapy	93.353		25451-06-314; Nathanson			3,847	3,847
93.353 Total					**2,710,013**	**115,383**	**2,825,396**
Phase III Randomized Clinical Trial of Proton Therapy vs IMRT for Low or Low-Intermediate Risk Prostate Cancer	93.392	MASSACHUSETTS GENERAL HOSPITAL	220778			23,594	23,594
93.392 Total						**23,594**	**23,594**
Assembly compartment formation and nuclear alterations mediated by HCMV	93.393		4-R01-CA-157846-05		66,247		66,247
Automated Density Measures for Estimating Breast Cancer Risk and Therapy Response	93.393	MAYO CLINIC ROCHESTER	THE-180687			13,552	13,552

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Automated Object Contouring Methods and Software for Thoracic Radiotherapy Planning	93.393	QUANTITATIVE RADIOLOGY SOLUTIONS, LLC	SUB TO R41CA199735			69,673	69,673
Behavioral Activation and Varenicline for Smoking Cessation in Depressed Smokers	93.393	NORTHWESTERN UNIVERSITY	60038259 UP			318,639	318,639
Behavioral Activation for Smoking Cessation and the Prevention of Post-Cessation Weight Gain	93.393		1-R01-CA-206058-01	23,558	1,024,926		1,024,926
Breast Cancer Family Registry Cohort	93.393	FOX CHASE CANCER CENTER	FCCC22458-01 PO # SQ1331114			24,358	24,358
COLLABORATIVE HUMAN TISSUE NETWORK EASTERN DIVISION	93.393		1-UM1-CA-183711-01		1,180,061		1,180,061
Commonly Used Medications and Risk of Colorectal Cancer Recurrence	93.393	KAISER PERMANENTE WASHINGTON RESEARCH INSTITUTE	2015124711			152	152
Communicating genetic test results by telephone: A randomized trial	93.393		1-R01-CA-160847-01A1		96,108		96,108
Cytomegalovirus-mediated modification of host cell metabolism	93.393		1-R01-CA-157679-01		36,659		36,659
Development of novel GPU Monte Carlo and active photonics simulation software for predicting PDT efficacy	93.393	SIMPHOTEK, INC.	SUB TO 2R44CA183236-02A1			65,283	65,283
Early Events in KSHV Infection of Primary B-cells	93.393		4-P01-CA-174439-04	330,356	1,458,179		1,458,179
Effectiveness of Screening Colonoscopy in Reducing Deaths from Colorectal Cancer	93.393		7-U01-CA-151736-04	-19,712	-30,119		-30,119
Effectiveness of screening for colorectal cancer in average risk adults: Colonoscopy vs. FIT	93.393		1-R01-CA-213645-01A1	222,466	581,666		581,666
Effects of ATR-CHK1 inhibition on genome stability and cancer progression	93.393		1-R01-CA-189743-01A1	68,164	216,983		216,983
Epigenetic regulation by tumor suppressor p53	93.393		2-R01-CA-078831-16		239,856		239,856
Epigenetic Regulation of Human Telomeres	93.393	WISTAR INSTITUTE	24512-02-319			32,156	32,156
Estimating over diagnosis in cancer screening studies	93.393	HUTCHINSON (FRED) CANCER RESEARCH CENTER	0000869705			43,513	43,513
EVarQuit: Extinguishing cigarette smoking with extended pre-quit Varenicline	93.393	RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK	SUB TO 1R01CA206193			10,066	10,066
Extended Duration Varenicline for Smoking Among Cancer Patients: A Clinical Trial	93.393		4-R01-CA-165001-05	30,769	186,446		186,446
Genetic Epidemiology of Melanoma (GenoMel)	93.393	MOFFITT CANCER CTR	10-17751-99-01-G1			54,440	54,440
Genetic Susceptibility and Biomarkers of Platinum-related Toxicities	93.393	INDIANA UNIVERSITY	IN4687559UPENN			1,074	1,074
Genome Persistence of KSHV	93.393		4-R01-CA-171979-04		124,626		124,626
Identifying and validating novel susceptibility genes for breast cancer	93.393	MAYO CLINIC ROCHESTER	PO #63562056			124,175	124,175
Influencing cervical cancer prevention and detection online through social media	93.393	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	8361sc			79,066	79,066
Mechanisms for Development of HCC in HIV	93.393	YALE UNIVERSITY	M17A12539(A10702)			349,708	349,708
Menin-mediated epigenetic tumor suppression	93.393		1-R01-CA-178856-01A1		378,919		378,919
Merkel cell polyomavirus infection, DNA damage response and cancer	93.393		1-R01-CA-187718-01A1		379,990		379,990
MRI Background Parenchymal Enhancement as a Risk Factor for Breast Cancer	93.393	MEMORIAL SLOAN-KETTERING CANCER CENTER	BD517003			21,629	21,629
MRI Background Parenchymal Enhancement as a Risk Factor for Breast Cancer	93.393		BD517005			7,701	7,701
Multi-Modal Imaging of Psychostimulant Effects on Executive Function Post-RRSO	93.393		1R01CA215587-01		421,925		421,925
MYC--Transcription and Apoptosis	93.393		R01-CA-051497		50,502		50,502
Neuroscience-based Interventions for Cancer Risk Behavior Change	93.393		1-R35-CA-197461-01		958,100		958,100
NRG Oncology Center for Innovation in Radiation Oncology (CIRO)	93.393	RTOG FOUNDATION, INC.	0004-NRG-16			200,617	200,617
Oncohistones: Role of Histone H3 Mutations in the Oncogenesis of Pediatric Cancer	93.393	ROCKEFELLER UNIVERSITY	1-P01-CA-196539-01			325,363	325,363
Patient perspectives on the ethical implementation of oncology learning systems	93.393	UNIVERSITY OF MICHIGAN	3004298102			53,435	53,435
Placebo-controlled trial of bupropion for smoking cessation in pregnant women	93.393		1-R01-CA-184315-01	197,076	544,411		544,411
Post GWA Studies in Testicular Germ Cell Tumors	93.393		1-U01-CA-164947-01	138,990	379,512		379,512
PQ3-A: Neural Predictors of Receptivity to Health Communication and Behavior ch	93.393		4-R01-CA-180015-04	64,846	411,925		411,925
Radiomic phenotypes of breast parenchyma and breast cancer risk and detection	93.393	MAYO CLINIC ROCHESTER	UOP-225625			172,449	172,449
Regulation of a DNA damage response network in glioblastoma	93.393		4-R01-CA-172651-04		215,101		215,101
Retention in Cancer Clinical Trials: Modeling Patients' Risk Benefit Assessments	93.393		1-R01-CA-196131-01A1	105,875	462,568		462,568
Retraining Neurocognitive Mechanisms of Cancer Risk Behavior (PQ4)	93.393		1-R01-CA-170297-01		11,299		11,299
Returning genetic research panel results for breast cancer susceptibility	93.393		1-R01-CA-190871-01	242,208	572,882		572,882
Risk and penetrance of mutations from breast cancer testing panels	93.393	MAYO CLINIC ROCHESTER	63846738			132,908	132,908
Role of acetyl-CoA in linking cancer cell metabolism and epigenetics	93.393		1-R01-CA-174761-01A1		387,865		387,865
Role of HOS in Cell Transformation and Apoptosis	93.393		2-R01-CA-092900-15		607,076		607,076
Role of KLHL6 inactivation in mature B-cell malignancies	93.393		1-R01-CA-207513-01		400,467		400,467
Roles of Chromatin Modification in BRCA1 Dependent DNA Repair	93.393		4-R01-CA-174904-04		339,392		339,392
Statistical Methods for Cancer Absolute Risk Prediction	93.393		4-R01-CA-164305-04		122,306		122,306
Testing an Organizational Change Model to Address Smoking in Mental Healthcare	93.393		1-R01-CA-202699-01A1	209,493	648,987		648,987
The epigenetic mechanism of long non-coding RNA in cancer	93.393		1-R01-CA-190415-01		401,068		401,068
The Genetic Basis of Neuroblastoma Tumorigenesis (GWAS)	93.393	CHILDREN'S HOSPITAL OF PHILADELPHIA	FP1442_SUB02_01/PO #960672RSUB			29,763	29,763
The impact of e-cigarette use on adolescent uptake and persistence of conventional smoking: Who is most vulnerable?	93.393		1-R01-CA-202262-01A1	12,078	658,499		658,499
The mechanisms driving brain oncogenesis by FGFR-TACC gene fusions	93.393	COLUMBIA UNIVERSITY	2 (GG010414-01)			15,337	15,337
The RAP80-BRCC36 Deubiquitinating Complex in DNA Repair	93.393		2-R01-CA-138835-06A1	70,893	313,586		313,586
The role of Fyn and Sreasm in UVB-induced cutaneous neoplasia	93.393		4-R01-CA-165836-05		110,685		110,685
Tumor antigen-specific T-cells and hepatocellular carcinoma	93.393		4-R01-CA-166111-04		38,100		38,100
Understanding Psychosocial and Immunologic Responses in Indolent Lymphoproliferative Disorders	93.393	FOX CHASE CANCER CENTER	FCCC 15086-01			92,467	92,467
Use of Genetically Engineered T Cells Targeting Tumor Stroma to Treat Lung Cancer	93.393		4-R01-CA-172921-04		253,002		253,002
94-1654: DEVELOPMENTAL CONTROL OF INTRODUCED GENES IN RODENTS	93.393		7-R01-CA-045954-12		-31		-31
CT DOSE Collaboration	93.393	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	849sc			60	60
Guanylin-GUCY2C axis in colorectal cancer chemoprevention	93.393	THOMAS JEFFERSON UNIVERSITY	080-05000-s24801			6,566	6,566
Racial/ethnic differences in molecular subtypes of ovarian cancer, treatment patterns, and survival	93.393	UNIVERSITY OF UTAH	10044180-01			108,775	108,775
Improving HPV Vaccination Delivery in Pediatric Care: The STOP-HPV Trail	93.393	UNIVERSITY OF CALIFORNIA, LOS ANGELES	1647 G CA089			20,164	20,164
Risk-Based Breast Cancer Screening and Surveillance in Community Practice	93.393	UNIVERSITY OF CALIFORNIA, DAVIS	201603696-14			7,447	7,447
Precision Assessment and Delivery of Cancer Risks in BRCA 1/2 Mutation Carriers	93.393	HARVARD MEDICAL SCHOOL	1057501			82,892	82,892
97-1188: CHIMAERINS: NEW RECEPTORS FOR DIACYLGLYCEROL AND PHORBOL ESTERS	93.393		1-R01-CA-074197-01A1		-1,590		-1,590
CHIMAERINS-- RECEPTORS FOR DIACYLGLY AND PHORBOL ESTERS	93.393		2-R01-CA-074197-06		-319		-319
Evaluating the protective effort of a tissue selective estrogen complex (TSEC) in women with newly diagnosed ductal carcinoma in situ	93.393	NORTHWESTERN UNIVERSITY	60047262 PENN			19,069	19,069
Targeting the Notch:Myc axis in leukemia/lymphoma	93.393		1-R01-CA-215518-01A1		137,722		137,722
ACCESS (Access for Cancer Caregivers to Education and Support for Shared Decision-Making)	93.393	UNIVERSITY OF MISSOURI-COLUMBIA	C00053910-3			32,550	32,550
Multicenter evaluation of digital breast tomosynthesis with synthesized two-dimensional mammography for breast cancer screening	93.393	UNIVERSITY OF VERMONT	32088SUB52367			15,651	15,651
Targeting Cell Cycle Alterations to Improve Treatment for Advanced Prostate Cancer	93.393	THOMAS JEFFERSON UNIVERSITY	080-03800-S27301			15,640	15,640
Urinary Diversion Among Bladder Cancer Survivors: Cost, Complications, and QOL	93.393	KAISER PERMANENTE	OOSI00263-PENN			2,487	2,487
93.393 Total				**1,697,060**	**14,385,587**	**2,548,825**	**16,934,412**
A micro Hall chip for circulating microvesicle based cancer monitoring	93.394		1-R21-CA-182336-01A1		47,863		47,863
A new imaging approach to radiotherapy planning for lung cancer	93.394		1-R01-CA-193050-01		639,857		639,857
Advanced Development of TIES - Enhancing Access to Tissue for Cancer Research	93.394	UNIVERSITY OF PITTSBURGH	0035722 (123867-1)			98,930	98,930
Advanced PET/CT Imaging for Improving Clinical Trials	93.394	UNIVERSITY OF WASHINGTON	UWSC9567			39,560	39,560
Antivascular ultrasound therapy of primary liver neoplasia	93.394		1-R01-CA-204446-01A1		344,403		344,403
Cancer imaging phenomics software suite: application to brain and breast cancer	93.394		1-U24-CA-189523-01A1		694,419		694,419
Carbohydrate Antigenic Biomarkers for Epithelial Cancers	93.394		7-U01-CA-168925-03	79,655	239,645		239,645
Computerized histologic image predictor of cancer outcome	93.394	CASE WESTERN RESERVE UNIVERSITY	RES511172			31,324	31,324
Development of blood biomarkers for the early detection of non-small cell lung cancer	93.394	WISTAR INSTITUTE	25311-03-355			89,769	89,769
Digital breast tomosynthesis imaging biomarkers for breast cancer risk estimation	93.394		2-R01-CA-161749-05	163,492	456,694		456,694
ECOG-ACRIN Biorepositories to support NCTN	93.394	ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	U24CA196172-01-UPA1			9,679	9,679
ECOG-ACRIN Biorepositories to support NCTN	93.394		U24CA196172-03-UPA3			24,379	24,379
ECOG-ACRIN-Based QIN Resource for Advancing Quantitative Cancer Imaging in Clinical Trials	93.394	AMERICAN COLLEGE OF RADIOLOGY	1672			52,060	52,060
Harmonized PET Reconstructions for Cancer Clinical Trials	93.394	UNIVERSITY OF IOWA	W000420845/PO #1001078460			69,551	69,551
High Performance, Quantitative Breast PET Scanner Integrated with Tomosynthesis	93.394		1-R01-CA-196528-01A1	26,944	612,554		612,554
High-throughput immunoglobulin gene sequencing as a peripheral blood minimal residual disease assay to predict post-transplant relapse risk in multiple myeloma	93.394		1-R21-CA-195221-01	0	73,808		73,808

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
HLTF gene silencing: a novel determinant of sensitivity to autophagy inhibition	93.394		4-R01-CA-169134-04		257,885		257,885
Imaging Mitochondrial Redox States In Vivo by Hyperpolarized MR	93.394		1-R01-CA-155348-01		1,109		1,109
Integrated Discovery Pipeline for Tumor Neoantigens	93.394		1-R01-CA-204261-01A1	139,072	596,652		596,652
KSHV genome modification in KS tissue	93.394		1-R01-CA-177423-01		56,491		56,491
Mayo Clinic Prospective Resource for Biomarker Validation and Early Detection of Pancreatic Cancer	93.394	MAYO CLINIC ROCHESTER	THE-216870			261,240	261,240
Metabolic Imaging Marker for Triple Negative Breast Cancer	93.394		1-R21-CA-198563-01		92,088		92,088
Modifying Young Adult Skin Cancer Risk and Protective Behaviors (UV4.me2): A Hybrid Type 2 Dissemination/Effectiveness Trial	93.394	FOX CHASE CANCER CENTER	FCCC 15104-01			14,939	14,939
Molecular Imaging Markers for Glutaminolysis in Breast Cancer	93.394		1-R01-CA-211337-01		435,433		435,433
Multi-parametric 4-D Imaging Biomarkers for Neoadjuvant Treatment Response	93.394		1-R01-CA-197000-01A1	42,722	375,083		375,083
Mutation Profile as Translatable Prognostic Biomarker of Uveal Melanoma	93.394		1-R21-CA-181935-01A1		66,973		66,973
Near infrared intraoperative molecular imaging of lung adenocarcinoma	93.394		1-R01-CA-193556-01A1	40,865	658,756		658,756
Novel PET imaging agents for understanding glutamine addiction in cancer	93.394		1-R01-CA-164490-01		-10,356		-10,356
Pathology Image informatics platform for visualization, analysis and management	93.394	CASE WESTERN RESERVE UNIVERSITY	Sub to RES510429			14,064	14,064
Phospholipase-activated theranostics for PDT of breast cancer	93.394		1-R01-CA-201328-01A1		349,465		349,465
Point of Care Diagnostics of HPV-Associated Cervical Cancer in HIV Epidemic Areas in China	93.394		1-R01-CA-214072-01		119,071		119,071
Real-time monitoring of circulating pancreatic tumor cells and clusters	93.394		1-R01-CA-207643-01	199,685	526,529		526,529
Redox imaging for breast cancer prognosis	93.394		1-R01-CA-191207-01A1	92,423	618,744		618,744
Systemic Chemotherapy of Melanoma: NMR Studies of Lonidamine & N-Mustard Activity	93.394		4-R01-CA-129544-07		-1,087		-1,087
Time-of-Flight PET for Improved Whole-Body Imaging	93.394		2-R01-CA-113941-10		515,634		515,634
Transforming the diagnosis and care of patients with CTCL using TCR sequencing	93.394	BRIGHAM AND WOMEN'S HOSPITAL	114835			72,982	72,982
Tumor-targeted Polymersomes to image and Treat Ovarian Cancer	93.394		4-R01-CA-175480-04	81,146	238,798		238,798
Using markers to improve pancreatic cancer screening and surveillance	93.394	JOHNS HOPKINS UNIVERSITY	SUB TO U01CA210170			62,532	62,532
Weight Management Counseling in Medical Schools: A Randomized Controlled Trial	93.394	UNIVERSITY OF MASSACHUSETTS	WA00397956/OSP2016156			41,703	41,703
QUANTITATIVE DIAGNOSIS OF BREAST CANCER WITH ULTRASOUND	93.394		1-R01-CA-130946-01-A1		-9,255		-9,255
Rapid unbiased isolation and in situ RNA analysis of circulating tumor cells using a magnetic micropore-based diagnostic chip	93.394		1-R33-CA-206907-01A1		154,852		154,852
Learning radiomic signatures to early predict response of rectal cancer patients to neoadjuvant chemoradiation therapy	93.394		1-R21-CA-223358-01		51,120		51,120
: I-SPY2 +: Evolving the I-SPY 2 TRIAL to include MRI-directed, adaptive sequential treatment to optimize breast cancer outcomes	93.394	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	10724sc			44,607	44,607
High Sensitivity Detection of Mutant cf-ctDNA with DNA-Guided Argonaut Enzymes	93.394		1-R21-CA-27056-01		22,205		22,205
Nanoparticle contrast agents for earlier breast cancer detection	93.394		1-R01-CA-227142-01		2,680		2,680
Near-infrared Choline Kinase Sensors for Intraoperative Identification of Lung Tumor Margins	93.394		1-R01-CA-226412-01		4,126		4,126
93.394 Total				**866,003**	**8,232,239**	**927,319**	**9,159,558**
(PQA2) Mammalian Regeneration, High Fat Diets, and Breast Cancer: A Common Link?	93.395	LANKENAU INSTITUTE FOR MEDICAL RESEARCH	06297-0791			2,790	2,790
A Facile Method for Producing Bispecific Antibodies from Full-Length IgG	93.395		1-R21-CA-187657-01		-2		-2
A Randomized Trial of Incentives for Research Participation	93.395		1-R01-CA-197332-01	22,804	485,573		485,573
A Universal Approach to Personalized Adoptive T cell Therapy of Cancer	93.395		4-R01-CA-168900-05		125,721		125,721
Aids Malignancy Clinical Trials Consortium Study (AMC)	93.395	UNIVERSITY OF CALIFORNIA, LOS ANGELES	1568 G TA812			72,002	72,002
Antitumor Agents: Structure and Synthesis	93.395		2-R01-CA-019033-37A1		254,289		254,289
Biological mechanisms Involved with PDT in the Treatment of MPM	93.395		2-P01-CA-087971-11A1	53,819	1,312,838		1,312,838
Cancer Treatment Research	93.395	ECONG-ACRIN Medical Resource Foundation	5U10CA180820-04			7,800	7,800
CD19 Directed CAR Therapy	93.395		4-R01-CA-165206-05		310,504		310,504
Cellular and Molecular Studies of Bone Marrow Transplant	93.395	MOUNT SINAI MEDICAL CENTER	0254-3503-4605			2,708	2,708
Circulating Tumor Cells Analyses and Molecular Profiling for Patients Receiving Radiation Therapy	93.395		1-R01-CA-201071-01A1		418,266		418,266
COG NCTN Network Group Operations Center	93.395	CHILDREN'S HOSPITAL OF PHILADELPHIA	95000870216-XX			15,000	15,000
COG: NCTN Scientific Leadership Work Order (Joffe)	93.395	CHILDREN'S HOSPITAL OF PHILADELPHIA	961650-RSUB			15,000	15,000
Dendritic Cell-Mediated Oral Antigen Tolerance and the Lung	93.395		1-R21-AI-123771-01		167,589		167,589
Dose-distribution radiomics to predict morbidity risk in radiotherapy	93.395	RADIATION THERAPY ONCOLOGY GROUP	1818			135,993	135,993
ECOG-ACRIN NCORP Research Base - CCDR	93.395	ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	1UG1CA189828-01-UPA3			19,012	19,012
ECOG-ACRIN NCORP Research Base - CT	93.395	ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	1UG1CA189828-01-UPA1			44,821	44,821
ECOG-ACRIN Operations Center	93.395	ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	ECOG-ACRIN			28,673	28,673
ECOG-ACRIN Operations Center	93.395		U10CA180820-01-UPA1			95,909	95,909
ECOG-ACRIN Operations Center	93.395		U10CA180820-01-UPA8			49,999	49,999
ECOG-ACRIN Operations Center	93.395		sub to U10CA180820-01-UPA7			25,597	25,597
ECOG-ACRIN Operations Center	93.395		U10CA180820-02-UPA10			113,038	113,038
ECOG-ACRIN Operations Center	93.395		U10CA180820-01-UPAS			57,960	57,960
ECOG-ACRIN Operations Center	93.395		U10CA180820-01-UPA3			143,070	143,070
ECON-ACRIN NICORP Research Base	93.395	ECOG-ACRIN MEDICAL RESEARCH FOUNDATION, INC	1-UG-1CA-189828-01-UPA2			23,432	23,432
Effects of Photodynamic Therapy on Tumor Oxygenation and Blood Flow	93.395		2-R01-CA-085831-11A1		313,186		313,186
ETCTN with Phase 2 Emphasis	93.395	UNIVERSITY OF PITTSBURGH	0049874 (128988-1)			56,542	56,542
FRONTIER SCIENCE AND TECHNOLOGY/CGOP OUTREACH	93.395	FRONTIER SCIENCE & TECHNOLOGY RESEARCH FDN	ECOG PURCHASE SERVICE AGREEMENT			180,940	180,940
Highly specific ATR inhibitors for the targeted treatment of a broad spectrum of cancers	93.395	ATRIN PHARMACEUTICALS	SUB TO 1R41CA203436			79,187	79,187
How Does FLT3 Mutation Regulate Myeloid Differentiation in Acute Myeloid Leukemia	93.395		1-R21-CA-198621-01	8,309	31,148		31,148
HSP70 and Melanoma	93.395	WISTAR INSTITUTE	24672-02-366			63,534	63,534
Image-guided treatment planning for pleural Photodynamic Therapy	93.395		4-R01-CA-154562-05		9,996		9,996
Imaging & Radiation Oncology Core - Philadelphia Imaging Core Lab Director	93.395	AMERICAN COLLEGE OF RADIOLOGY	1616			157,834	157,834
Immuno/immuno-Gene Therapies for Thoracic Malignancies	93.395		4-P01-CA-066726-19		412,617		412,617
Immunobiology and Immunotherapy of Pancreatic Cancer	93.395		4-R01-CA-169123-05		24,640		24,640
IMMUNOTHERAPY WITH CAR T CELLS	93.395		4-R01-CA-120409-10		32,875		32,875
Improving radiation response by targeting O2 metabolism via the PI3K/mTOR pathway	93.395		1-R01-CA-182747-01A1		427,435		427,435
Inhibition of Senescence to Increase Cancer Cell Death: A New Paradigm	93.395	ALBERT EINSTEIN COLLEGE OF MEDICINE, INC	310917			18,828	18,828
Intimacy-Enhancing Couples' Intervention for Localized Prostate Cancer	93.395	RUTGERS UNIVERSITY	8028			978	978
IROC - Imaging & Radiation Oncology Core - Core Lab Physicist	93.395	AMERICAN COLLEGE OF RADIOLOGY	sub to U24-CA-180803			435,043	435,043
Mechanism of Activity of Lonidamine	93.395		4-R01-CA-172820-04		469,802		469,802
Molecular mechanisms of BRAF inhibitor induced UPR and autophagy	93.395		1-R01-CA-198015-01		329,157		329,157
Nanoscale Encapsulation for Fragment Based Drug Discovery	93.395		1-R21-CA-206958-01		138,465		138,465
NRG ONCOLOGY NETWORK GROUP OPERATIONS CENTER	93.395	NRG ONCOLOGY	UofP-YR 1			8,909	8,909
PD-1 Blockade and Neoantigen-Specific T Cell Immunity	93.395		7-R21-CA-205794-02		149,588		149,588
Piperlongumine as a Novel Radiosensitizer for Lung Cancer	93.395	NORTH DAKOTA STATE UNIVERSITY	FAR0024666			18,876	18,876
Protoacoustics - Clinical based range verification for Cancer Treatment	93.395		1-R21-CA-205063-01A1		208,742		208,742
Radiation and Receptor Targeted RadioTheranostic Nanoparticles for Glioblastoma	93.395		1-R01-CA-181429-01A1		473,759		473,759
Secondary Prevention through Surveillance and Intervention	93.395		1-R01-CA-208273-01A1		600,247		600,247
Targeted Therapies in Melanoma	93.395	WISTAR INSTITUTE	24921-06-314; GEORGE			213,179	213,179
Targeted Therapies in Melanoma	93.395		24921-07-314; MARMORSTEIN			191,622	191,622
Targeted Therapies in Melanoma	93.395		24921-13-314; NATHANSON			49,153	49,153
Targeted Therapies in Melanoma	93.395		2-P01-CA114046			375,988	375,988
Targeted Therapies in Melanoma	93.395	WISTAR INSTITUTE	24921-11-314; Xu			125,595	125,595
UPCC# 20214; Phase I study of neo-adjuvant RO7009789 alone or neo-adjuvant RO7009789 plus nab-paclitaxel and gemcitabine followed by adjuvant RO7009789 plus nab-paclitaxel and gemcitabine for patients with newly diagnosed resectable pancreatic carcinoma	93.395	HUTCHINSON (FRED) CANCER RESEARCH CENTER	0000843306			2,840	2,840
Using 18F-EF5 PET to measure hypoxia modulation by Nelfinavir in larynx cancer	93.395		1-R01-CA-174976-01A1		607,260		607,260
94-285: EASTERN COOPERATIVE ONCOLOGY GROUP	93.395		2-U10-CA-015488-22 REV		22		22
Targeted Therapies in Melanoma; Characterization of dimeric quinacrines for cancer: Diversity Supplement	93.395	WISTAR INSTITUTE	24924-16-314			77,488	77,488

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Pharmacological Blockage of XBP-1s Expression in Cancer	93.395	UNIVERSITY OF SOUTH FLORIDA	1213-1159-00-B			31,428	31,428
UPCC 19316, ABTC-1501: A Phase I Trial of Anti-LAG-3 or Anti-CD137 Alone and in Combination with Anti-PD-1 in Patients with Recurrent GBM	93.395	JOHNS HOPKINS UNIVERSITY	ABTC 1501 (BMS# CA209-596)			9,335	9,335
MATCH Project Funding for Genetic Counseling- National Clinical Trials Network (NCTN) Grant (U10CA180886)	93.395	CHILDREN'S HOSPITAL OF PHILADELPHIA	9500080218-XX			14,572	14,572
Molecular Mechanisms in Gastrointestinal Stromal Tumor	93.395		7R01CA102613-12		481,964		481,964
NCI Community Oncololgy Research Program (NCORP) Research Base	93.395	OREGON HEALTH & SCIENCE UNIVERSITY	1005019_UPA			26,607	26,607
Small molecule ubiquitin ligase modulators for immunotherapy of cancer	93.395	PROGENRA, INC.	R43CA213582			71,333	71,333
Novel injectable resiquimod formulation for treatment of metastatic cancers	93.395	CUREBIOTECH, LLC	SUB TO R43CA217489			17,244	17,244
COG NCTN Network Group Operations Center COMMITTEE LEADERSHIP	93.395	CHILDREN'S HOSPITAL OF PHILADELPHIA	SUB TO U10CA180886			15,000	15,000
Phase I Study of MK-1775 with Radiation and Temozolomide in Patients with Newly Diagnosed Glioblastoma and Evaluation of Intratumoral Drug Distribution in Patients with Recurrent Glioblastoma	93.395	JOHNS HOPKINS UNIVERSITY	ABTC 1202			57,592	57,592
Epigenetic mechanisms of drug resistance in renal cell carcinoma	93.395	INDIANA UNIVERSITY	IN-4687956-UP			13,729	13,729
A novel more effective genotoxic therapy for ovarian cancer	93.395		1-R01-CA-215436-01A1		12,550		12,550
Immunologic aspects of targeted therapy of erbB tumors	93.395		1-R01-CA-219034-01A1		113,800		113,800
Development of GPER agonists as cancer therapeutics	93.395	LINNAEUS THERAPEUTICS	SUB TO 1R41CA228695			8,440	8,440
PARP-1 as a novel target for alpha-particle therapy in high-risk Neuroblastoma	93.395		1-R01-CA-219006-01A1		32,869		32,869
93.395 Total				**84,932**	**7,944,900**	**3,174,620**	**11,119,520**
(PQ5) Mitochondria are endocellular symbionts that serve as targets for immune recognition	93.396		1-R01-CA-206012-01	47,032	388,602		388,602
(PQC2) Localization as a determinant of cancer dormancy	93.396	MASSACHUSETTS GENERAL HOSPITAL	226262			69,604	69,604
Androgen Receptor Action in Castration Resistant Prostate Cancer-Core C	93.396	BETH ISRAEL MEDICAL CENTER	01026711			201,707	201,707
C MYC Targets in the Pathogenesis of Human Cancers	93.396		2-R01-CA-057341-24A1		-7,879		-7,879
Calcineurin-NFAT regulates endothelial activation in pre-metastatic sites	93.396		2-R01-CA-118374-07A1		306,967		306,967
Cancer Cell Adaptation to Metabolic Stress	93.396		2-P01-CA-104838-11	968,689	1,393,115		1,393,115
Cell type and molecular determinants of colorectal cancer initiation downstream of APC inactivation	93.396		2-R01-CA-168654-06		452,886		452,886
Cell type and molecular determinants of colorectal cancer initiation downstream of APC inactivation	93.396		1-R50-CA-221841-01		80,354		80,354
CXCL13: a mediator of prostate cancer progression	93.396		1-R01-CA-189765-01A1		335,979		335,979
Deregulation of MSI RNA-binding proteins promotes intestinal tumorigenesis	93.396		4-R01-CA-168654-05		-48,814		-48,814
Determining and enhancing metabolite fitness for metabolomics measurements	93.396		1-R21-CA-213234-01		184,473		184,473
Effectors of protein kinase C-mediated tumor progression	93.396		1-R01-CA-196232-01A1		410,711		410,711
Extracellular DNA in regulation of multiple myeloma	93.396	WISTAR INSTITUTE	25241-02-370			67,192	67,192
HIF-1alpha and FBP2 in sarcoma metabolism, progression, and metastasis	93.396		2-R01-CA-158301-06A1	307,575	653,138		653,138
Identifying Mechanisms of p53 and Rb Tumor Suppression In Small Cell Lung Cancer	93.396		1-R21-CA-205340-01		199,915		199,915
In Vivo Oncogene-Induced Tumorigenesis and Escape	93.396		2-R01-CA-098371-11		459,908		459,908
Inhibition of a TREG Deubiquitinase, USP7, Promotes Anti-Tumor Immunity	93.396	CHILDREN'S HOSPITAL OF PHILADELPHIA	ACTIVITY 321068(PO#961564RSUB			57,746	57,746
Mechanisms of Esophageal Carcinogenesis	93.396		2-P01-CA-098101-11	830,605	1,814,921		1,814,921
Methods for genomic data with graphical structures	93.396		4-R01-CA-127334-06	18,981	98,761		98,761
Oncogenic Notch Signaling - Project 2	93.396	BRIGHAM AND WOMEN'S HOSPITAL	P01-CA-119070			85,956	85,956
p53 and tumor cell metabolism	93.396		1-R01-CA-182675-01A1		254,975		254,975
p53-Mediated Tumor Immune Surveillance	93.396		1-R01-CA-193602-01A1		303,443		303,443
Physiological role of the TNKS-PI31 dependent proteasome regulation	93.396		4-R00-CA-190658-03		260,118		260,118
Prolactin pathways and metastatic progression of ER-positive breast cancer	93.396	MEDICAL COLLEGE OF WISCONSIN	SUB TO 7R01CA188575			126,610	126,610
Quantitative analyses of tumor cell extravasation	93.396	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	5710004020			103,890	103,890
Regulation of multiple myeloma by S100A9 protein	93.396	WISTAR INSTITUTE	25231-02-370			16,841	16,841
Role of eIF2a phosphorylation and ER stress in hypoxia tolerance and tumor growth	93.396		4-R01-CA-094214-14		-614		-614
Role of p53 family proteins in glucose metabolism	93.396		1-R01-CA-184867-01		200,894		200,894
Role of the pentose phosphate pathway in tumorigenesis	93.396		1-R21-CA-195360-01A1		271,435		271,435
Signaling Modulators in Epidermal Carcinogenesis	93.396		4-R01-CA-163566-05		4,948		4,948
Stem Cells, Differentiation and Therapeutic Resistance in AML	93.396		1-R01-CA-149566-01A1		162,894		162,894
Targeting macrophages for immunotherapy in pancreatic cancer	93.396		1-R01-CA-197916-01A1		428,484		428,484
The interaction between tRNA and cytochrome c in apoptosis of cancer cells	93.396		1-R21-CA-178581-01A1		266		266
The role of DCLK1 in the initiation of pancreatic ductal adenocarcinoma	93.396	UNIVERSITY OF OKLAHOMA	RS20150916-01			194,637	194,637
The Unfolded Protein Response in Cancer	93.396		4-P01-CA-165997-04	457,656	1,088,291		1,088,291
Tumor-Associated Neutrophils in Human Lung Cancer	93.396		1-R01-CA-187392-01A1		341,076		341,076
Understanding and Targeting Chemotherapy Resistance in Acute Myeloid Leukemia	93.396		1-R01-CA-198089-01	443,190	702,137		702,137
Understanding Wnt5a regulation of protein depalmitoylation during cell migration	93.396		1-R01-CA-181633-01A1		413,390		413,390
94-613: RFA/INDUCTION OF MMP-9 VIA TUMOR-STROMA INTERACTION	93.396		1-R01-CA-064805-01 REV		216		216
STRUCTURE/FUNCTIN RELATIONSHIPS OF SH2 DOMAIN CONTAINING LEUKOCYTE PHOSPHOPROTEIN 76 KD (SLP-76)	93.396		1-R01-CA-089682-01		-111		-111
Optimization and Efficacy of Covalent Ire-1 RNase Inhibitors in CLL	93.396	UNIVERSITY OF SOUTH FLORIDA	Sub to R21CA199553			12,130	12,130
The role of TIM3 and CEACAM1 in anti-tumor function of human effector T cells	93.396		1-R01-CA-219083-01		386,778		386,778
Metabolic Tumor Suppressors in Renal Cancer: Unprecedented Roles in Disease Progression	93.396		1-R35-CA-220483-01		790,871		790,871
Preparation of site-specific antibody-drug conjugates by proximity-based sortase ligation	93.396	ALPHATHERA	SUB TO R41CA221374			61,521	61,521
ER Stress and Mitochondrial Biogenesis in Melanoma	93.396	SANFORD-BURNHAM MEDICAL RESEARCH INSTITUTE	SUB TO P01CA128814			177,896	177,896
c-Myc Targets in the Pathogenesis of Human Cancers	93.396	WISTAR INSTITUTE	25421-02-382			161,228	161,228
Survival and Recurrence of Dormant Cancer Cells	93.396		2-R01-CA-148774-06		184,251		184,251
HAT Inhibition to Impair Foxp3+ Treg Function and Boost Anti-Tumor Immunity	93.396	CHILDREN'S HOSPITAL OF PHILADELPHIA	320922-01-01 / PO #951078RSUB			-1,570	-1,570
Directing the metabolic fate of CAR T cells	93.396		1-R01-CA-226983-01		35,965		35,965
The Metabolic Pathogenesis of Chromophobe Renal Cell Carcinoma	93.396	BRIGHAM AND WOMEN'S HOSPITAL	118617			3,611	3,611
Defining an acetyl-CoA sensing mechanism as a form of inter-organelle communication in cancer	93.396		1-R01-CA-228339-01		18,509		18,509
A plasticity and reprogramming paradigm for therapy resistance at the single cell level	93.396		1-U01-CA-227550-01		4,226		4,226
Center for Research to Optimize Precision Lung Cancer Screening in Diverse Populations	93.396	KAISER PERMANENTE	RNG209451-PENN-01			29,869	29,869
93.396 Total				**3,073,730**	**12,575,479**	**1,368,868**	**13,944,347**
Abramson Cancer Center Support Grant	93.397		2-P30-CA-016520-40	415,550	7,737,386		7,737,386
Botswana-UPenn: Research Consortium of HPV-Related Cervical Cancer in HIV Patient	93.397		1-U54-CA-190158-01	415,543	807,932		807,932
Cancer Risks for Mutations In Breast Cancer Predisposition Genes	93.397	MAYO CLINIC ROCHESTER	UOP-182363			57,019	57,019
CSHL Cancer Center Support Grant	93.397	COLD SPRING HARBOR LABORATORY	25103074			41,036	41,036
Liver Cancer: pre-Malignant Stiffening, Membrane Transduction, & Nuclear Rheology	93.397		1-U54-CA-193417-01	41,876	2,044,056		2,044,056
Optimizing Colonoscopy & Fecal Immunochemical Tests for Community-Based Screening	93.397	KAISER PERMANENTE	115-9064-05			57,801	57,801
Penn Center for Innovation in Personalized Breast Screening	93.397		1-U54-CA-163313-01	199,057	659,601		659,601
Sex Steroid Regulation of Melanoma Development and Sensitivity to Immunotherapy Specific Aims	93.397	WISTAR INSTITUTE	24963-11-314			60,753	60,753
SPORE in Skin Cancer	93.397	WISTAR INSTITUTE	24961-02-314			134,402	134,402
SPORE in Skin Cancer	93.397		24961-04-314			101,991	101,991
SPORE in Skin Cancer	93.397		24961-05-314			233,458	233,458
SPORE in Skin Cancer	93.397		24961-10-314			183,632	183,632
SPORE in Skin Cancer	93.397		24961-06-314			389,778	389,778
SPORE in Skin Cancer	93.397		Sub to 5-P50-CA174523			313,659	313,659
Stem cells and the origins of Barrett's Esophagus	93.397	COLUMBIA UNIVERSITY	1(GG012789-01)			189,678	189,678
Stem cells and the origins of Barrett's Esophagus	93.397		3(GG012789-03)			52,165	52,165
Stem cells and the origins of Barrett's Esophagus	93.397		2(GG012789-04)			43,470	43,470
The Johns Hopkins Physical Sciences-Oncology Center	93.397	JOHNS HOPKINS UNIVERSITY	2003261994			318,699	318,699
Planning a Southern African Regional Center of Research Excellence in Non-communicable Diseases	93.397	BOTSWANA HARVARD AIDS INSTITUTE	SUB TO P20CA210283			83,265	83,265

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Non-Genetic Rare Cell Variability and Resistance to Targeted Therapy in Melanoma	93.397	WISTAR INSTITUTE	24964-12-314; Raj			38,142	38,142
Human papillomavirus infection in HIV-infected and HIV-uninfected women from Botswana and Kenya: HPV genetic variation by phylogenetic type	93.397	INDIANA UNIVERSITY	IN4687581UP			2,657	2,657
93.397 Total				**1,072,026**	**11,248,975**	**2,301,605**	**13,550,580**
A cell-based liquid biopsy approach for early pancreatic cancer detection	93.398		1-F32-CA-196120-01		43,588		43,588
A role for macrophage phenotype in regulating metastasis in pancreatic carcinoma	93.398		1-F30-CA-196106-01		-360		-360
Augmenting Chimeric Antibody Receptor Directed T cell Therapy for Cancer	93.398		4-K08-CA-163941-05		30,080		30,080
Biochemical regulation and genomic targeting of TET-catalyzed cytosine oxidation	93.398		1-F30-CA-196097-01		22,697		22,697
Cancer Center Research Training Program	93.398		2-T32-CA-009615-26		330,023		330,023
Cancer Center Research Training Program	93.398		2-T32-CA-009615-21		-945		-945
Cancer Clinical Epidemiology Training Grant	93.398		2-T32-CA-009679-21		18,097		18,097
Cancer Clinical Epidemiology Training Grant	93.398		2-T32-CA-009679-26A1		464,675		464,675
Cellular molecular biologics in clinical cancer research	93.398		2-K12-CA-076931-16A1	669,322	1,065,391		1,065,391
Cerenkov imaging for in vivo pH determination of the tumor microenvironment	93.398		1-F31-CA-206453-01		30,272		30,272
Characterization of Epigenetic Targets in Prostate Cancer	93.398		4-R00-CA-187664-03		127,076		127,076
Chimeric Antigen Receptor T cell Therapy for Acute Myeloid Leukemia (AML)	93.398		1-K08-CA-194256-01		175,593		175,593
CN/NFAT Signaling in Fibroblast Activation and Metastasis	93.398		1-F30-CA-196079-01A1		28,737		28,737
Effectiveness of Radiotherapy for Prostate Cancer	93.398		4-K07-CA-163616-05		105,566		105,566
Elucidating the mechanism of anti-GSK3 adjuvant therapy for Myc-driven lymphomas	93.398		1-F31-CA-217004-01		45,529		45,529
IFNARI downregulation in melanoma cells and stromal cells promotes melanoma progression and pulmonary metastasis	93.398		1-F32-CA-206431-01		37,551		37,551
Immunobiology of normal and neoplastic lymphocytes	93.398		2-T32-CA-009140-36		-252		-252
Immunobiology of normal and neoplastic lymphocytes	93.398		2-T32-CA-009140-41A1		480,030		480,030
Insulin resistance in the development and progression of invasive bladder cancer	93.398		1-K23-CA-187185-01A1		182,523		182,523
Investigating the role of PPAR gamma in clear cell renal cell carcinoma	93.398		1-F31-CA-206381-01		43,570		43,570
Metabolic alterations in soft tissue sarcoma initiation and progression	93.398		1-F32-CA-217185-01		56,005		56,005
Myc transcriptional regulation in T-ALL	93.398		1-F31-CA-206338-01		45,196		45,196
Optimizing Immunotherapy Strategies to Eliminate Recurrences after Cancer Surgery	93.398		1-F32-CA-210409-01		80,243		80,243
Pro- and anti-phagocytic signals on pancreatic cancer regulate tumor macrophages	93.398		1-F30-CA-196124-01		22,951		22,951
Probing the role of tumor suppressive functions of Elf5 in breast cancer	93.398		1-K22-CA-193661-01A1		215,684		215,684
Role of MLL1 and MLL1 leukemogenic fusions in maintaining transcriptional memory	93.398		1-F30-CA-189553-01		6,622		6,622
Sex Steroid Regulation of Melanocyte Homeostasis	93.398		1-F31-CA-206325-01		40,941		40,941
Stroma-mediated mechanisms of breast cancer treatment resistance	93.398		1-F31-CA-189707-01		-2,124		-2,124
Summer Undergraduate Program to Educate Radiation Scientists (SUPERS)	93.398		2-R25-CA-140116-06		258,939		258,939
Targeting SRC Signaling Pathways to Promote Cell Cycle Arrest in Ovarian Cancer	93.398		K08-CA-151892		-89		-89
The molecular basis for how acetyl-coenzyme A links metabolism to gene expression	93.398		1-F31-CA-189559-01		4,006		4,006
The Role of ATF4 in Promoting c-Myc Induced Lymphomagenesis	93.398		4-F31-CA-183569-03		13,401		13,401
The role of mutant p53 and endocytic recycling in ESCC invasion and metastasis	93.398		1-F32-CA-206264-01		54,846		54,846
The role of the T cell repertoire in immune checkpoint blockade therapy	93.398		1-F31-CA-213915-01		44,298		44,298
TIP60-chromatin interactions at DNA double-strand breaks	93.398		1-F30-CA-196115-01		24,329		24,329
Training Community Nurses and Administrators to Implement Cancer Clinical Trials	93.398	MOUNT SINAI MEDICAL CENTER	0253-6571-4609			67,732	67,732
Training In Tumor Virology	93.398		2-T32-CA-115299-06		50,109		50,109
Training In Tumor Virology	93.398		2-T32-CA-115299-11		42,494		42,494
Trib1 in NF-kappaB Signaling: Insights into MALT1 Regulation and Leukemia	93.398		1-F31-CA-189661-01		3,896		3,896
CLONING AND ANALYSIS OF NOVEL TGF-B SIGNALING MOLECULES	93.398		7-K01-CA-078592-04		-24		-24
Role of the hexosamine biosynthesis pathway in pancreatic cancer	93.398		1-F31-CA-217070-01		40,070		40,070
The role of p120ctn in PDAC epithelial-to-mesenchymal transition and metastasis	93.398		1-F32-CA-221094-01		52,323		52,323
Engineering antibodies for intracellular targeting	93.398		1-F30-CA-221385-01		48,118		48,118
Resistance To Targeted Immunotherapies:CART19 as a Paradigm	93.398		1-K99-CA-212302-01A1		205,787		205,787
Metabolic rewiring regulates cancer growth and tumor-associated immune responses	93.398		1-F99-CA-222741-01		40,682		40,682
Single cell and epigenetic analysis in metastasis	93.398		4-K00-CA-212437-02		50,805		50,805
An in vivo model for CCNE1 amplified tumorigenesis	93.398		1-F32-CA-221093-01		34,649		34,649
Investigating the role of C1-INH in pancreatic ductal adenocarcinoma progression	93.398		1-F30-CA-224970-01		20,343		20,343
Laboratory-based Approaches to Understanding the Impact of Low Nicotine Content Cigarette Marketing on Young Adults	93.398		1-K07-CA-218366-01A1		38,087		38,087
A genotype-phenotype study of tumors from patients with inherited mutations in DNA repair genes	93.398		1-K08-CA-215312-01A1		58,987		58,987
Intratumoral Immune Activation Informs Rational CAR-T Cell Design	93.398		1-F31-CA-228455-01		7,753		7,753
Exploiting resistance mechanisms to RAS-MAPK inhibition in relapsed neuroblastoma	93.398		1-F31-CA-220844-01A1		6,081		6,081
Biomaterial approaches to attenuate macrophage recognition of "self"-signals from cancer cells	93.398		1-F32-CA-228285-01		4,535		4,535
93.398 Total				**669,322**	**4,799,384**	**67,732**	**4,867,116**
Alliance NCORP Research Base	93.399	DANA-FARBER CANCER INSTITUTE	4540802			19,712	19,712
NRG Oncology Capitation Fund	93.399	NRG ONCOLOGY	NRG Oncology Foundation			75,251	75,251
NRG ONCOLOGY NETWORK GROUP OPERATIONS CENTER	93.399	NRG ONCOLOGY	XIAO-YR. 3			7,000	7,000
Randomized Phase II/III Trial of Prophylactic Cranial Irradiation with or without Hippocampal Avoidance (HA) for Small Cell Lung Cancer	93.399	NRG ONCOLOGY	UPenn CC003 - NCORP-02			39,831	39,831
93.399 Total						**141,794**	**141,794**
ARRA - Canine Hereditary Cancer Consortium: From Bark to Bedside	93.701	TRANSLATIONAL GENOMICS RESEARCH INSTITUTE	UC2 CA148149-01 / TRENT-10-02			-64	-64
93.701 Total						**-64**	**-64**
Clinical Trials Umbrella Scanned Beam	93.RD	MASSACHUSETTS GENERAL HOSPITAL	218209			11,221	11,221
mRNA synthesis and purification for flavivirus vaccine	93.RD	LEIDOS BIOMEDICAL RESEARCH, INC	16X273Q			468,412	468,412
RFP S17-056 Stoeckert Ontology Research Contract	93.RD	LEIDOS BIOMEDICAL RESEARCH, INC	17X056			43,420	43,420
Secure data management system to facilitate prospective follow up of participants in a clinical trial of protons versus photons for Breast Cancer (RADCOMP trial)	93.RD	SOCIAL & SCIENTIFIC SYSTEMS, INC.	PHR-SSS-S-16-004996			14,492	14,492
Creation of feline NPC2 using CRISPR/Cas9 genome editing	93.RD	LEIDOS BIOMEDICAL RESEARCH, INC	17X136			708,121	708,121
Preserving Cancer Stem Cells in Canine Blood Specimens	93.RD	LEIDOS BIOMEDICAL RESEARCH, INC	18X011			1,912	1,912
93.RD Total						**1,247,578**	**1,247,578**
NATIONAL CANCER INSTITUTE/NIH/DHHS Total				8,322,253	65,299,149	12,595,383	77,894,532
NATIONAL CENTER FOR ADVANCING TRANSLATIONAL SCIENCES/NIH/DHHS							
A national iPS cell network with deep phenotyping for translational research	93.350	BOSTON UNIVERSITY	4500002228			181,396	181,396
Conference on Clinical Research for Rare Diseases (CCRRD)	93.350		1-R13-TR-001587-01		2,000		2,000
Identification of Shared Molecular Targets	93.350	UNIVERSITY OF SOUTH FLORIDA	6119-1359-11-A	19,978		156,089	156,089
Institutional Clinical and Translational Science Award	93.350		1-UL1-TR-001878-01	3,076,211	11,645,852		11,645,852
Institutional Clinical and Translational Science Award	93.350		5-TL1-TR-001880-02	111,162	1,319,599		1,319,599
The Dystonia Coalition Project 1: Natural history and biospecimen repository for Dystonia	93.350	DYSTONIA MED RES FD	SUB TO U54TR001456			49,134	49,134
Bacteriophage Nanoparticle Technology for Delivery of Nucleic Acid Therapies	93.350	SYNPHAGEN, LLC	Sub to R43TR001401-01			20,571	20,571
Lung Host Defense in Microgravity	93.350	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200680218			245,416	245,416
93.350 Total				**3,207,351**	**12,967,451**	**652,606**	**13,620,057**
NATIONAL CENTER FOR ADVANCING TRANSLATIONAL SCIENCES/NIH/DHHS Total				3,207,351	12,967,451	652,606	13,620,057
NATIONAL CENTER FOR COMPLEMENTARY AND INTEGRATIVE HEALTH/NIH/DHHS							
NOVEL SYNTHETIC SDG TO TREAT TRAUMA-INDUCED INFLAMMATION	93.213		1-R21-AT-008291-01A1		8,061		8,061

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Pragmatic Trials in Maintenance Hemodialysis	93.213		1-UH2-AT-007797-01	125,902	409,004		409,004
93.213 Total				**125,902**	**417,065**		**417,065**
NATIONAL CENTER FOR COMPLEMENTARY AND INTEGRATIVE HEALTH/NIH/DHHS Total				125,902	417,065		417,065
NATIONAL CENTER FOR INJURY PREVENTION AND CONTROL/CDC/DHHS							
Michigan Youth Violence Prevention Center Community Engagement and Revitalization	93.136	UNIVERSITY OF MICHIGAN	3003727976			85,262	85,262
The Penn Violence and Injury Control Research Center	93.136		1-R49-CE-002474-01	53,967	387,529		387,529
93.136 Total				**53,967**	**387,529**	**85,262**	**472,791**
NATIONAL CENTER FOR INJURY PREVENTION AND CONTROL/CDC/DHHS Total				53,967	387,529	85,262	472,791
NATIONAL CENTER FOR RESEARCH RESOURCES/NIH/DHHS							
Institutional Clinical and Translational Science Award	93.389		2-UL1-RR-024133-06		-2,113		-2,113
93.389 Total					**-2,113**		**-2,113**
NATIONAL CENTER FOR RESEARCH RESOURCES/NIH/DHHS Total					-2,113		-2,113
NATIONAL EYE INSTITUTE/NIH/DHHS							
Broad Spectrum Molecular Therapy for Blinding Retina Disorders	93.310		1-DP1-EY-023177-01		-9,755		-9,755
93.310 Total					**-9,755**		**-9,755**
A PILOT STUDY OF LASER PHOTOCOAGULATION FOR DIABETIC MACULAR EDEMA DRCR 1A	93.867	JAEB CENTER FOR HEALTH RESEARCH	EY 14231			39,706	39,706
Analyzing retinal microanatomy in retinopathy of prematurity to improve care	93.867	DUKE UNIVERSITY	2035511			29,806	29,806
Approaches to enhance lysosomal function in RPE cells	93.867		2-R01-EY-013434-12A1		358,669		358,669
Biophysical Design Strategies for Next-Generation Maquette-based Genetically Encoded Voltage Indicators (GEVIs)	93.867		1-R21-EY-027562-01		259,083		259,083
Central Processing of Visual Information	93.867	CORNELL UNIVERSITY	15050678			44,797	44,797
Color Constancy	93.867		2-R01-EY-010016-21A1		451,509		451,509
Degradative Processes in RPE-photoreceptor renewal	93.867		2-R01-EY-010420-17A1		34,078		34,078
Detection and Estimation of Local Properties in Natural Scenes	93.867	UNIVERSITY OF TEXAS AT AUSTIN	UTA17-000180			137,478	137,478
Developing new methods for early detection of Sjogren's syndrome	93.867		1-R01-EY-026972-01	23,558	320,333		320,333
Development of a novel antiviral to treat and prevent acyclovir resistance in human ocular herpes keratitis	93.867	FOX CHASE CHEMICAL DIVERSITY CENTER	R41EY026849-UP			96,298	96,298
Follow-up Study: Comparison of AMD Treatments Trials (CATT)	93.867		1-U10-EY-023530-01	57,247	9,038		9,038
Genetic Analysis of Axonal Regeneration	93.867		1-R01-EY-024861-01		313,643		313,643
Genetic Epidemiology of Age-Related Macular Degeneration in the Older Order Amish	93.867		1-R01-EY-023164-01	806,266	949,438		949,438
How vesicles send information to retinal ganglion cells	93.867		2-R01-EY-013333-12A1		9,796		9,796
Human Connectomes for low vision, blindness, and sight restoration	93.867	UNIVERSITY OF SOUTHERN CALIFORNIA	67228549			182,073	182,073
Integrative Data Analysis for Refractive Error	93.867		1-R01-EY-024233-01		170,537		170,537
Macular Edema Treatment Trials Associated with MUST (META-MUST)	93.867	JOHNS HOPKINS UNIVERSITY	2002565177			7,731	7,731
Mechanism of SIRT1 Activator Mediated Neuroprotection of Retinal Ganglion Cells	93.867		2-R01-EY-019014-06A1		306,081		306,081
Mechanisms of learning a visual discrimination	93.867		2-R01-EY-015260-11		240,681		240,681
Melanopsin and cone signals in human visual processing	93.867		1-R01-EY-024681-01A1		390,998		390,998
Membrane complement regulators in RPE degeneration and retinal injury	93.867		4-R01-EY-023709-04		-5,045		-5,045
Models for Therapy of Hereditary Retinal Degeneration	93.867		2-R01-EY-006855-29		626,496		626,496
Neural Mechanisms of Landmark-based Navigation	93.867		2-R01-EY-022350-04A1		300,010		300,010
Neuroimaging of dynamic navigational codes	93.867		1-R21-EY-027047-01		165,181		165,181
Ocular Hypertension Treatment Study 20-Year Follow-up: Chair's Grant	93.867	WASHINGTON UNIVERSITY IN ST. LOUIS	WU-16-30			54,535	54,535
Ocular Hypertension Treatment Study 20-Year Follow-Up: Clinical Center Grant	93.867	WASHINGTON UNIVERSITY IN ST. LOUIS	WU-16-125			6,932	6,932
Oral therapy for diabetic retinopathy using ACE2/Ang1-7 bioencapsulated in plant cells	93.867	UNIVERSITY OF FLORIDA	UFDSP00010918			210,237	210,237
P-30 Core Grant for Vision Research	93.867		2-P30-EY-001583-41		855,390		855,390
Patient Centered Care for Diabetic Macular Edema	93.867		1-K23-EY-025729-01		235,917		235,917
PENN Vision Clinical Scientist Program	93.867		2-K12-EY-015398-11A1		464,172		464,172
Photo switchable channel blockers for treatment of blindness	93.867	UNIVERSITY OF WASHINGTON	762671			395,160	395,160
Plasticity of Human Visual System in Response to Retinal Gene Therapy	93.867		1-R01-EY-025287-01A1	21,733	425,839		425,839
Platform Technologies for Microscopic Retinal Imaging	93.867	STANFORD UNIVERSITY	61637952-131084			113,792	113,792
Postnatal Growth and Retinopathy of Prematurity (G-ROP) Studies	93.867	CHILDREN'S HOSPITAL OF PHILADELPHIA	3209850813 / PO #960522RSUB			211,355	211,355
Primary Open Angle African-American Glaucoma Genetics (POAAGG)	93.867		1-R01-EY-023557-01	-215,722	1,959,556		1,959,556
Purines and the Health of Retinal Ganglion Cells	93.867		2-R01-EY-015537-08A1		190,996		190,996
Recycling of metabolites from ingested outer segments supports visual function	93.867		1-R01-EY-026525-01	142,652	379,141		379,141
Research on normal and abnormal mechanisms of vision	93.867		2-T32-EY-007035-36		217,670		217,670
Retinal circadian rhythms and refractive development	93.867		1-R01-EY-022342-01A1		-24,886		-24,886
Retinal circuits for local synaptic processing	93.867		1-R01-EY-023766-01A1	104,193	325,462		325,462
Retinal iron transport in health and disease	93.867		4-R01-EY-015240-12		-23,450		-23,450
Retinal iron transport in health and disease	93.867		2-R01-EY-015240-13A1		364,161		364,161
Role of basal ganglia in reward-biased visual decisions	93.867		4-R01-EY-022411-04		9,922		9,922
Role of basal ganglia in reward-biased visual decisions	93.867		1-R01-EY-022411-01A1		-344		-344
SCORE2 Comparative Trial (SCT)	93.867	PENNSYLVANIA STATE UNIVERSITY	UPA023533			8,859	8,859
Secondary Analysis of the Data from the Telemedicine Approaches to Evaluating Acute-phase ROP (e-ROP)	93.867		1-R21-EY-025686-01	29,219	101,439		101,439
Synaptic Organization of Simple Cell Receptive Fields	93.867		2-R01-EY-020765-05A1		126,227		126,227
Synaptic Organization of Simple Cell Receptive Fields	93.867		1-R01-EY-027205-01A1		484,194		484,194
Thalamocortical mechanisms in primary visual cortex	93.867		1-F32-EY-026463-01		12,504		12,504
The Dry Eye Evaluation And Management (DREAM) Study: Coordinating Center	93.867		1-U10-EY-022879-01	231,405	1,189,471		1,189,471
The neural mechanisms responsible for recognizing and remembering novel objects and scenes	93.867		2-R01-EY-020851-06		237,304		237,304
The Role of Src-Family Tyrosine Kinases and Srcasm in Ocular Surface Epithelial Wound Repair and Neoplasia	93.867		1-K08-EY-025742-01		211,378		211,378
Translational Gene Therapy for Rhodopsin Autosomal Dominant Retinitis Pigmentosa	93.867		1-R24-EY-022012-01	562,813	1,231,415		1,231,415
Translational Research for Retinal Degeneration Therapies	93.867		2-R01-EY-017549-10	168,308	717,604		717,604
Vision, eye growth rhythms and retinal signals in refractive development	93.867	NEW ENGLAND COLLEGE OF OPTOMETRY	3708-01-01-16UP			125,731	125,731
COORDINATING CENTER: VISION IN PRESCHOOLERS	93.867		1-U10-EY-012547-01A1		-142		-142
Coordinating Center for the Comparison of AMD Treatments Trial	93.867		2-U10-EY-017823-05		-126,039		-126,039
Incidence of remission and of cataract in ocular inflammatory diseases	93.867	MASSACHUSETTS EYE AND EAR INSTITUTE	2300165-01			32,667	32,667
Retinal mechanisms for direction selectivity	93.867		2-R01-EY-022070-05A1	45,244	86,478		86,478
Long-Term Suppressive Valacyclovir Treatment for Herpes Zoster Ophthalmicus	93.867	NEW YORK UNIVERSITY	SUB TO 1U10EY026869			6,499	6,499
The roles of zona incerta in oculomotor decision making in monkeys	93.867		1-R21-EY-029091-01		8,743		8,743
Molecular Profiling of CRB1 Mutant Retinal Cells Derived from IPSC's	93.867		1-R21-EY-027936-01A1		32,754		32,754
Photoreceptor structure, function, and response to gene therapy in choroideremia	93.867		1-R01-EY-028601-01A1		62,097		62,097
Estimation and Discrimination of Motion and Depth in Natural Scenes	93.867		1-R01-EY-028571-01A1		65,657		65,657
Neural Mechanisms of Fixation Choice while Searching Natural Scenes	93.867	NORTHWESTERN UNIVERSITY	SP0039783-PROJ0013665			45,044	45,044
Retinal Disease promoted by Iron-Induced Bisretinoid Oxidation	93.867	COLUMBIA UNIVERSITY	1(GG013355-01)			48,240	48,240
PGC-1 coactivators in photoreceptor development and survival	93.867		7-R01-EY-023682-02		47,034		47,034
93.867 Total				**1,976,915**	**14,768,190**	**1,796,940**	**16,565,130**
Contractor Services - Federal	93.RD	JAEB CENTER FOR HEALTH RESEARCH				59,413	59,413
Safety and Feasibility of Cultivated Autologous Limbal Epithelial Cell Transplantation in the Treatment of Limbal Stem Cell Deficiency (CALEC)	93.RD	JAEB CENTER FOR HEALTH RESEARCH	CALEC			9,913	9,913
Effect of Corneal Preservation Time on Long-Term Graft Success	93.RD	JAEB CENTER FOR HEALTH RESEARCH	JAEBCENTER FOR HEALTH RSCH			33,042	33,042

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
93.RD Total						**102,368**	**102,368**
NATIONAL EYE INSTITUTE/NIH/DHHS Total				1,976,915	14,758,435	1,899,308	16,657,743
NATIONAL HEART, LUNG, AND BLOOD INSTITUTE/NIH/DHHS							
Approaches to Genetic Heterogeneity of Obstructive Sleep Apnea	93.233		1-R01-HL-134015-01	312,370	530,643		530,643
Defining mechanisms that regulate diet-induced wake impairments	93.233		1-F31-HL-128124-01		13,318		13,318
Genetic Approaches to Sleep/Wake and Response to Sleep Loss in Mice	93.233		1-R01-HL-111725-01A1	1,812	-11,597		-11,597
ICOMPARE-CCC	93.233		1-U01-HL-125388-01A1	314,531	890,401		890,401
Individual Differences in Obstructive Sleep Apnea	93.233		2-P01-HL-094307-06A1	456,669	2,203,749		2,203,749
Metabolic regulation of wakefulness	93.233		1-R01-HL-123331-01A1	15,828	479,994		479,994
Neurometabolic Assessment of Obstructive Sleep Apnea by MRI	93.233		1-R01-HL-122754-01A1		340,528		340,528
Premotor control of upper airway and REM sleep atonia	93.233		2-R01-HL-047600-20A1		473,906		473,906
Shift Work Sleep Loss: Locus Coeruleus Neuron Senescence and Degeneration	93.233		1-R01-HL-124576-01		524,572		524,572
Training in Sleep and Sleep Disorders	93.233		2-T32-HL-007953-16		330,244		330,244
Upper airway control during disrupted and misaligned sleep	93.233		1-R01-HL-116508-01A1		-4,629		-4,629
Use of telemedicine to promote sleep medicine education in healthcare training	93.233		1-R25-HL-120874-01	2,370	255,901		255,901
93.233 Total				**1,103,581**	**6,027,030**		**6,027,030**
Surgery to Prevent Post Infarction Ventricular Remodeling	93.387		2-R01-HL-063954-14A1	38,950	540,041		540,041
Efficacy of Pomalidomide in HHT-related bleeding	93.387	CLEVELAND CLINIC FOUNDATION	541-SUB			8,292	8,292
93.387 Total				**38,950**	**540,041**	**8,292**	**548,333**
Training Program in Cardiovascular Biology and Medicine	93.827		2-T32-HL-007843-16		933		933
93.827 Total					**933**		**933**
2015 International Molecular and Functional Pulmonary Imaging Workshop	93.837		1-R13-HL-129768-01		1,440		1,440
3D Echocardiography to Improve Clinical Outcomes After Surgery for Ischemic Mitral Regurgitation	93.837		2-R01-HL-103723-05	243,914	807,592		807,592
A Novel Approach for the Design Simulation of Valvular Replacement Biomaterials	93.837	UNIVERSITY OF TEXAS AT AUSTIN	UTA12-000569			-51,291	-51,291
A population-based approach to improve out-of-hospital cardiac arrest survival	93.837	THOMAS JEFFERSON UNIVERSITY	080-31050-S23801			58,749	58,749
A trial to determine the effect of psoriasis treatment on cardiometabolic disease	93.837		4-R01-HL-111293-04	35,684	343,105		343,105
AAV Gene Therapy for Lipid Disorders	93.837		2-P01-HL-059407-16A1	2,761	2,183,283		2,183,283
Advanced diagnostics for donor lung assessment and ex vivo lung perfusion candidate selection	93.837		1-R03-HL-135227-01		89,285		89,285
Affordable oral delivery of human blood protein drugs bioencapsulated in plant cells	93.837		2-R01-HL-107904-05	127,149	482,684		482,684
Aldosterone Targeted Neurohormonal Combined with Natriuresis Therapy - HF (ATHENA-HF)	93.837	DUKE UNIVERSITY	HFN-ATHENA-AT052			5,222	5,222
Analysis of a Novel Homeobox gene in CV Development	93.837		2-R01-HL-071546-10		276,231		276,231
Anastrozole in Pulmonary Arterial Hypertension (AIPH2) - CCC (Lead)	93.837		1-R01-HL-134905-01	378,059	1,073,002		1,073,002
Anastrozole in Pulmonary Arterial Hypertension (AIPH2) - DCC	93.837		1-R01-HL-134904-01		212,099		212,099
Ancillary Study of Substrate and Intervention Mechanisms for Malignant Arrhythmia	93.837		7-R01-HL-116280-04	65,340	224,743		224,743
ApoC-III: Structure-Function and Regulation of Triglyceride Metabolism	93.837		1-F30-HL-124967-01		6,441		6,441
apoE, arterial biomechanics, and cardiovascular disease	93.837		1-R01-HL-119346-01A1	174,275	420,483		420,483
Atrial fibrillation burden, vascular disease of the brain and cardiac MRI in MESA	93.837	UNIVERSITY OF WASHINGTON	UWSC8520			174,682	174,682
Benefits of ICU admission for patients with acute respiratory failure or sepsis: A mixed-methods study across 26 hospitals	93.837		1-R01-HL-136719-01	167,554	509,371		509,371
Biodegradable polymetal nanoparticle CT contrast agents for vascular imaging	93.837		1-R01-HL-131557-01		431,306		431,306
Blood Systems Biology	93.837		2-R01-HL-103419-06A1	48,919	668,718		668,718
Bone Marrow Transplant Clinical Network	93.837		2-U10-HL-069286-11		-81,032		-81,032
Brown Adipose Tissue and Cardioprotection	93.837		7-R56-HL-131613-02		10,012		10,012
Brown Adipose Tissue and Cardioprotection	93.837		1-R01-HL-131613-01A1	7,215	260,444		260,444
Cardiac Surgical Techniques to Treat Ventricular and Aortic Remodeling	93.837		2-UM1-HL-088957-06		341,160		341,160
Cardiology and Pulmonary Clinical Research Training Program	93.837		2-T32-HL-007891-16		690,465		690,465
Cardiovascular Inflammation Reduction Trial (CIRT): A randomized, double-blind, placebo-controlled, event-driven of weekly low-dose methotrexate (LDM) in the prevention of recurrent cardiovascular events among stable post-myocardial infarction patients with type 2 diabetes or metabolic syndrome	93.837	BRIGHAM AND WOMEN'S HOSPITAL	CIRT - UNDER U01HL101422 #1			15,360	15,360
Cerebral Anatomy, Hemodynamics and Metabolism In Single Ventricles: Relationship to Neurodevelopment	93.837	CHILDREN'S HOSPITAL OF PHILADELPHIA	3207950619			125,019	125,019
Characterizing HIV-related Diastolic Dysfunction	93.837	DUKE UNIVERSITY	HFN HIV 223700			22,736	22,736
Chronic Hypertension and Pregnancy (CHAP)	93.837	UNIVERSITY OF ALABAMA AT BIRMINGHAM	000503570-010			125,312	125,312
Cognitive Effects of Body Temperature During Hypothermic Circulatory Arrest	93.837	DUKE UNIVERSITY	2035542			57,330	57,330
Community VOICES (3): Community VOICES on Informed Consent in Emergency Situation	93.837	MOUNT SINAI MEDICAL CENTER	0255-9033-4609			302	302
Comparative effectiveness of process and outcomes incentives for lipid management	93.837		1-R01-HL-118195-01A1	45,660	791,117		791,117
Deep Phenotyping of Human Knockouts and Population Studies of the APOC3 Pathway	93.837		1-R01-HL-133339-01A1	147,246	628,322		628,322
Dental Sentinel: Oral Appliance Monitor for Patients with Obstructive Sleep Apnea	93.837	BARRON ASSOCIATES, INCORPORATED	512-SC01			15,272	15,272
Determinants of Midlife & Longitudinal Change in Cognitive Function: CARDIA Study	93.837	KAISER PERMANENTE	RNG200103-PENN			26,834	26,834
Detyrosinated microtubules in cardiomyocyte mechanics	93.837		1-R01-HL-133080-01		516,936		516,936
Development of a High Performance Clinical Cardiac SPECT/TCT System	93.837		7-R01-HL-108119-05		120,306		120,306
Development of a High Performance Clinical Cardiac SPECT/TCT System	93.837		2-R01-HL-108119-06A1		620,452		620,452
Developmental pathways regulating adult lung quiescence	93.837		1-R01-HL-132349-01		660,027		660,027
Discovery and Validation of Novel Loci Associated with HDL Function	93.837		4-R01-HL-111398		43,247		43,247
Dynamic MRI Image Analysis for Studying Thoracic Insufficiency Syndrome	93.837		1-R21-HL-124462-01A1	-31,449	11,517		11,517
Early Clonal Evolution in Acquired Aplastic Anemia	93.837		1-K08-HL-132101-01		146,832		146,832
Efficacy of Potassium Nitrate in Heart Failure with Preserved Ejection Fraction	93.837		1-R01-HL-121510-01A1	4,289	641,199		641,199
Enabling Medical Research Growth in Emergency Medicine (EMERGE)	93.837		1-K12-HL-109009-01	106,324	99,465		99,465
Endothelial targeting of antioxidants	93.837		1-R01-HL-126874-01A1		324,030		324,030
EntrestoTM (LCZ696) In Advanced Heart Failure (LIFE Study)	93.837	DUKE UNIVERSITY	HFN-LIFE 177494/218214/226028			2,086	2,086
Epigenetic fine-mapping of cardiometabolic disease loci in the human liver	93.837		1-R01-HL-133218-01A1	256,658	661,323		661,323
Epigenetic regulation of endothelial phenotype by flow and hypercholesterolemia in vivo and in vitro	93.837		1-K99-HL-127272-01A1		112,832		112,832
Epo Regulated Erythropoiesis	93.837	MAINE MEDICAL CENTER RESEARCH INSTITUTE	WOJCHOWSKI-110945A			-5,474	-5,474
Expansion of cardiac and hematopoietic progenitors by Wnt and Notch	93.837		1-U01-HL-100405-01		-14		-14
Genetics, Mechanisms And Clinical Phenotypes Of Arrhythmogenic Cardiomyopathy	93.837	CINCINNATI CHILDREN'S HOSPITAL MEDICAL CENTER	131950			272	272
HCMR - Novel Predictors of Outcome in Hypertrophic Cardiomyopathy	93.837	UNIVERSITY OF VIRGINIA	SUB TO U01HL117006-01A1			6,304	6,304
HDL metabolism: Influence of extracellular lipases	93.837		4-R37-HL-055323-18		433,309		433,309
Heg-CCM Signaling in Cardiovascular Development and Disease	93.837		2-R01-HL-094326-06		566,489		566,489
HFpEF: more than just the heart - Why the mitochondria and capillaries matter	93.837		1-K23-HL-130551-01		204,461		204,461
High Altitude Adaptation: A Model for Chronic Hypoxia	93.837		1-R21-HL-120751-01	27,941	385,926		385,926
HIPPO signaling in Pulmonary Arterial Hypertension	93.837	UNIVERSITY OF PITTSBURGH	Sub to 1-R01-HL-130261-01			55,028	55,028
Hybird Coronary Revascularization Trial - CCC	93.837	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI	0255-1521-4609			7,851	7,851
Injectable Hydrogels for miR302 Mimic Delivery After Myocardial Infarction	93.837		1-F30-HL-134255-01		29,759		29,759
Integrative analysis of electrophysiology in the healed myocardial infarction scar	93.837	UNIVERSITY OF MASSACHUSETTS	OSP2017185			107,212	107,212
Integrative Genomics Approaches to Model the Genetic Architecture of Asthma	93.837		7-R00-HL-105663-04		-1		-1
Integrative genomics of human heart failure	93.837		1-R01-HL-105993-01A1		-23,484		-23,484
Interleukin-1 Receptor Antagonist in ARDS	93.837		1-R56-HL-122474-01A1		-2,452		-2,452
Investigating the role of Hopx in cardiac progenitor proliferation	93.837		4-K08-HL-119553-04		146,784		146,784
Lipidomic Screening For Functional Surfactant Gene Mutations	93.837	WASHINGTON UNIVERSITY IN ST. LOUIS	WU-16-181			79,946	79,946
Long Pentraxin-3 genomics and outcomes after lung transplantation	93.837		1-K23-HL-121406-01A1		235,546		235,546

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
LVAD Therapy: Exploring the effect of intramyocardial injection of mesenchymal precursor cells on myocardial function	93.837	MOUNT SINAI MEDICAL CENTER	Mt Sinani LVAD			11,792	11,792
Lymphangiogenesis in Pulmonary Lymphangioleiomyomatosis (LAM)	93.837		1-R01-HL-131626-01		773,934		773,934
Management of hypertension in obesity: Antihypertensive class effects, blood pressure control, and renal and cardiac outcomes	93.837		1-K23-HL-133843-01		184,769		184,769
Mentored Patient Oriented Research in Lung Transplantation	93.837		4-K24-HL-115354-05		3,872		3,872
Metabolic control of DNA repair in pulmonary fibrosis	93.837	THOMAS JEFFERSON UNIVERSITY	080-18007-S24201			25,022	25,022
Mid-Atlantic Heart Failure Network	93.837		1-U10-HL-110338-01	135,523	318,371		318,371
Mindfulness-Based Stress Reduction for High Blood Pressure: A Two-SiteRCT	93.837	KENT STATE UNIVERSITY	403013-UPENN	17,125		247,984	247,984
Modifying Behavioral Response to Failure among Patients with Cardiovascular Disease Risk Factors	93.837		1-K23-HL-128837-01A1		181,513		181,513
Molecular mechanisms linking the CXCL12 pathway to atherosclerosis	93.837		1-R01-HL-122843-01A1		417,024		417,024
Molecular pathways controlling alveolar epithelial remodeling in development and regeneration	93.837		1-R01-HL-132999-01		596,671		596,671
MRI Assessment of Vascular Reactivity	93.837		1-R01-HL-109545-01		-57		-57
Multidisciplinary Training in Cardiovascular Biology	93.837		2-T32-HL-007954-16		638,436		638,436
Multi-Institutional Training in Genetic/Genomic Approaches to Sleep Disorders	93.837		1-T32-HL-110952-01A1	596,235	596,235		596,235
Multimarker Risk Prediction in Cancer Therapy Cardiotoxicity	93.837		1-R01-HL-118018-01A1	65,444	617,855		617,855
Multiscale modeling and empirical study of a mechanism limiting blood clot growth	93.837	UNIVERSITY OF CALIFORNIA, RIVERSIDE	S-000856			311,843	311,843
Neuroprotection in Patients Undergoing Aortic Valve Replacement	93.837	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI	0255-3109-4605			2,044	2,044
Neuroprotection in Patients Undergoing Aortic Valve Replacement Trial	93.837	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI	0225-3107-4609			48,026	48,026
Novel Methods for the Conduct of Clinical Trials	93.837		4-R01-HL-115041-04	372,283	519,558		519,558
Nuclear Magnetic Tirho Relaxation in Acute and Chronic Myocardial Infarctions	93.837		4-R00-HL-108157-03		160,183		160,183
Nuclear Mechanics varies with Tissue Mechanics & Regulates Cytoskeleton	93.837		1-R21-HL-128187-01		85,171		85,171
nuMOM2b Heart Health Study Capitation Funding	93.837	RESEARCH TRIANGLE INSTITUTE	nuMoM2b-HHS / U10HL1199930215			66,670	66,670
Outcomes in children undergoing cardiac catheterization	93.837	CHILDREN'S HOSPITAL OF PHILADELPHIA	3259060221			9,618	9,618
Outcomes in children undergoing cardiac catheterization	93.837	CHILDREN'S NATIONAL MEDICAL CENTER	30003297-01			3,731	3,731
Pathogenesis of Thrombotic Microangiopathy	93.837	UNIVERSITY OF ALABAMA AT BIRMINGHAM	000510232			75,384	75,384
Permanent alteration of PCSK9 in vivo genome editing	93.837		1-R01-HL-126875-01A1		589,387		589,387
Personalization of Therapeutic Efficacy and Risk	93.837		1-U54-HL-117798-01	721,897	771,632		771,632
PGC-1 Coactivators in Muscle Angiogenesis and Ischemia	93.837		2-R01-HL-094499-06		315,255		315,255
Phase II Randomized, Placebo-Controlled, Double Blind Clinical Trial Of Valsartan For Attenuating Disease Evolution In Early Sarcomeric HCM (VANISH)	93.837	BRIGHAM AND WOMEN'S HOSPITAL	SUB TO 5-P50-HL-1123349-02			6,849	6,849
Phosphoinositide 3-Kinase Mediates Calcium Sensitization in Human Airway Smooth Muscle	93.837		1-F31-HL-134264-01		3,896		3,896
Precision Medicine for Dilated Cardiomyopathy in European and African Ancestry	93.837	OHIO STATE UNIVERSITY	6008444			63,298	63,298
Preclinical Cardiac Imaging Package for Clinical SPECT Systems	93.837		1-R01-HL-111883-01A1	20,882	96,815		96,815
Prediction and assessment of COPD lung volume reduction outcomes with polarized MRI	93.837		1-R01-HL-129805-01A1		414,307		414,307
Pregnancy as a Window to Future Cardiovascular Health	93.837	RESEARCH TRIANGLE INSTITUTE	14-312-0214047-52918L			66,815	66,815
Profilin-1 phosphorylation in neovascularization	93.837		4-R00-HL-103792-04		1,403		1,403
Pulmonary Hypertension Breakthrough Initiative	93.837	INDIANA UNIVERSITY	IN4667766PENN			145,178	145,178
Pulmonary Hypertension Breakthrough Initiative	93.837	UNIVERSITY OF COLORADO	sub to R24-HL-123767			-319	-319
Quantitative Force Measurements to Optimize Valve Repair for Ischemic MR	93.837		4-R01-HL-113216-04	115,712	-102,848		-102,848
Randomized Trial to Prevent Vascular Events in HIV – REPRIEVE (A5332)	93.837	BRIGHAM AND WOMEN'S HOSPITAL	SUB TO 1U01HL23336/A5332/A5333			111,044	111,044
RCT of automated hovering for congestive heart failure management	93.837		1-R01-HL-128465-01	21,413	920,441		920,441
Reducing heart failure re-admissions by enhancing sleep apnea treatment adherence	93.837	RIGHTCARE SOLUTIONS	SUB TO 1R44HL124923			29,733	29,733
Reducing mortality attributable to cardiac and pulmonary complications after traumatic injury: understanding the role of failure-to-rescue	93.837		1-K08-HL-131995-01		185,343		185,343
Regulation of distal lung epithelial regeneration by microRNA-Hippo Pathway	93.837	TEMPLE UNIVERSITY	361262-04710-02			51,599	51,599
Role of CCBE1 in lymphatic vascular development and growth	93.837		4-R01-HL-111553-04		66,050		66,050
Role of RAGE and Necroptosis in Transfusion Mediated Lung Inflammation	93.837		1-R01-HL-126788-01A1	46,747	384,596		384,596
Role of RAGE in Bicuspid Aortic Valve Syndrome	93.837		1-R01-HL-122805-01A1	70,000	138,603		138,603
Safety & Efficacy of Intramyocardial Injection of Mesenchymal Precursor Cells on Myocardial Function in LVAD Recipients	93.837	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI	0255-3106-4605			10,111	10,111
Semaphorin3d and Anomalous Pulmonary Venous Return	93.837		4-R01-HL-118768-04		39,680		39,680
Serotonin Signaling in Mitral Valve Homeostasis maintenance and restoration	93.837	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200120320			-315,401	-315,401
sFlt and Metabolic Mechanisms of Peripartium Cardiomyopathy	93.837		1-R01-HL-126797-01A1		575,936		575,936
Short-Term Research Education Program to Increase Diversity in Health-Related Research	93.837		2-R25-HL-084665-11		146,686		146,686
Sorafenib in Hepatopulmonary Syndrome	93.837		1-UM1-HL-116886-01A1	193,304	730,350		730,350
Stem Cells Models of Familial Combined Hypolipidemia	93.837		7-R01-HL-118744-04		279,861		279,861
Stiffness, Cadherins, and Integrins in Mechanochemical Signaling	93.837		4-R01-HL-115553-04	121,670	172,228		172,228
Stop-CA Statins to prevent cardiotoxicity from anthracyclines	93.837	MASSACHUSETTS GENERAL HOSPITAL	SUB TO1R01HL130539-01AI			113,190	113,190
Strategies for Transcatheter Mitral Valve Replacement	93.837		4-R01-HL-115323-04		-77,633		-77,633
Stretch-Dependent X-ROS Signaling: Implications for Cardiomyopathy	93.837		4-R00-HL-114879-03		10,237		10,237
Stroke and its implications across the spectrum of chronic kidney disease	93.837	MINNEAPOLIS MEDICAL RESEARCH FOUNDATION				1,963	1,963
Structural, Biochemical, and Mechanical Effects of Myosin Cardiomyopathy Mutations	93.837	RUTGERS UNIVERSITY	8254			43,962	43,962
Structure-Function Analysis of Triglyceride Regulators ApoC-III and ApoA-V Using Natural Variants	93.837		1-R01-HL-133502-01		349,843		349,843
Surgery to Prevent Post Infarction Ventricular Remodeling	93.837		2-R01-HL-063954-14A1	-13,798	-27,027		-27,027
Surrogate measures of endothelial dysfunction with integrated MRI	93.837		4-K25-HL-111422-05		45,969		45,969
Targeting Central Pulsatile Hemodynamics in Chronic Kidney Disease	93.837		1-R56-HL-124073-01A1		31,339		31,339
Targeting NF-kB in Atherosclerosis	93.837		2-R56-HL-096642-05		-13,043		-13,043
The Biology of the ABCA3 Lipid Transporter in Health and Disease	93.837		1-R01-HL-129150-01A1		451,531		451,531
The effect of RS-prasugrel, R-prasugrel and S-prasugrel on platelet activation and thrombus formation ex vivo and in vivo	93.837	DEUTERX	SUB TO 1R43HL131158			56,848	56,848
The genetic dissection of seamless tube shape control in the Drosophila trachea	93.837		1-F31-HL-132601-01		30,051		30,051
The Molecular and Genetic Pathogenesis of LAM	93.837	BRIGHAM AND WOMEN'S HOSPITAL	115809			184,479	184,479
The Role of ABO Glycosyltransferases in the Acute Respiratory Distress Syndrome	93.837		1-K23-HL-125723-01A1		170,043		170,043
The role of CAP2 in sex-related myocardial function	93.837		1-R01-HL-134923-01		421,670		421,670
The role of CAR-expressing Tregs on antigen-specific immune suppression	93.837		1-F31-HL-134325-01		43,054		43,054
The role of nuclear architecture in cardiac development	93.837		1-R01-HL-131611-01		318,428		318,428
The Role of the Cardiomyocyte HIF pathway and FOG2 in Coronary Microvascular Disease	93.837		1-K08-HL-136890-01		155,778		155,778
Training in Critical Care Health Policy Research	93.837		2-T32-HL-098054-096A1		384,656		384,656
Training in Pulmonary Immunology	93.837		2-T32-HL-007586-31		457,500		457,500
Training Program in Cardiovascular Biology and Medicine	93.837		2-T32-HL-007843-21		431,598		431,598
Training Program in Respiratory Neurobiology and Sleep	93.837		2-T32-HL-007713-21		425,421		425,421
Trans-agency research consortium for trama induced coagulopathy-(TACTIC- UM1)	93.837	OKLAHOMA MEDICAL RESEARCH FOUNDATION	0280-04/UPENN PROJECT 3 & 4			112,048	112,048
Trib1 regulation of hepatic lipid metabolism and atherogenesis	93.837		1-R01-HL-134853-01		435,928		435,928
Twitter and Cardiovascular Health	93.837		1-R01-HL-122457-01A1		473,371		473,371
97-1760: STRUCTER FUNCTION & MECHANISM OF CONTRACTILE PROTEINS	93.837		5-P01-HL-015835-25 PRIME		4		4
TRAINING IN METABOLIC AND FUNCTIONAL MAGNETIC RESONANCE	93.837		2-T32-HL-007614-11		-172		-172
OXIDATIVE MODIFICATIONS IN ATHEROGENESIS	93.837		1-P50-HL-070128-01		-213		-213
Translational Studies of ADAMTS7 a Novel GWAS Locus for Coronary Atherosclerosis	93.837		1-R01-HL-111694-01A1		-3,231		-3,231
Nitrate's Effect on Activity Tolerance in Heart Failure with Preserved Ejection Fraction: NEAT-HFpEF	93.837	DUKE UNIVERSITY	052 NEAT-HFpEF			4,449	4,449
Regulation of cardiac power output in health and disease	93.837		1-K99-HL-123623-01		-1,485		-1,485
Oral Iron Repletion Effects ON Oxygen UpTake in Heart Failure: IRONOUT-HF	93.837	DUKE UNIVERSITY	200464			6,180	6,180
Multicenter Interventional Lymphangioleiomyomatosis Early Disease Trial (MILED)-CCC	93.837	UNIVERSITY OF CINCINNATI	010575-002			8,050	8,050
Aptamer-Enabled High-sensitivity Troponin assay for rapid POC diagnosis of myocardial infarction	93.837	APTITUDE MEDICAL SYSTEMS	SUB TO 1R43HL133305-01			25,180	25,180
The Role of Sortilin in the Regulation of Apolipoprotein B Secretion from the liver and heart	93.837		1-F32-HL-134564-01A1		67,549		67,549
Heterogeneity and bias of lineage negative progenitors in lung epithelial repair	93.837		4-R00-HL-131817-03		253,961		253,961
Microtubule bundling: effects of detyrosination and changes in cardiomyocyte mechanics	93.837		1-F32-HL-136071-01		58,199		58,199

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
A Novel Shear Thinning Hydrogel System for Advanced Cellular Therapy in Ischemic Heart Disease	93.837		1-R01-HL-135090-01A1	4,052	399,351		399,351
The role of Trib1 in granulocyte identity and activation	93.837		1-F30-HL-136127-01A1		28,513		28,513
Defining measures of strain on hospital wards and their influence on survivors of acute respiratory failure	93.837		1-F32-HL-139107-01		32,610		32,610
Probing the Role of Mitochondrial Short-chain Carbon Homeostasis in the Hypertrophied and Failing Heart	93.837		7-R01-HL128349-03	304,042	567,763		567,763
Probing the Cardiac PGC-1 Regulatory Cascade	93.837		7-R01-HL-058493-21		426,183		426,183
Oxidation Resistant ApoA1 Gene Delivery Stents	93.837	CHILDREN'S HOSPITAL OF PHILADELPHIA	FP1897_SUB01_01			399,786	399,786
Multicenter International Durability and Safety of Sirolimus in LAM Trial (MIDAS)	93.837	LAM FOUNDATION	SUB TO U54HL127672			99	99
Modulation of Macrophage Function through Alternative Splicing in Cardiometabolic Diseases	93.837		1-K08-HL-135348-01A1		69,761		69,761
Preventing Anythracycline Cardiovascular Toxicity with Statins	93.837	WAKE FOREST UNIVERSITY	WFUHS 116558			3,623	3,623
Nanonscale drug carriers for the treatment of acute respiratory distress syndrome	93.837		1-K08-HL-138269-01		175,694		175,694
Charting oxygen-sensing gene regulatory network in cardiomyocytes through single-cell analysis and epigenome editing	93.837		1-DP2-HL-142044-01		200,055		200,055
MRI and Serum Markers of Endothelial Stress Resulting from E-Cigarette Aerosol Inhalation	93.837		1-R01-HL-139358-01		172,989		172,989
Statistical Methods for Analyzing Electronic Health Record Data	93.837		1-R56-HL-138306-01		156,567		156,567
Vascular effects of dietary salt in humans with salt-resistant BP	93.837	UNIVERSITY OF DELAWARE	47649			39,248	39,248
Genomewide Association Study of Lipid Response to Fenofibrate and Dietary Fat	93.837	UNIVERSITY OF KENTUCKY	3200000734-18-040			152,266	152,266
Blood Pressure and Kidney Function - SPRINT vs Electronic Health Record Data	93.837	UNIVERSITY OF MINNESOTA	N006187419			18,182	18,182
Cardiac lineage determination and nuclear architecture	93.837		1-R35-HL-140018-01		459,503		459,503
Reducing weight stigma to improve long-term weight loss	93.837		1-K23-HL-140176-01		64,434		64,434
Abnormal Mitochondrial Bioenergetic and Motility Signatures in Human Blood Cells as Indices of Acute Poisoning in Patients	93.837		1-K08-HL-136858-01A1		76,717		76,717
Subcutaneous Furosemide in Acute Decompensated Heart Failure: The SUBQ-HF Study	93.837	DUKE UNIVERSITY	177494/223700/226028			3,198	3,198
Evaluating the Benefit Of Concurrent Tricupsid Valve Repair During Mitral Surgery	93.837	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI	0255-3108-4605			1,367	1,367
Therapeutic targeting of tissue inhibitor-4 in hypertrophy failure	93.837	UNIVERSITY OF SOUTH CAROLINA	18-3554			74,582	74,582
Image Guided Delivery of Bioresponsive Hydrogels	93.837	YALE UNIVERSITY	GR102136 (CON-80001158)			45,288	45,288
Markers of Oxidative and Nitrosative Stress in Anthracycline Cardiotoxicity and Statin Cardioprotection	93.837		1-R21-HL-141802-01		8,921		8,921
Dynamic Prediction Modeling to Improve Clinical Predictions	93.837		1-R01-HL-141294-01		79,247		79,247
4D ventricle-valve model risk stratification for planning surgical treatment of ischemic mitral regurgitation	93.837		1-F30-HL-142138-01		4,311		4,311
Cardiac MR imaging of hemorrhagic reperfusion injury after myocardial infarction	93.837		1-R01-HL-137984-01A1		1,513		1,513
93.837 Total				**4,600,069**	**34,945,374**	**3,093,761**	**38,039,135**
A Computational Biomechanical Airway Model for Obese Children at Risk for OSAS	93.838	ALBERT EINSTEIN COLLEGE OF MEDICINE, INC	311072			131,161	131,161
A New Approach for the Assessment of Pulmonary Inflammation	93.838		1-R01-HL-124986-01A1	3,532	707,192		707,192
A novel platform to assess gene function in human airway basal cells	93.838	DUKE UNIVERSITY	5-U01-HL-110967-04			5,040	5,040
A Patient Advocate to improve real-world asthma management for inner city adults	93.838		4-R18-HL-116285-04		555,270		555,270
Biosynthesis and Trafficking of Surfactant Protein C In Health and Disease	93.838		4-R01-HL-119436-04		367,124		367,124
CEBPD-Mediated Mechanisms of Glucocorticoid Insensitivity in Severe Asthma	93.838		1-R01-HL-133433-01A1	8,431	418,562		418,562
Clinical Risk Factors for Primary Graft Dysfunction	93.838		2-R01-HL-087115-06A1	415,880	757,116		757,116
Cor Pulmonale Parvus in Severe COPD	93.838	COLUMBIA UNIVERSITY	Sub to 2-R01-HL-093081-05			8,588	8,588
Data Coordinating Center for the Prematurity and Respiratory Outcomes Program	93.838		1-U01-HL-101794-01	4,172	3,415		3,415
Donor specific extracellular vesicle characterization for monitoring lung transplant rejection	93.838		1-K08-HL-132099-01A1		182,235		182,235
Drug delivery by carrier erythrocytes	93.838		1-R01-HL-121134-01	29,886	250,473		250,473
Editing alveolar progenitor cells for correction of monogenic disease	93.838	CINCINNATI CHILDREN'S HOSPITAL MEDICAL CENTER	137990			291,936	291,936
Effect of OSA & Chronic Intermittent Hypoxia on Cerebral Metabolic O2 Consumption	93.838		1-R56-HL-127020-01A1		298,672		298,672
Engineering and visualizing genome folding at high spatiotemporal resolution	93.838		1-U01-HL-129998-01	248,412	695,949		695,949
Estrogen signaling in portopulmonary hypertension	93.838		4-R01-HL-113988-05	4,536	368,001		368,001
Function of the lncRNA transcriptome in lung development and regeneration	93.838		1-R01-HL-122993-01A1		777,728		777,728
Genetic Investigation of pulmonary lymphatic development and function	93.838		1-R01-HL-120872-01A1	5,168	403,168		403,168
ICAM-1 targeted thrombomodulin: an experimental therapeutic for the Acute Respiratory Distress Syndrome	93.838		1-K08-HL-130430-01A1		153,975		153,975
iCOMPARE—DCC	93.838	JOHNS HOPKINS UNIVERSITY	2002773100			7,667	7,667
Imaging-based characterization of the COPDGene cohort	93.838		1-R01-HL-127969-01A1		666,888		666,888
Lung Transplant donor: prediction, evaluation, and mechanism	93.838		4-K23-HL-116656-04		171,850		171,850
Lung Transplant Microbiome and Chronic Allograft Dysfunction	93.838		4-R01-HL-113252-04		308,871		308,871
Mechanisms of Lung Homeostasis by F box Proteins	93.838	UNIVERSITY OF PITTSBURGH	0038410(124605-1)			18,009	18,009
Mentored Patient Oriented Research in Lung Transplantation	93.838		2-K24-HL-115354-06		107,725		107,725
Mentored Patient-Oriented Research in Pulmonary Arterial Hypertension	93.838		2-K24-HL-103844-06		120,657		120,657
Molecular Imaging of the Lung Using Hyperpolarized Carbon-13 Compounds	93.838		1-R01-HL-116342-01		-46		-46
Novel Molecular Mechanisms Promote GPCR-Induced Bronchodilation in Asthma	93.838		1-P01-HL-114471-01A1	-70	-112		-112
Obesity, Inflammation, and Lung Injury after Lung Transplantation	93.838	COLUMBIA UNIVERSITY	4(GG007576)			12,653	12,653
Probing the physics of chronic lung disease using microphysiological biomimicry	93.838		1-DP2-HL-127720-01		582,742		582,742
Regulation of Airway Morphogenesis and Differentiation by Wnt Signaling	93.838		4-R01-HL-087825		413,003		413,003
Role of anti-Col (V) immunity in primary graft dysfunction	93.838		1-R01-HL-096845-01A1		-504		-504
Role of folliculin (FLCN) in lung cell survival	93.838		1-R01-HL-110551-01A1		-22,254		-22,254
Role of Peroxiredoxin 6 in the Repair of Peroxidized Cell Membranes	93.838		2-R01-HL-102016-05A1		393,551		393,551
Role of RAGE in Transfusion Mediated Acute Lung Injury	93.838		1-K08-HL-098362-01		-201		-201
Targeted Drug Delivery For Acute Respiratory Distress Syndrome	93.838		1-F32-HL-129665-01		20,287		20,287
Targeted nanomedicine for ALI and I/R	93.838		1-R01-HL-125462-01A1		612,820		612,820
Targeting novel biotherapeutics to endothelium	93.838		1-R01-HL-128398-01		440,774		440,774
The Lung DNA Virome in Health and Disease	93.838		1-R61-HL-137063-01		406,905		406,905
The role of physician experience in outcomes of patients with acute respiratory failure	93.838		4-K08-HL-116771-04		164,332		164,332
The role of physician experience in outcomes of patients with acute respiratory failure	93.838		1-K08-HL-116771-01A1		-891		-891
Training in Pulmonary Immunology	93.838		2-T32-HL-007586-26		-194		-194
Targeting Angiopoietin-2 in ARDS	93.838		1-R01-HL-137006-01	25,371	470,175		470,175
Optimizing Outcome Predictions among Patients with Smoking-Associated Lung Disease	93.838		1-K23-HL-132065-01A1		163,089		163,089
ITK-Lung: A Software Framework for Lung Image Processing and Analysis	93.838		1-R01-HL-133889-01A1	7,516	240,098		240,098
Assessment of Lung Injury with integrated Imaging Techniques	93.838		1-R01-HL-139066-01		222,782		222,782
Frailty in Lung Transplantation	93.838	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	10253sc			99,731	99,731
Reconsidering the IL-1 axis in sepsis-associated ARDS	93.838		1-R01-HL-137915-01	11,719	283,721		283,721
West Philadelphia Asthma Care Collaborative Asthma Implementation Plan	93.838	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200850618			115,927	115,927
Identifying and preventing ventilator induced diaphragm weakness in children	93.838	CHILDREN'S HOSPITAL OF LOS ANGELES	RGF010323-B			39,097	39,097
Temporal and transcriptional control of alveolar epithelial type 1 cell fate and plasticity during development	93.838		1F31HL140785-01		23,024		23,024
Improving the measurement and analysis of long-term, patient-centered outcomes following acute respiratory failure	93.838		1-K99-HL-141678-01		17,299		17,299
Using natural language processing and machine learning to identify potentially preventable hospital admissions among outpatients with chronic lung diseases	93.838		1-K23-HL-141639-01		30,900		30,900
Integrative Analyses to Uncover Biological Mechanisms Mediating Gene Associations with Asthma Drug Response Among Minority Children	93.838		1-R01-HL-141992-01		16,245		16,245
Neurocognitive Impairment in Acute Respiratory Failure and Shock: Understanding the Role of Neuronal Excitotoxicity	93.838		1-K23-HL-140482-01		15,399		15,399
Defining the molecular determinants of mesenchymal lineage allocation in lung development and disease	93.838		1-K99-HL-141684-01		5,473		5,473
93.838 Total				**764,554**	**11,813,288**	**729,809**	**12,543,097**
Alpha-Defensins in perioperative thrombosis	93.839		1-R01-HL-123912-01A1		450,624		450,624
Biochemistry of Leukemia Virus Core Binding Factor	93.839		4-R01-HL-091724-23	80,135	45,874		45,874
Biochemistry of Leukemia Virus Core Binding Factor	93.839		2-R01-HL-091724-24	7,850	462,071		462,071
Combined HIF deficiency in inflammation-associated colorectal tumorigenesis	93.839		4-R01-HL-066310-17		-3,653		-3,653
Epo Regulated Erythropoiesis	93.839	UNIVERSITY OF NEW HAMPSHIRE	18-016			58,962	58,962

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Hematology Clinical Research Training Program	93.839		2-T32-HL-007439-36		640,081		640,081
In Vivo RNA-Mediated Gene Editing of Hemophilia A	93.839		1-R01-HL-134839-01	80,595	389,149		389,149
Inhibitors of the PHD2 Zinc Finger to Treat Anemia	93.839	FOX CHASE CHEMICAL DIVERSITY CENTER	R43HL137458-UP			61,938	61,938
Lnk Regulatory Functions in Hematopoietic Stem Cells	93.839	CHILDREN'S HOSPITAL OF PHILADELPHIA	3208231218			19,494	19,494
Long non-coding RNA regulation of short-lived myeloid homeostasis	93.839		1-F30-HL-138739-01A1		30,068		30,068
Mentored career development in clinical research in non-malignant hematology & transfusion medicine.	93.839		4-K12-HL-087064-10	12,169	151,681		151,681
Multiscale Analysis of Trauma	93.839		1-U01-HL-131053-01A1	52,621	778,835		778,835
Nanoscience of 'Self' - Reductionist Approaches to hCD47 Inhibition of Phagocytes	93.839		1-R01-HL-124106-01		276,581		276,581
Novel strategies for regulatory T cell expansion	93.839		2-R01-HL-111501-06A1		379,976		379,976
Oral Therapy for Hemophilia A	93.839	UNIVERSITY OF FLORIDA	UF13086/00090658			65,543	65,543
Pathogenesis and Management of Heparin-Induced Thrombocytopenia	93.839	CHILDREN'S HOSPITAL OF PHILADELPHIA	330183-01-01/PO #960543RSUB			1,337	1,337
Pathogenesis and Management of Heparin-Induced Thrombocytopenia	93.839		330183-03-01/PO #960544RSUB			-1,170	-1,170
Platelet granule formation and function in health and disease	93.839	CHILDREN'S HOSPITAL OF PHILADELPHIA	321034			10,922	10,922
Platelet signals and their interface with external environment	93.839		1-P01-HL-120846-01A1	1,084,116	2,721,313		2,721,313
Post-Transcriptional controls in Mammalian Erythroid Differentiation	93.839		2-R01-HL-065449-15A1	38,898	612,993		612,993
Prevention and Management of Perioperative Pulmonary Embolism	93.839		4-R01-HL-116916-04	4,442	47,425		47,425
Regulation of Platelet and Endothelial Cell Function	93.839		2-P01-HL-040387-26A1	616,309	2,357,537		2,357,537
Regulation of short-lived myeloid cells by the novel long non-coding RNA Morrbid	93.839		1-R01-HL-136572-01		386,034		386,034
Spatial regulation of platelet activation by Podoplanin-Clec2 signaling	93.839		1-R01-HL-121650-01A1	123,116	317,399		317,399
Structural analysis of the HIT immune complex	93.839		1-R01-HL-128895-01		407,154		407,154
The role of the T cell receptor in regulatory T cell homeostasis and expansion	93.839		4-R01-HL-111501-05		5,089		5,089
Training grant in hemostasis and thrombosis	93.839		2-T32-HL-007971-16A1		367,660		367,660
Transfusion Medicine Research Training Program	93.839		2-T32-HL-007775-21		127,535		127,535
STRUCTURE: FUNCTION ANALYSIS OF THE HUMAN UROKINASE RECEPTOR	93.839		1-R01-HL-060169-01A2		-341		-341
Oral Tolerance for Hemophilia	93.839	UNIVERSITY OF FLORIDA	UFDSP00011719			162,688	162,688
Investigating the role of SH2B3 in human hematopoietic stem and progenitor cell expansion	93.839		1-F31-HL-139091-01		39,521		39,521
Engineering cellular immunotherapy to modulate immune responses in hemophilia	93.839	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200770621/962617 -RSUB			186,914	186,914
Regulation of protein ubiquitination in hematopoietic cytokine signaling	93.839	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200650121			66,530	66,530
Abramson Cancer Center BMT/CTN Core Clinical Center	93.839		2-UG1-HL-069286-17		150,740		150,740
Experiment-based multi-scale modeling of the tensile and compressive deformations of fibrin	93.839		1-R01-HL-135254-01		202,977		202,977
Ligand mediated control of erythrocyte deformability for optimized delivery of hemostatic and antithrombotic biotherapeutics	93.839		1-K08-HL-140164-01		54,586		54,586
Role of the Endothelium and Neutrophils in the Prothrombotic Nature of HIT	93.839	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200961121			35,914	35,914
Structure-based Design of Rational PF4 Inhibitors in HIT	93.839		1-R01-HL-142122-01		54,703		54,703
Investigating the mechanism of thrombocytopenia due to ETV6 or RUNX1 mutations	93.839		1-F31-HL-140774-01		965		965
Genetic and Environmental Determinants of Warfarin Response	93.839	UNIVERSITY OF ALABAMA AT BIRMINGHAM	000308405-005			920	920
93.839 Total				**2,100,251**	**11,454,577**	**669,992**	**12,124,569**
Remodeling Potential of the Mitral Valve Following Surgical Repair	93.937	UNIVERSITY OF TEXAS AT AUSTIN	UTA13-000980	-4,703		252,628	252,628
93.937 Total				**-4,703**		**252,628**	**252,628**
Longitudinal Studies of Coronary Artery Risk Development in Young Adults (CARDIA) - Coordinating Center	93.RD	UNIVERSITY OF ALABAMA AT BIRMINGHAM	000501394-SC007			41,118	41,118
Systolic Blood Pressure Intervention Trial (SPRINT)	93.RD	CASE WESTERN RESERVE UNIVERSITY	RES508735			-3,672	-3,672
Systolic Blood Pressure Intervention Trial (SPRINT)	93.RD	WAKE FOREST UNIVERSITY	WFUHS 30158			273,137	273,137
93.RD Total						**310,583**	**310,583**
NATIONAL HEART, LUNG, AND BLOOD INSTITUTE/NIH/DHHS Total				8,602,702	64,781,243	5,065,065	69,846,308
NATIONAL HUMAN GENOME RESEARCH INSTITUTE/NIH/DHHS							
Applying Genomic Sequencing in Pediatrics	93.172	CHILDREN'S HOSPITAL OF PHILADELPHIA	960033RUSB			29,551	29,551
Center for Photogenomics	93.172	UNIVERSITY OF WASHINGTON				263,210	263,210
Enzyme-Less DNA Base Discrimination Using Solid-State Nanopores With High-Frequency Integrated Detection Electronics	93.172	COLUMBIA UNIVERSITY	1 (GG012559)			336,703	336,703
Genetically Encoded Probes of RNA Localization	93.172	UNIVERSITY OF SOUTHERN CALIFORNIA	57916791			36,929	36,929
Genomic and functional analysis of active DNA demethylation in mammalian cells	93.172		4-R00-HG-007982-02		159,004		159,004
Genomic Medicine Pilot Demonstration Projects Coordinating Center	93.172		1-U01-HG-007266-01		-22		-22
High-bandwidth DNA sequencing using graphene nanoribbon-nanopore devices	93.172		1-R21-HG-007856-01		33,778		33,778
iPS-derived hepatocytes for interrogation of lipid phenotypes	93.172		1-U01-HG-006398-01		-2,576		-2,576
Statistical Models and Analysis of Complex Genomic Variation in Clonal Mixtures	93.172		2-R01-HG-006137-04	22,985	65,518		65,518
Training grant in computational biology	93.172		2-T32-HG-000046-16		279,160		279,160
Postdoctoral Training Program in Genomic Medicine	93.172		1-T32-HG-009495-01		97,063		97,063
The Penn Postdoctoral Training Program in the Ethical, Legal and Social Implications of Genetics and Genomics	93.172		1-T32-HG-009496-01		127,105		127,105
APOBEC-Coupled Epigenetic Sequencing	93.172		1-R21-HG-009545-01		205,466		205,466
Genomic and Cellular Variation from Single Molecules to Single Cells	93.172		2-R01-HG-006137-07	81,282	284,460		284,460
Patient Preferences for Collecting and Repurposing Genetic, Consumer and Health Care Information	93.172		1-R01-HG-009655-01		210,123		210,123
Arrayed single-cell readout of pooled genetic perturbation libraries	93.172	BROAD INSTITUTE OF MIT AND HARVARD	5000950-5500001052			117,258	117,258
Center for dynamic RNA epitranscriptomes	93.172	UNIVERSITY OF CHICAGO	FP061089-01-C			173,918	173,918
Network-based algorithms for target identification and drug repositioning from genetic associations	93.172		1-R01-HG-010067-01		4,337		4,337
93.172 Total				**104,267**	**1,463,416**	**957,569**	**2,420,985**
NATIONAL HUMAN GENOME RESEARCH INSTITUTE/NIH/DHHS Total				104,267	1,463,416	957,569	2,420,985
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES/NIH/DHHS							
	93.855		9011702 (126206-1)			138,362	138,362
(Project) Synergies among inhibitory receptors in tolerance cancer and antiviral immunity	93.855	UNIVERSITY OF PITTSBURGH	9011707 (126211-1)			359,531	359,531
21st Annual Woods Hole Immunoparasitology (WHIP) Meeting	93.855		1-R13-AI-131505-01		4,209		4,209
A FAST Assay to Quantify HIV Reservoirs	93.855		1-R01-AI-120011-01	138,348	623,743		623,743
A FOXP3 complex that controls human regulatory T cell function	93.855	BENAROYA RESEARCH INSTITUTE	0112701S01			143,755	143,755
A Novel Virus-Derived Adjuvant	93.855		2-R01-AI-083284-06		323,912		323,912
A Phase 2b/3 Double Blind Safety and Efficacy Study of Injectable Cabotegravir Compared to Daily Oral Tenofovir Disoproxil Fumarate/Emtricitabine (TDF/FTC), For Pre-Exposure Prophylaxis in HIV-Uninfected Cisgender Men and Transgender Women who have Sex with Men	93.855	FHI 360	SUB TO UM1 AI068619			695,197	695,197
ACTG; AIDS Clinical Trials Group - A5340 Bar Support	93.855	BRIGHAM AND WOMEN'S HOSPITAL	A5340			6,506	6,506
AIDS Clinical Trials Group (ACTG HIV Reservoirs and Viral Eradication TSG, CURE)	93.855	BRIGHAM AND WOMEN'S HOSPITAL	110009			39,352	39,352
AIDS Clinical Trials Group; Protocol Funds	93.855	BRIGHAM AND WOMEN'S HOSPITAL	sub to UM1AI068636/fund 110215			283,745	283,745
AIDS Clinical Trials Group; Protocol Funds (Cost Reimbursement)	93.855	BRIGHAM AND WOMEN'S HOSPITAL	SUB TO UM1 AI068636/111674			370,644	370,644
Alternative MHCII Processing of Influenza Virus Proteins	93.855	CHILDREN'S HOSPITAL OF PHILADELPHIA	3210970000			11,674	11,674
An ex vivo model to predict outcomes and probe mechanism of anti-reservoir agents	93.855		1-R21-AI-116216-01		11,180		11,180
An International Prospective Observational Study to Assess the Characteristics and Outcomes of Post-transplant Patients Treated for C. Difficile Infections (INSIGHT 007 or CDIFF 007)	93.855	INSTITUTE FOR CLINICAL RESEARCH, INC	M71-PN-110-1606-7 TASK ORDER 7			421	421
Antibacterial Resistance Leadership Group or ALRG (Project)	93.855	DUKE UNIVERSITY	203-9727			52,407	52,407
Antiviral immunity in the gut: how the intestinal epithelium and microbiota regulate infection	93.855		1-R01-AI-122749-01		357,691		357,691
Asthma, anxiety and GR abnormalities in non-human primates	93.855	UNIVERSITY OF CALIFORNIA, DAVIS	201503774-01			16,718	16,718
Autoimmune encephalomyelitis and c-Rel	93.855		4-R01-AI-050059-12		103,586		103,586
Autoimmune Encephalomyelitis And Regulatory T Cells	93.855		4-R01-AI-099216-04		194,329		194,329
BEAT-HIV: Delaney Collaborative to Cure HIV-1 Infection by Combination Immunotherapy	93.855	WISTAR INSTITUTE	25281-10-324			618,591	618,591

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
BEAT-HIV: Delaney Collaborative to Cure HIV-1 Infection by Combination Immunotherapy	93.855		25281-18-324			72,881	72,881
BEAT-HIV: Delaney Collaborative to Cure HIV-1 Infection by Combination Immunotherapy	93.855		252841-16-324			263,038	263,038
BEAT-HIV: Delaney Collaboratory to Cure HIV-1 Infection by Combination Immunotherapy	93.855	WISTAR INSTITUTE	25281-17-324			78,184	78,184
Behavioral Acceptability Protocol for MTN033	93.855	MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	9440			12,101	12,101
Behavioral Acceptability Protocol for MTN 026	93.855	MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	9491			117,818	117,818
BELIEVE: Bench to Bed Enhanced Lymphocyte Infusions to Engineer Viral Eradication	93.855	GEORGE WASHINGTON UNIVERSITY	16-M93			310,757	310,757
Biomedical Computing and Informatics Strategies for Infectious Disease Research	93.855		1-R01-AI-116794-01A1	17,876	527,269		527,269
Calcium Regulation of NF-kB Activation in Lymphocytes	93.855		1-R56-AI-125415-01	39,186	262,771		262,771
Carbapenem-Resistant Klebsiella Pneumoniae in Long-Term Acute Care Hospitals	93.855		4-K01-AI-103028-04		146,559		146,559
CD4+ T and B Cell Mechanisms of Influenza Vaccine	93.855	CASE WESTERN RESERVE UNIVERSITY	RES508678			165,645	165,645
Cellular and transcriptional control of exhausted CD8 T cells lineage dynamics	93.855		1-R01-AI-105343-01A1		230,536		230,536
Center for AIDS Research	93.855		2-P30-AI-045008-16	598,706	3,314,875		3,314,875
Center for HIV/AIDS Vaccine Immunology (CHAVI)-ID	93.855	DUKE UNIVERSITY	2035055			6,696	6,696
Center for HIV/AIDS Vaccine Immunology (CHAVI)-ID	93.855		2036288			549,909	549,909
Class II Processing and Presentation During Secondary Responses to Influenza	93.855	CHILDREN'S HOSPITAL OF PHILADELPHIA	27007-321096000			107	107
Collaboratory of AIDS Researchers for Eradication	93.855	UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL	5105566			188,333	188,333
Combined Adult and Pediatric Infectious Disease Postdoctoral Training Grant	93.855		1-T32-AI-118684-01A1		88,703		88,703
Complement dysregulation and atypical hemolytic uremic syndrome	93.855		1-R01-AI-117410-01		442,609		442,609
Complement in inflammatory diseases: mechanisms & therapeutic modulation	93.855		2-P01-AI-068730-06		1,398,591		1,398,591
Concept Working Group	93.855	HUTCHINSON (FRED) CANCER RESEARCH CENTER	0000851168			39,453	39,453
Control of B cell Development by YY1	93.855		2-R01-AI-079002-06		595,378		595,378
Control of coronavirus pathogenesis by antagonism of RNase L	93.855		1-R21-AI-114920-01A1	14,086	149,913		149,913
Control of plasma cell longevity by the IRE1 pathway	93.855		1-R21-AI-115710-01		63,168		63,168
Control of Viral Pathogenesis by Regulation of 2-5A Levels	93.855		4-R01-AI-104887-04	236,063	411,186		411,186
Defense-in-depth against mucosal HIV clade C invasion	93.855	TEXAS BIOMEDICAL RESEARCH INSTITUTE	39800			7,094	7,094
Defining human noncanonical inflammasome responses to Legionella pneumophila	93.855		1-R01-AI-123243-01		470,709		470,709
Defining the non-apoptotic role of Caspase-8 activity in anti-bacterial immune defense	93.855		1-R01-AI-128530-01	9,711	536,561		536,561
Delaney Collaboratory to Cure HIV-1 Infection by Combination Immunotherapy	93.855	WISTAR INSTITUTE	25281-12-324			322,747	322,747
Developing of a novel adjuvant for Vaccine Sparring	93.855	NEW YORK BLOOD CENTER	SUB TO 1R01-AI105431-01			157,444	157,444
Development of antiviral agents for treating molluscum contagiosum	93.855	FOX CHASE CHEMICAL DIVERSITY CENTER	R44AI125005-UP-Y1			349,033	349,033
Development of Small Molecule Therapeutics Against Smallpox and Other Poxviruses	93.855	FOX CHASE CHEMICAL DIVERSITY CENTER	SUB TO 1R44AI115759-01			76,910	76,910
Discovering host factors impacting ZIKV infection via forward genetic screens	93.855		1-R21-AI-129531-01		40,386		40,386
Disrupting Vector-Borne Disease Transmission in Complex Urban Environments	93.855		4-R01-AI-101229-04	138,440	417,245		417,245
Dissecting the alphavirus entry receptor NRAMP	93.855		1-R01-AI-095500-01A1	56,834	62,897		62,897
Dissecting the mechanism of RIPK1 kinase-dependent cell death in control of Yersinia infection	93.855		1-R21-AI-125924-01	14,642	182,705		182,705
Dynamic Learning for Post-Vaccine Event Prediction Using Temporal Information in VAERS	93.855	UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON	0012501A			226,052	226,052
Dynamics of TB and MDR TB transmission in areas with high HIV prevalence	93.855		1-R01-AI-097045-01	0	12,473		12,473
E. coli niche expansion and adaptation in the dysbiotic intestine	93.855		1-R21-AI-125814-01		270,928		270,928
Effects of aging on the T follicular helper response to influenza vaccine	93.855		1-K08-AI-114852-01		195,094		195,094
Efficacy of Strain 68-1 RhCMV Vectors Expressing SIVmac 5' Leader Polypeptides	93.855	OREGON HEALTH & SCIENCE UNIVERSITY	1007881_UPA			147,457	147,457
Engineering a human brain organoid-based platform to study neurotropic viruses	93.855		1-U19-AI-131130-01	692,403	1,385,065		1,385,065
Engineering protein vesicles for drug delivery applications	93.855		1-F32-GM-119430-01		55,112		55,112
Engineering T cells to Provide Durable Control of HIV-1 Replication	93.855		1-U19-AI-117950-01	94,944	2,978,762		2,978,762
Epigenetic Control of Plasma Cell Differentiation	93.855		1-R21-AI-116317-01		117,699		117,699
Evaluation of Donor Specific Immune Senescence and Exhaustion as Biomarkers of Operational Tolerance Following Liver Transplantation in Adults (ITN056ST)	93.855	BENAROYA RESEARCH INSTITUTE	FY171TN224			33,318	33,318
Evolution of Cryptococcus Neoformans Strains from Patients with HIV/AIDS	93.855	DUKE UNIVERSITY	203-1433			-319	-319
Expression of X-linked autoimmunity genes in B cells during female-biased autoimmunity	93.855		1-R21-AI-124084-01A1		294,375		294,375
Favored sites for HIV cDNA integration in the human genome	93.855		4-R01-AI-052845-15	24,054	185,354		185,354
Fecal Microbiome Transplant National Registry	93.855	AMERICAN GASTROENTEROLOGICAL ASSOCIATION	2016002			54,059	54,059
Fecal Microbiome Transplant National Registry	93.855		2016003			28,322	28,322
Foxo1-Dependent Programme in the Control of Regulatory T Cell Function	93.855	MEMORIAL SLOAN-KETTERING CANCER CENTER	BD516327			6,501	6,501
Fully-Integrated, Non-Instrumented Device for Molecular Diagnostics	93.855		4-K25-AI-099160-05		-111		-111
Functional Cure and Virus eradication by early HAART plus vaccination with live attenuated rubella virus vectors in macaque infants and neonates	93.855	TEXAS BIOMEDICAL RESEARCH INSTITUTE	15-4547-001			3,172	3,172
Functions of HSV glycoproteins in virus entry and the humoral immune response	93.855		2-R01-AI-018289-34		339,637		339,637
Genetic determinants of systemic host-adapted Salmonella	93.855		1-R21AI-117135-01A1		193,931		193,931
GP340 AND SYNDECAN INHIBITION BASED MICROBICIDE FOR HIV	93.855		1-R21-AI-082701-01	9,268	97,355		97,355
Great Ape Reservoirs of Human Malaria	93.855		2-R01-AI-091595-04A1	142,059	744,458		744,458
Harnessing type 1 IFN-stimulated antiviral mechanisms for HIV vaccine design	93.855		1-R01-AI-111789-01	68,955	187,370		187,370
High-throughput SPR for Screening and Characterizing Vaccines	93.855	CARTERRA INC.	SUB TO 1-R44- AI-127039-01			309,644	309,644
HIV cure studies: risk, risk perception, and ethics	93.855	HARVARD MEDICAL SCHOOL	116543-5079901			161,672	161,672
Host-Oriented Therapeutics Targeting Filovirus Budding	93.855		4-R33-AI-102104-01		184,895		184,895
HSV-2 immune evasion as a virulence factor	93.855		1-R01-AI-104854-01A1		527,985		527,985
HVTN Protocol Funding	93.855	HUTCHINSON (FRED) CANCER RESEARCH CENTER	0000852931			627,632	627,632
HVTN Protocol Funding (PF)	93.855	HUTCHINSON (FRED) CANCER RESEARCH CENTER	0000853385			1,172,968	1,172,968
HVTN Protocol Funding (PF): HVTN 117	93.855	HUTCHINSON (FRED) CANCER RESEARCH CENTER	0000866273			583,822	583,822
Identification of Host Factors Required for HIV and HCV Infection	93.855	UNIVERSITY OF ALABAMA AT BIRMINGHAM	Sub to P30AI027767-28			284,315	284,315
Identifying Rare Subtypes of CD8 T-cells Using Single Cell Reactors	93.855		1-R21-AI-124057-01		133,095		133,095
IL-10 producing neutrophils during respiratory virus infection	93.855		1-R21-AI-109472-01A1		-8,841		-8,841
IL-27 and Treg cells	93.855		1-R01-AI-110201-01		460,995		460,995
IL-33 Blockade as a Novel Therapeutic for T-cell Mediated Hypercytokinemia Syndromes	93.855	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200280521-FP00019478-sub01-01			328,247	328,247
Immune System Development and Regulation	93.855		2-T32-AI-055428-11A1		183,972		183,972
Immune Tolerance Network	93.855	BENAROYA RESEARCH INSTITUTE	FY16ITN191			20,228	20,228
Immunopathogenesis of Toxoplasmic encephalitis	93.855		2-R01-AI-041158-15		464,679		464,679
Impact of CCR5 Blockade in HIV+ Kidney Transplant Recipients	93.855	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	9260sc			60,106	60,106
Impact of early T-bet on CD8 T cell effector responses	93.855		1-R01-AI-125563-01		516,114		516,114
Impact of eliminating nonmedical exemptions from Immunization mandates in California	93.855	EMORY UNIVERSITY	T6836910			136,554	136,554
Impact of prior influenza exposures on antibody repertoires to new viral strains	93.855		7-R01-AI-108686-04	29,935	408,096		408,096
Infectious Diseases Clinical Epidemiology Training Program	93.855		2-T32-AI-055435-11A1		424,216		424,216
Initial Research Focus (IRF) Area #1 – Viral reservoir in replicating cells; defective to replication competent reservoir	93.855	WISTAR INSTITUTE	25281-07-324			293,133	293,133
Innate Immune Regulation of Intracellular Pathways Involved in Filovirus Budding	93.855		1--01A1		17,610		17,610
Innate immune-mediated control of pulmonary Legionella pneumophila infection	93.855		1-R01-AI-118861-01A1		405,070		405,070
INSULIN-LIKE SIGNALING IN PARASITIC NEMATODE DEVELOPMENT	93.855		4-R01-AI-050668-12		467,793		467,793
Integrated Multi-scale Adhesive Dynamics Modeling of T-lymphocyte Homing	93.855		4-R01-AI-082292-06	40,737	290,010		290,010
Investigating the role of the nasopharyngeal microbiome in mediating the increased susceptibility of HIV-exposed, uninfected infants to colonization and disease caused by Streptococcus pneumoniae	93.855	DUKE UNIVERSITY	2034655			6,268	6,268
Leukocyte Activation and Migration in Autoimmune Encephalomyelitis	93.855		1-R01-AI-121166-01		428,844		428,844
Long noncoding RNAs in innate lymphoid cell biology	93.855		1-F31-AI-124538-01A1		43,842		43,842
Longitudinal analysis of respiratory tract microbiome change and sequence-based infection diagnosis during mechanical ventilation	93.855		1-K23-AI-121485-01A1		165,771		165,771
Long-lived CD19-positive plasma cells	93.855		4-R01-AI-097590-05		207,790		207,790
Massively Parallel Analysis of Integration in Therapeutic Gene Transfer	93.855		2-R01-AI-082020-05A1	63,260	424,022		424,022
Mechanism for virus persistence after acute infections	93.855		1-R21-AI-127832-01		268,969		268,969

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Mechanisms and Immunological Consequences of Host-Virus Interactions	93.855	HARVARD MEDICAL SCHOOL	152384.5077707.0006			199,972	199,972
Mechanisms and Treatment of Chronic, Latent Human Strongyloidiasis	93.855		1-R21-AI-105856-01	173,716	360,375		360,375
Mechanisms of Neuronal Spread of Neurotropic Mouse Hepatitis Virus	93.855		4-K08-AI-098503-05		-85		-85
Mechanisms of repeated control of acute hepatitis C infection in humans	93.855	JOHNS HOPKINS UNIVERSITY	2002973536			264,242	264,242
Mechanisms of systemic IgA induction by commensal bacteria	93.855		1F32AI114089-01A1		1,075		1,075
Mechanistic studies of BLyS-mediated modulation in HIV-1 Env-specific antibody responses	93.855		1-R01-AI-118691-01	66,920	732,026		732,026
METABOLIC CONTROL OF TISSUE SPECIFIC MACROPHAGE DIFFERENTIATION	93.855		7-K08-AI-106953-03		180,183		180,183
Microbicide Behavioral Research Working Group	93.855	MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	9436			53,902	53,902
Modulation of Inflammasome Activation by Yersinia	93.855		4-R01-AI-103062-04		35,062		35,062
Molecular and cellular basis of Combined Adjuvant-Elicited Cellular Immunity	93.855	UNIVERSITY OF COLORADO DENVER	FY17.600.001			320,118	320,118
Molecular Basis for Activity by Membrane Bound O-Acyltransferases	93.855		1-R21-AI-119892-01A1	84,823	105,280		105,280
Molecular Epidemiology and Natural History of SIVcpz	93.855		7-R01-AI-058715-09		-8,984		-8,984
Multiplexed point-of-care molecular detection for multiple infections in co-endemic settings	93.855		1-R21-AI-128059-01A1		206,879		206,879
NA-ACCORD	93.855	YALE UNIVERSITY	M17Q12603 (Q01414)			15,998	15,998
Natural SIV Reservoirs and Human Zoonotic Risk	93.855		4-R37-AI-050529-13	25,986	396,950		396,950
Non-CD4 tropic SIV: Enhancing CD4 T-cell help in antiviral immune responses	93.855		1-R01-AI-112456-01	432,283	672,496		672,496
Norovirus-specific T cell responses in human blood and intestinal mucosa	93.855	MASSACHUSETTS GENERAL HOSPITAL	224466			37	37
Notch Regulation of Hematopic Cell Fates	93.855		4-R01-AI-047833-15	5,617	32,586		32,586
Novel approaches to propagate molluscum contagiosum virus in cell culture	93.855		1-R21-AI-117100-01	-191	141,289		141,289
Nucleoside modified mRNA based HIV vaccine	93.855		1-R01-AI-124429-01	245,040	672,568		672,568
Optimization HIV Inhibition by Allosteric Integrase Inhibitors	93.855		1-R01-AI-129661-01A1		501,263		501,263
Origins of serum IgA antibodies	93.855		1-R01-AI-113543-01		327,319		327,319
Parasitology: Modern Approaches	93.855		5-T32-AI-007532-17		222,486		222,486
Pathogenesis and therapy of dense deposit disease in a mouse model	93.855		2-R01-AI-085596-05A1		417,922		417,922
Penile transmission and neutralization of pathogenic SIVsmm	93.855		7-R01-AI-094604-02	854	854		854
PHASE II: KL4 SURFACTANT TO MITIGATE RADIATION INDUCED LUNG INJURY	93.855	WINDTREE THERAPEUTICS, INC.	SUB TO 2-R44-A1-102308-03			311,200	311,200
Philadelphia HIV Therapeutics and Prevention Clinical Trials Unit	93.855		2-UM1-AI-069534-08		1,283,580		1,283,580
Phylogeographic dynamics of a vector and pathogen in a natural environment	93.855		4-R01-AI-097137-05	132,388	161,889		161,889
Physiological roles of schistosome TRP ion channels with atypical pharmacology	93.855		1-R01-AI-123173-01A1		360,447		360,447
Plasma Cell Priming	93.855		1-R21-AI-133998-01		131,282		131,282
Predicting Epitopes in Vaccine and Therapeutic Antibody Research	93.855	CARTERRA INC.	SUB TO R43AI132075			33,338	33,338
Protective and Pathologic Roles for CD8+ T cells in Leishmaniasis	93.855		1-R01-AI-106842-01A1		213,297		213,297
Rapid and highly sensitive influenza detection with RNA FISH	93.855		1-F30-AI-114475-01A1		19,015		19,015
Rapid Immune Restoration and Lung Injury in HIV/TB	93.855		1-R01-AI-120821-01	462,666	631,921		631,921
Reconstructing Berlin:Role of co-receptor modified cells in HIV and SIV infection	93.855		1-R01-AI-104400-01		510,731		510,731
Reducing viral reservoirs by opening HIV-1 Env to antibody attack	93.855	HARVARD UNIVERSITY	1280901			149,474	149,474
Regulation of group 1 ILCs by a novel lncRNA	93.855		1-R21-AI-128060-01		211,559		211,559
Regulation of T cell responses to oral antigens	93.855		1-R01-AI-125284-01A1		416,191		416,191
Resident Memory T cells in Leishmaniasis	93.855		1-R01-AI-125265-01		412,875		412,875
RESTARRT - Immunosuppression with Antithymocyte Globulin, Rituximab, Tacrolimus, Mycophenolate Mofetil and Sirolimus, Followed by Immunosuppression Withdrawal in Living-donor Renal Transplant Recipients	93.855	BENAROYA RESEARCH INSTITUTE	1-UM1-AI-109565-01			19,465	19,465
Restriction of HIV-1 Transmission by Type 1 Interferons	93.855		1-R01-AI-114266-01	154,134	514,579		514,579
Reversal of Immune Failure with Viral Antigen Removal in Chronic HCV Infection, Core A	93.855	MASSACHUSETTS GENERAL HOSPITAL	sub to U-19-AI-082630 Core			30,641	30,641
Reversal of Immune Failure with Viral Antigen Removal in Chronic HCV Infection, Project 2	93.855	MASSACHUSETTS GENERAL HOSPITAL	224470			166,088	166,088
Reversal of Immune Failure with Viral Antigen Removal in Chronic HCV Infection, Project 3	93.855	MASSACHUSETTS GENERAL HOSPITAL	224471			153,104	153,104
Risk of Liver Complications with HBV and HIV Viremia During Tenofovir-Based ART	93.855		1-R21-AI-124868-01	16,797	202,667		202,667
Role of a novel human mast cell G protein coupled receptor in Allergy and Inflammation	93.855		1-R01-AI-124182-01A1		371,203		371,203
Role of beta-arrestin-2 on IgE-mediated cofilin dephosphorylation and mast cell activation	93.855		1-R21-AI-115688-01A1		127,030		127,030
ROS responses during Vibrio cholerae infection	93.855		1-R01-AI-120489-01A1	46,334	459,391		459,391
Separation of GVHD and GVT effects by a TCR signaling mutation	93.855		1-R21-AI-117282-01		17,635		17,635
SHIV/HIV Env-Antibody Coevolution as a Guide to Iterative Vaccine Design	93.855		1-P01-AI-131251-01	1,678,551	3,734,154		3,734,154
Single molecule FRET study of viral programmed ribosomal frameshifting	93.855		1-F30-AI-114187-01		3,934		3,934
Sofosbuvir and ledipasvir in HIV/HCV coinfected pre or post liver transplant	93.855	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	8659sc			41,027	41,027
Splicing and Nuclear Transport of Influenza Virus mRNA	93.855		1-R01-AI-125524-01	414,888	520,106		520,106
Structural analysis of the third component of complement	93.855		4-R01-AI-030040-19	51,724	204,964		204,964
Structure and function of HIV-1 integrase	93.855	OHIO STATE UNIVERSITY	60050510			11,864	11,864
Studies of the precursor of the human AIDS virus in its natural chimpanzee host	93.855		1-R01-AI-120810-01A1	264,229	884,185		884,185
Super-Enhancer Structure Defines a Signature of Inflammatory Bowel Disease (IBD)	93.855		1-K22-AI-112570-01		-5,880		-5,880
T cell functionality and control of HIV infection	93.855		4-R01-AI-076066-09		399,071		399,071
Targeting 5' leader-encoded defective ribosomal products for HIV T cell vaccines	93.855		1-R01-AI-118549-01A1	124,289	539,692		539,692
Targeting Blys/Baff in Non-Human Primate Islet Transplantation	93.855		1-U01-AI-102430-01		144,732		144,732
Targeting the Persistent HIV-1 Viral Reservoir Using Engineered T cells	93.855		4-R33-AI-104280-03		417,787		417,787
Testing the role of BATF as a pioneer transcription factor in effector T cells	93.855	DANA-FARBER CANCER INSTITUTE	sub to R01-AI-115712-01			183,455	183,455
The effect of human pre-exposure history on antigenic drift of influenza viruses	93.855		7-R01-AI-113047-04	39,800	462,554		462,554
The REL gene and human autoimmune diseases	93.855		1-R21-AI-113220-01A1		18,721		18,721
The role of autophagy in innate anti-viral immunity in Drosophila	93.855		4-R01-AI0-74951-09		191,496		191,496
The role of innate cells in the pathogenesis of Leishmania braziliensis infection	93.855		2-U01-AI-088650-06	204,654	335,841		335,841
The Role of Tox in Regulating T Cell Exhaustion	93.855		1-F30-AI-129263-01		30,755		30,755
Thiol-based switches in Vibrio cholerae pathogenesis	93.855		1-R21-AI-109316-01A1		5,435		5,435
TISSUE COMPARTMENTALIZATION OF HUMAN LYMPHOCYTES	93.855	COLUMBIA UNIVERSITY	#4-GG007579-03			173,936	173,936
Towards Eradication: Reducing Proviral HIV DNA with Interferon-⧜ Immunotherapy	93.855	WISTAR INSTITUTE	24971-06-324			13,877	13,877
Towards Eradication: Reducing Proviral HIV DNA with Interferon-a Immunotherapy	93.855	WISTAR INSTITUTE	24971-04-324			137,486	137,486
Towards eradication: Reducing proviral HIV DNA with interferon-ol immunotherapy	93.855	WISTAR INSTITUTE	Sub to 1-U01-AI-110434-01			104,839	104,839
Tracking Evolution and Spread of Viral Genomes by Geospatial Observation Error	93.855	ARIZONA STATE UNIVERSITY	Sub to R01AI117011			223,364	223,364
TRAF6 and the Fate of CD8 T Cells	93.855		4-R01-AI-064909-09		281,088		281,088
Training in Emerging Infectious Diseases	93.855		2-T32-AI-055400-11		262,669		262,669
Training in HIV pathogenesis	93.855		2-T32-AI-007632-16		436,278		436,278
Training in Virology	93.855		2-T32-AI-007324-21A1		253,891		253,891
Treatment as Prevention for injection drug users: A pilot study for a network-based randomized prevention trial	93.855	FAMILY HEALTH INTERNATIONAL	FCO 790/ID 0080.0224			14,133	14,133
Trefoil factor proteins regulate inflammation and immunity	93.855		1-U01-AI-125940-01		502,072		502,072
Trefoil Factors Regulate Th2 Immunity	93.855		7-R01-AI-095289-07		25,093		25,093
Understanding the role of IL-22 in cutaneous leishmaniasis	93.855		1-F31-AI-114227-01		-1,180		-1,180
Utility of Deep Sequencing for Detecting Heteroresistant Mycobacterium tuberculosis Infections among HIV-infected Persons	93.855	UNIVERSITY OF CALIFORNIA, LOS ANGELES	1935 G TA238			28,087	28,087
Utility of Deep Sequencing for Detecting Heteroresistant Mycobacterium tuberculosis Infections among HIV-infected Persons	93.855	UNIVERSITY OF CALIFORNIA, IRVINE	2017-3535			88,327	88,327
Utilizing BATF3-dependent DC to generate vaccine-induced cell mediated immunity	93.855		1-R21-AI-126042-01		201,484		201,484
Viral and Immune Dynamics of Rebound Viremia after VRC01 Administration	93.855		1-R21-AI-118431-01		27,946		27,946
Viral control mechanisms of HIV-specific T cells in HIV-infected lymph node	93.855		1-R01-AI-118694-01A1	389,744	584,681		584,681
Viral Modulation of Epigenetic Mechanisms	93.855		1-R01-AI-118891-01	243,777	450,114		450,114
VMD-PhD training in infectious disease-related research	93.855		2-T32-AI-070077-06		160,819		160,819
95-313: MECHANISM OF TOLERANCE INDUCTION BY DST PLUS CTLA4Ig	93.855		1-K08-AI-001335-01		12		12
HIV-1 VACCINES BASED ON CHIMP SEROTYPES OF ADENOVIRUS	93.855	WISTAR INSTITUTE	SUB TO 5-P01-AI-052271-01			-28	-28

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Harvard University Center for AIDS Research: Barriers to male cancer care in Botswana	93.855	HARVARD UNIVERSITY	160505-1349			46,372	46,372
Behavioral Acceptability Protocol for MTN037	93.855	MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	9496			54,761	54,761
Regenerative therapy for lung infection by S. pneumoniae	93.855		1-R21-AI-128569-01A1		194,710		194,710
Behavioral Acceptability Protocol for MTN035	93.855	MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION	9492			68,907	68,907
CD27:CD70 signaling in hematopoietic stem cell formation	93.855		1R21AI133261-01	7,722	268,188		268,188
Discovery of novel antiparasitics that target a pharmacologically atypical schistosome Transient Receptor Potential (TRP) ion channel	93.855		1-R21-AI-132912-01		124,611		124,611
Epigenetic HIV Silencing in Macrophages	93.855		1-R61-AI-133696-01	228,768	479,723		479,723
Genetic Analysis of Cryptosporidium	93.855		7-R01-AI-112427-05		294,222		294,222
Sexual Development of Cryptosporidium	93.855		7-R01-AI-127798-02		496,791		496,791
Exploring TrpB in the pathogenesis of cryptosporidiosis	93.855		7-F32-AI-124518-02		50,923		50,923
IMPDH inhibitors for the treatment of Cryptosporidium infections	93.855	UNIVERSITY OF HOUSTON	R-17-0049			114,434	114,434
Epigenetic imprinting of follicular helper T cell fate and function in lupus	93.855		1-R01-AI-123539-01A1	69,735	356,007		356,007
bNAb induction by antigenically diverse V1V2 lineage specific SHIVs and SOSIPs	93.855		1-R01-AI-131331-01		650,843		650,843
Investigating MERS-CoV NS4b as a modulator of the host antiviral response in the nucleus	93.855		1-F31-AI-126673-01A1		37,320		37,320
Immunological Strategies to Modulate SIV Rebound Following ART Interruption	93.855		1-P01-AI-131338-01	291,616	663,448		663,448
Prevention of HIV-1 transmission by small-molecule CD4-mimetic entry inhibitors	93.855	DANA-FARBER CANCER INSTITUTE	1300401			197,955	197,955
Immunity to novel T/F SHIVs: variability in the co-evolution of virus and host immunity	93.855	DUKE UNIVERSITY	2036421			400,270	400,270
Defining the biological relevance of HIV-1 adaptation to CD4 T cell responses	93.855	UNIVERSITY OF ALABAMA AT BIRMINGHAM	000515868-002			35,507	35,507
Defining the impact of pre-existing memory T cells in human immunity	93.855		1-R01-AI-134879-01		305,343		305,343
Bridging Antibody Fc-mediated Antiviral Functions Across Humans and Non-human Primates	93.855	DUKE UNIVERSITY	2035709			78,719	78,719
AIDS Clinical Trial Group (ACTG)	93.855	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	10352SC			23,333	23,333
A Phase 2, Double-Blind, Randomized, Placebo-Controlled Multicenter Study to Evaluate Efficacy, Safety and Tolerability of JBT-101 in Systemic Lupus Erythematosus	93.855	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	9890SC			18,116	18,116
Treating chronic viral infection by epigenetic reprogramming of exhausted CD8 T cells	93.855		1R01AI130115-01A1	5,924	151,294		151,294
Construction of a ZIKV-host protein-protein interaction network	93.855	JOHNS HOPKINS UNIVERSITY	2003548218			3,635	3,635
Changes in Bone Quality, Sarcopenia and Fat Distribution in HIV/HCV Patients after HCV Therapy	93.855		1-R01-AI-136626-01		134,387		134,387
Multi-Center Studies to Improve Diagnosis and Treatment of Pediatric Candidiasis	93.855	CHILDREN'S HOSPITAL OF PHILADELPHIA	FP12542_A1_SUB03_01			28,790	28,790
Development of Gleevec for TB and TB/HIV	93.855	EMORY UNIVERSITY	T860086			110,156	110,156
Are schistosome micro-exon genes (MEGs) upregulated as an immune evasion response to the antischistosomal drug praziquantel?	93.855		1-R21-AI-130665-01A1		50,422		50,422
ANTIVIRAL MECHANISMS OF 2-5A-DEPENDENT RNASE L	93.855	CLEVELAND CLINIC LERNER COLLEGE OF MEDICINE	959-SUB			17,520	17,520
The Membrane Repair Channel TRPML1 Regulates Ebola Virus Budding	93.855		1-R21-AI-129890-01A1		132,329		132,329
Modular Domains of Host Proteins Regulate Filovirus Maturation	93.855		1-R21-AI-138052-01		16,075		16,075
Regulating Leukocyte Migration in Inflammation	93.855		1-R01-AI-136945-01		82,442		82,442
Statistical methods for correlated outcome and covariate errors in studies of HIV/AIDS	93.855	VANDERBILT UNIVERSITY MEDICAL CENTER	VUMC65908			36,707	36,707
Notch Regulation of Hematopoietic Cell Fates	93.855		2-R01-AI-047833-16A1		93,470		93,470
Antibacterial Resistance Leadership Group (ARLG)	93.855	DUKE CLINICAL RESEARCH INSTITUTE	203-8463			205,053	205,053
The role of mannitol metabolism in toxigenic Vibrio cholerae pathogenesis	93.855		1-R21-AI-137283-01		19,286		19,286
Program for Resistance, Immunology, Surveillance & Modeling of Malaria in Uganda (PRISM) Renewal	93.855	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	10445sc			51,795	51,795
Endogenous double-stranded RNA induced CNS damage in the absence of ADAR1 activity	93.855		1-R21-AI-138564-01	6,476	52,799		52,799
Role of SIV and HIV Env cytoplasmic tail in pathogenesis and protective immunity	93.855		1-R01-AI-138782-01		39,270		39,270
Notch Signaling in Alloimmunity	93.855		7-R01-AI-091627-08		33,042		33,042
Pharmacogenomics of HIV Therapy	93.855	VANDERBILT UNIVERSITY MEDICAL CENTER	SUB TO VANDERBILT UNIVERSITY			90,381	90,381
Messenger RNA Immunogens for initiation of HIV V3-glycan neutralizing B cell lineages	93.855	DUKE UNIVERSITY	2037104			20,522	20,522
Myeloid-derived Suppressor Cells and Their TIPE2 Polarization Complex	93.855		1R56AI132329-01A1		13,682		13,682
Cytokine regulation of T follicular helper (Tfh) cell biology	93.855		7-R01-AI-123738-02		99,538		99,538
Point of Care Molecular Detection of Vector-Borne Pathogens	93.855		1-R21-AI-134594-01A1		10,619		10,619
Gene Transfer for SCID-X1 Using Self-Inactivating Gammaretroviral Vector	93.855	CHILDREN'S HOSPITAL BOSTON	GENFD0001451115			3,569	3,569
Defective Viral genomes in RSV pathogenesis	93.855		1-R01-AI-137062-01		84,761		84,761
Investigation of subtelomeric gene families in Cryptosporidium	93.855		1-K99-AI-137442-01		7,910		7,910
Targeting mosquito complement to alter the specificity of the innate immune response	93.855		1-R01-AI-139060-01		32,318		32,318
The Role of Post-translational Modifier PRMT5 in Regulatory T cell Development and Function	93.855		1-R21-AI-135359-01		14,133		14,133
Intersections of bitter taste receptor (T2R) and toll-like receptor (TLR) signaling in airway epithelial cell innate immunity	93.855		1-R21-AI-137484-01		5,140		5,140
MERS coronavirus: antagonism of double-stranded RNA induced host response by accessory proteins	93.855		1-R01-A1-140442-01		15,867		15,867
Very early plasma cell differentiation	93.855		1-R01-AI-139123-01		8,800		8,800
Development of Small Molecule Therapeutics Targeting Hemorrhagic Fever Viruses	93.855	FOX CHASE CHEMICAL DIVERSITY CENTER	R41AI138630-UP			3,311	3,311
Dueling PPxY Motifs of Filovirus VP40 and Host Angiomotin: Effects on Innate Immune Defenses and Tight Junction Integrity at Immune Privileged Sites	93.855		1-R21-AI-139392-01		228		228
Gene regulation from the inactive X in activated B cells	93.855		1-R01-AI-134834-01A1		19,361		19,361
Immune-Microbiota Interactions in defense against Clostridium difficile	93.855		4-R00-AI-125786-03		40,255		40,255
93.855 Total				**8,298,771**	**51,228,047**	**14,285,963**	**65,514,010**
The Eukaryotic Pathogen Bioinformatics Resource Center (EuPathDB) (CORE)	93.856		HHSN272201400030C	1,527,663	4,884,731		4,884,731
HUMAN STRONGYLOIDIASIS: DEVELOPMENT OF A CANINE MODEL	93.856		2-R01-AI-022662-07A1		-35		-35
97-1557: IMMUNIZATION AND HUMORAL RESPONSE TO HIV-1 89.6 ENV	93.856		2-R01-AI-035383-05		-105		-105
HELPER T CELL REGULATION IN MURINE LEISHMANIASIS	93.856		7-R01-AI-042370-03		412		412
POXVIRUS SCR-CONTAINING PROTEINS AS THERAPEUTIC TARGETS	93.856		1-U01-AI-048487-01		-279		-279
93.856 Total				**1,527,663**	**4,884,724**		**4,884,724**
SRSC I-Virus Biology Hahn	93.885	DUKE UNIVERSITY	2031969			848,045	848,045
93.885 Total						**848,045**	**848,045**
A PHASE 1, SINGLE DOSE STUDY OF THE SAFETY AND VIROLOGIC EFFECT OF A HUMAN MONOCLONAL ANTIBODY, VRC-HIVMAB080-00-AB (VRC01LS), WITH BROAD HIV-1 NEUTRALIZING ACTIVITY, ADMINISTERED INTRAVENOUSLY TO HIV-INFECTED ADULTS	93.RD	EMMES CORPORATION	VRC 607 SUB TO HHSN272201000049I			155,164	155,164
BIOINFORMATICS RESOURCE CENTER FOR INFECTIOUS DISEASES	93.RD		HHSN272200900038C		-125,303		-125,303
Evaluation of SDG as Countermesaure to Radiation-Induced Lung Damage	93.RD	LIGNAMED	LGM-2605			182,088	182,088
ODSH as a Countermeasure for Radition-Induced Thrombocytopenia	93.RD	CHILDREN'S HOSPITAL OF PHILADELPHIA	7300220817			6,388	6,388
Option 14A Prizm 40	93.RD	UNIVERSITY OF ROCHESTER	416939			155,892	155,892
Option 16B Prizm 41	93.RD	UNIVERSITY OF ROCHESTER	416944			154,769	154,769
Protective Immunity in Special Populations	93.RD	WISTAR INSTITUTE	29902-04-307; WHERRY			-285	-285
Option 16C	93.RD	UNIVERSITY OF ROCHESTER	417173			287,232	287,232
Option 16F	93.RD	UNIVERSITY OF ROCHESTER	417175			73,959	73,959
93.RD Total					**-125,303**	**1,015,207**	**889,904**
NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES/NIH/DHHS Total				9,826,434	55,987,468	16,149,215	72,136,683
NATIONAL INSTITUTE OF ARTHRITIS & MUSCULOSKELETAL & SKIN DISEASES/NIH/DHHS							
Adaption and Validation of PROMIS for use in Vasculitis	93.846		1-R01-AR-064153-01	37,882	109,787		109,787
African-Americans with Atopic Dermatitis: Skin Barrier and Immune	93.846		1-R01-AR-069062-01	89,088	440,851		440,851
Ahr and Osteoporosis	93.846	MOUNT SINAI MEDICAL CENTER	0255-7261-4609			230,411	230,411
Bone structure and strength recovery and the role of PTHrP post lactation	93.846		1-R03-AR-065145-01A1		45,070		45,070
Bone Water and Mineralization Measured by Nuclear Magnetic Resonance	93.846		2-R01-AR-050068-09A1		292,232		292,232
CCR7 and its ligands in Osteoarthritis	93.846		1-R21-AR-067916-01		17,322		17,322
Cell Adhesion Regulation of Osteoclast Maturation	93.846		1-R01-AR-069546-01		372,908		372,908

University of Pennsylvania
Schedule of Expenditures
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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Challenging Treatment Paradigms for Achilles Tendon Ruptures in an Animal Model	93.846		1-R01-AR-064216-01A1		426		426
Challenging Treatment Paradigms for Achilles Tendon Ruptures in an Animal Model	93.846		4-R01-AR-064216-04		253,352		253,352
Clinical Assessment of Hip Fracture Biomechanics using MRI	93.846		1-R01-AR-068382-01	167,266	429,017		429,017
Collagen turnover-stimulated gene delivery to enhance chronic wound repair	93.846	UNIVERSITY OF DELAWARE	42811			31,536	31,536
Defining the tendon lineage to improve tissue engineering strategies	93.846		4-R00-AR-067283-03		296,043		296,043
DERMATOLOGY RESEARCH TRAINING GRANT	93.846		2-T32-AR-007465-31		314,916		314,916
Diabetic Fracture Healing	93.846		1-R01-AR-060055-01A1		204,958		204,958
Differential Roles of Collagen V in Establishing the Regional Properties in Mature and Aging Supraspinatus Tendons	93.846		1-R01-AR-070750-01	164,450	338,436		338,436
Disruption of Osmoregulation Promotes Degenerative Disc Disease	93.846	THOMAS JEFFERSON UNIVERSITY	080-23000-S13301			23,363	23,363
Dynamic Fibrous Scaffolds for Repairing Dense Connective Tissues	93.846		2-R01-AR-056624-06		442,939		442,939
EMRSHN: Exploring the Modulatory Role of Sex Hormones Along the Neuromechanical Axis in Females	93.846	REHABILITATION INSTITUTE OF CHICAGO	SUB TO 1R01AR069176-01A 1			16,094	16,094
Engineering disease-specific T cells for pemphigus therapy	93.846		1-R01-AR-068288-01		280,890		280,890
Epigenomic mechanisms of skin carcinogenesis	93.846		1-K08-AR-070289-01		164,563		164,563
Esrp regulated programs of alternative splicing in skin development and function	93.846		1-R01-AR-066741-01A1		425,318		425,318
Hair follicle neogenesis in response to wounding	93.846		4-R01-AR-055309-09		331,914		331,914
HDAC functions in skin development, renewal and disease	93.846		4-R01-AR-063146-04		226,747		226,747
Identification of Early Psoriatic Arthritis	93.846		4-K23-AR-063764-04		162,703		162,703
In Vivo Monitoring of Strain and Oxygen in TE Constructs Using MEMS-Based Sensors	93.846	GEORGIA INSTITUTE OF TECHNOLOGY	RF880-G2			-6,704	-6,704
Injury Response in Normal and EDS Tendons: Regulatory Roles of Collagen V	93.846		1-R01-AR-065995-01	97,469	444,708		444,708
Mechanical Regulation of Vascular Growth and Remodeling	93.846	GEORGIA INSTITUTE OF TECHNOLOGY	RG760-G2			139,874	139,874
Mechanism of radiotherapy-induced osteoporosis and its treatment	93.846		1-R01-AR-066098-01A1	17,378	396,690		396,690
Mechanisms of Vertebral Bone Disease in Mucopolysaccharidosis VII	93.846		1-R03-AR-065142-01A1		30,783		30,783
Mechanosensing in the bone lacunar-canalicular system	93.846	UNIVERSITY OF DELAWARE	39762			4,490	4,490
Migration and function of skin B cells	93.846	THOMAS JEFFERSON UNIVERSITY	080-03000-S23701			18,316	18,316
Molecular Genetics of Progressive Osseous Heteroplasia	93.846		2-R01-AR-046831-09A1		-87,449		-87,449
Molecular regulation of osteoclast maturation	93.846		1-R01-AR-067726-01		386,507		386,507
Mouse Models for SLRP Roles in Tendon Aging and Impaired Healing in Aging	93.846		1-R01-AR-068057-01A1	148,005	330,879		330,879
MRI of Proximal Femur Microarchitecture as a Biomarker of Bone Quality	93.846	NEW YORK UNIVERSITY	14-A1-00-001693-01			39,502	39,502
Notochordal Cell Derived Therapies for Painful Disc Degeneration	93.846	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI	1 R01 AR064157-01A1			17,167	17,167
Osteoporosis treatment response assessed by micromechanical modeling of MRI data	93.846		4-R01-AR-055647-09	41,438	425,473		425,473
Psoriasis and the risk of diabetes	93.846		4-K24-AR-064310-04		171,139		171,139
Racial Disparities in the Treatment of Psoriasis: A Mixed Methods Approach	93.846		1-K23-AR-068433-01		175,931		175,931
Racial Disparity in the Utilization of Joint Replacement for Osteoarthritis	93.846		2-K24-AR-055259-07		103,636		103,636
Regulators of Ischemic Fracture Healing	93.846	UNIVERSITY OF MICHIGAN	3004881705			25,074	25,074
Relationships Between Autoimmune IgG1 and IgG4 Repertoires in Pemphigus Vulgaris	93.846		1-F30-AR065870-01		-4,106		-4,106
Resource-based Center for Musculoskeletal Disorders Research	93.846		1-P30-AR-069619-01	34,718	832,155		832,155
Role of Mechanical Loading and Stem Cell Mechanotransduction in Tendon Degeneration	93.846		1-F32-AR-070562-01		5,956		5,956
Role of RGS12, a Regulator of G protein Signaling, in Bone Remodeling	93.846		7-R01-AR-066101-03	40,566	465,580		465,580
R-Spondin-2 modulates Wnt signaling to increase bone mass	93.846		1-F31-AR-065858-01		-3,925		-3,925
Skin Biology and Diseases Resource-based Center (SBDRC)	93.846		1-P30-AR-069589-01		823,163		823,163
Skin microbiome interactions with complement	93.846		1-R01-AR-066663-01A1		316,114		316,114
Skin-on-a-Chip: A Microfluidic Organ Model to Study the Mechanobiology of Keloid Disease	93.846		1-F32-AR-068838-01A1		51,617		51,617
Stimulation of Tendon Repair by Metabolic Modifiers	93.846	UNIVERSITY OF MARYLAND-BALTIMORE COUNTY	1701828-1038			55,564	55,564
The effect of parathyroid hormone on modeling-based bone formation	93.846		1-K01-AR-066743-01A1		114,989		114,989
The role of collagen organization in determination of fibrotic muscle function and regeneration	93.846		1-K99-AR-067867-01A1		76,779		76,779
Training in Muscle Biology and Muscle Disease	93.846		2-T32-AR-053461-11		245,982		245,982
Training in Musculoskeletal Research	93.846		2-T32-AR-007132-37		154,571		154,571
Training in Musculoskeletal Research	93.846		2-T32-AR-007132-42		20,116		20,116
Training Program/Rheumatic Diseases	93.846		4-T32-AR-007442-29		336,038		336,038
Translation of Hip Microarchitectural Assessment Technology to the Clinic to Diagnose Glucocorticoid-Induced Osteoporosis	93.846	NEW YORK UNIVERSITY	16-A0-00-005518-01			69,529	69,529
Treatment of Dermatomyositis with ajulemic acid, a non-psychoactive cannabinoid	93.846		1-R21-AR-066286-01		28,100		28,100
Uncovering the Molecular Basis of Malignant Hyperthermia	93.846	UNIVERSITY OF CALIFORNIA, DAVIS	201223252-02			8,821	8,821
Understanding Appendage Regeneration in Mice	93.846		7-K08-AR-066661-01		174,099		174,099
Vasculitis Clinical Research Consortium	93.846		2-U54-AR-057319-13	654,552	1,012,137		1,012,137
WNT Signals in Skin and Hair Development and Hair Growth	93.846		4-R37-AR-047709-15		397,452		397,452
DESIGN OF MUSCULAR SYSTEMS	93.846		1-R01-AR-046125-01		-69		-69
Hip Fracture Evaluation Alternatives of Total HIP vs Hemi-Arthroplasty (HEALTH)	93.846	NEW YORK UNIVERSITY	SUB TO AR0633686			5,120	5,120
Nasal Microbiome and Host Immunity in Granulomatosis with Polyangiitis	93.846		1-K23-AR-071514-01		164,345		164,345
Refining Outcome Measurement in Psoriatic Arthritis: Preparation for Pragmatic Trials	93.846		1-R01-AR-072363-01	63,391	194,078		194,078
Effects of reproduction and lactation on postmenopausal bone health	93.846		1-R01-AR-071718-01A1	10,913	256,179		256,179
Intersection of Upregulated BMP Signaling & Cellular Mechanotransduction in fibrodysplasia ossificans progressiva (FOP)	93.846		1-F31-AR-069982-01A1		39,249		39,249
Endothelial Cell-Intrinsic Non-Canonical NF-kB in Chronic inflammation	93.846		1-R01-AR-066567-01A1		365,717		365,717
Impaired BMP Signaling and Failed Bone Formation in Mucopolysaccharidosis VII	93.846		1-F32-AR071298-01		64,504		64,504
Regenerative Potential of Embryonic Notochordal Nucleus Pulposus Progenitors	93.846		1-R21-AR-070959-01	11,418	181,041		181,041
Pathogenesis and Treatment of Bone Disease in the Mucopolysaccharidoses	93.846		1-R01-AR-071975-01	31,600	208,318		208,318
Epigenetic Regulation of Keratinocyte-Mediated Innate Immunity	93.846		1-F31-AR-072461-01		28,710		28,710
Atopic Dermatitis and High Resolution HLA	93.846		1-R01-AR-070873-01A1	62,214	189,649		189,649
Tunable Mechano-Activated Microcapsules for Therapeutic Delivery	93.846		1-R01-AR-071340-01A1		245,021		245,021
Mechanisms regulating normal and ectopic endochondral ossification	93.846	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200760422			67,974	67,974
Elucidating the function of a distinct cell population in adult mammalian tendons	93.846	MASSACHUSETTS GENERAL HOSPITAL	231368			2,313	2,313
ADAM8 in Intervertebral Disc Degeneration	93.846		1-R21-AR-071623-01A1		33,034		33,034
Mechanisms of Osteocyte Mechanotransduction in Dynamic Bone Adaptation	93.846		1-R21-AR-071559-01A1		202		202
Altered Mechanical Signaling in the Annulus Fibrosus in Intervertebral Disc Degeneration	93.846		1-F32-AR-072478-01A1		4,425		4,425
Synovial Fluid and the Septic Joint	93.846	THOMAS JEFFERSON UNIVERSITY	080-23000-S27201			31,238	31,238
Behavioral & Social Science Research on Understanding and Reducing Health Disparities	93.846		1-R01-AR-059615-01	0	296		296
93.846 Total				**1,672,348**	**14,550,205**	**779,682**	**15,329,887**
NATIONAL INSTITUTE OF ARTHRITIS & MUSCULOSKELETAL & SKIN DISEASES/NIH/DHHS Total				1,672,348	14,550,205	779,682	15,329,887
NATIONAL INSTITUTE OF BIOMEDICAL IMAGING AND BIOENGINEERING/NIH/DHHS							
Integrative Bioinformatics Approaches to Human Brain Genomics and Connectomics	93.266		7-R01-EB-022574-03		163,986		163,986
93.266 Total					**163,986**		**163,986**
A Resource for Magnetic Resonance and Optical Imaging	93.286		2-P41-EB-015893-31		1,289,000		1,289,000
Adaptive Large-Scale Framework for Automatic Biomedical Image Segmentation	93.286		1-R01-EB-017255-01A1		634,046		634,046
An Inducible System for Gene Delivery	93.286		1-R21-EB-018064-01A1		-330		-330
Approximating and Reasoning about Data Provenance	93.286		1-U01-EB020954-01		461,130		461,130
Assessment of Medical Image Quality with Foveated Search Models	93.286	UNIVERSITY OF CALIFORNIA, SANTA BARBARA	KK1614			113,145	113,145
Biocongugate technique for site-specific attachment of IgG onto nanoparticles	93.286		1-R21-EB-018863-01A1		1,895		1,895
Bridging multiple scales in modeling targeted drug nanocarrier delivery	93.286		1-U01-EB-016027-01A1		572,005		572,005
Carbon Nanopipe-Based Automated Cell Injection System	93.286		1-R21-EB-016343-01A1		55,441		55,441
Cerenkov Specific Contrast Agents	93.286		1-R01-EB-018645-01		317,290		317,290

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Comprehensive Assessment of Pulmonary Disorders Using Polarized 13C Technology	93.286		1-R01-EB-010208-01		576		576
Continued Development and Maintenance of ITK-SNAP 3D Image Segmentation Software	93.286		1-R01-EB-014346-01	-854	88,562		88,562
Cross-Scale Interactions Between Mineral and Collagen for Tendon-Bone Attachment	93.286	WASHINGTON UNIVERSITY IN ST. LOUIS	1-U01-EB016422-01A1			13,208	13,208
Dendritic upconverting nanoparticles for multiphoton imaging and sensing	93.286		1-R01-EB-018464-01A1	77,560	352,255		352,255
Engineering Developmental Microenvironments: Cartilage Formation and Maturation	93.286		2-R01-EB-008722-05A1	5,402	271,439		271,439
Expert System for Personalized Reconstruction of PET Acquisitions	93.286		1-R21-EB-021559-01A1		221,840		221,840
In-vivo Assessment of Extracellular-Matrix-Based Micromachined Neuroelectrodes	93.286		1-R21-EB-022209-01		201,383		201,383
Microscopic Imaging of Tissue Oxygen Delivery Altered by Microvascular Changes	93.286	BOSTON UNIVERSITY	4500002478			76,042	76,042
Microscopic Imaging of Tissue Oxygen Delivery Altered by Microvascular Changes	93.286	MASSACHUSETTS GENERAL HOSPITAL	226968			27,938	27,938
Multi-scale biomechanics of engineered and native fibrous load-bearing tissue	93.286	UNIVERSITY OF DELAWARE	sub to 2-R01-EB-002425-01A1			154,204	154,204
Multiscale Modeling of Facet Capsule Mechanobiology	93.286	UNIVERSITY OF MINNESOTA	A003160902			177,135	177,135
Optical Barriers to Improve Performance of a Continuous Detector for Clinical PET	93.286		1-R21-EB-017966-01		-6,706		-6,706
Pathological consequences of altered tissue mechanics in fibrosis	93.286		1-R01-EB-017753-01A1		504,562		504,562
Pattern Analysis of fMRI via machine learning/sparse models: application to brain development	93.286		1-R01-EB-022573-03		503,890		503,890
Producing Large Quantities of Polarized Xenon with DNP Method	93.286		1-R01-EB-015767-01A1		526,741		526,741
Quantitative Image Modeling for Brain Tumor Analysis and Tracking	93.286	OLD DOMINION UNIVERSITY RESEARCH FOUNDATION	16-249-100594-010			13,878	13,878
RESEARCH TRACK RADIOLOGY RESIDENCY	93.286		2-T32-EB-004311-11		199,355		199,355
Targeted Microcarrier Design and Optimization	93.286		4-R01-EB-006818-08		98,027		98,027
Training in Structural, Physiologic and Functional MRI	93.286		1-T32-EB-020087-01A1		129,646		129,646
Training Program in Biomedical Imaging and Informational Sciences	93.286		2-T32-EB-009384-06		311,841		311,841
Tunable microbubbles for antivascular ultrasound	93.286		1-R01-EB-022612-01		397,920		397,920
Ultra-high resolution BOLD fMRI of medial temporal lobe at 7 Tesla	93.286		1-R03-EB-016923-01A1		31,244		31,244
Uncovering mechanical mechanisms of traumatic axonal injury	93.286		1-R01-EB-021293-01A1		325,223		325,223
Dynamic MRI Mapping of CMRO2 Responses	93.286		1-R21-EB-022687-01A1		114,266		114,266
A Reaction- Diffusion-Based Approach for Nucleic Acid Quantification	93.286		1-R01-EB-023607-01A1		270,093		270,093
Tools for site-specific antibody immobilization for immunoassays	93.286	ALPHATHERA	SUB TO 1 R41EB023750			75,000	75,000
Non-Contrast 4-D Dynamic MRA in Arteriovenous Malformation	93.286	UNIVERSITY OF SOUTHERN CALIFORNIA	91150638			115,878	115,878
Development and application of 4D TOF reconstruction for quantitative PET imaging	93.286		1-R01-EB-023274-01		432,693		432,693
Increasing biocompatibility of stents via CD47 surface functionalization	93.286	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200920521/PO 962704-RSUB			421,560	421,560
The 2nd Britton Chance International Symposium on Metabolic Imaging and Spectroscopy	93.286		1-R13-EB-021825-01A1		7,250		7,250
Biodegradable gold nanoparticles as contrast agents for CT	93.286	POLYAURUM LLC	SUB TO 1R41EB023169			26,487	26,487
Spatially-targeted heating of magnetic nanoparticles	93.286		1-R21-EB-023989-01A1		35,179		35,179
93.286 Total				**82,108**	**8,347,756**	**1,214,475**	**9,562,231**
Validation and development of single nucleotide variant RNA FISH in single cells in culture and tissue	93.310		1-R33-EB-019767-01		39,374		39,374
93.310 Total					**39,374**		**39,374**
NATIONAL INSTITUTE OF BIOMEDICAL IMAGING AND BIOENGINEERING/NIH/DHHS Total				82,108	8,551,116	1,214,475	9,765,591
NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT/NIH/DHHS							
#sexmessages: Social Media, sexual risk, & substance use behaviors among African American and Latino youth	93.865	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	8879SC			-473	-473
A National Training Program in Reproductive Medicine	93.865		2-T32-HD-040135-11	106,858	173,647		173,647
A new player in placental dysfunction: mir210	93.865		1-R21-HD-076271-01A1		471		471
A Randomized Trial of Induction versus Expectant Management (ARRIVE)	93.865	GEORGE WASHINGTON UNIVERSITY	SUB U10HD036801 (MFMU40C ARRIVE)			17,870	17,870
A Randomized Trial of Pessary and Progesterone for Preterm Prevention in Twin Gestation with a Short Cervix (PROSPECT)	93.865	GEORGE WASHINGTON UNIVERSITY	SUB TO U10HD036801/MFMU40C PROSPECT			35,748	35,748
A Randomized Trial of Pessary in Singleton Pregnancies with a Short Cervix (TOPS)	93.865	GEORGE WASHINGTON UNIVERSITY	SUB TO U10HD036801/MFMU TOPS			45,125	45,125
A Randomized Trial to Prevent Congenital Cytomegalovirus Infection (CMV)	93.865	GEORGE WASHINGTON UNIVERSITY	SUB TO U10HD036801 (CMV)MFMU			142,231	142,231
Adult genome-wide phenotypic analysis of molecularly defined mutant genes	93.865		1-R01-HD-069321-01		-3,973		-3,973
Adverse Childhood Experiences and Adolescent HIV Risk: Causal Inference from a Longitudinal Study	93.865	STATE UNIVERSITY OF NEW YORK	77545-1138238-2	257,194		465,640	465,640
Age and molecular mechanisms contributing to aneuploidy in oocytes	93.865		2-R01-HD-058730-06A1		354,046		354,046
Ambulatory Care Access and Quality	93.865		4-R01-HD-074756-03	28,703	556,777		556,777
Behavioral effects of teen exposure to multiple risk behaviors in Media	93.865		1-R21-HD-079615-01A1	28,891	90,159		90,159
CHOP/UPenn Intellectual and Developmental Disabilities Research Center	93.865	CHILDREN'S HOSPITAL OF PHILADELPHIA	203661015-S1			109,306	109,306
Choroid Plexus-Directed Gene Therapy for Alpha-Mannosidosis	93.865	CHILDREN'S HOSPITAL OF PHILADELPHIA	FP00015905_A1_SUB_01			161,985	161,985
Clinical Center for NICHD/Neonatal Research Network	93.865		2-UG1-HD-068244-06	282,659	292,572		292,572
Community/Academic Partnership to Increase Activity in Youth and their Families	93.865		1-R13-HD-085960-01		18,854		18,854
Comparative Effectiveness of Pregnancy Failure Management Regimens (Pre-Fai-R)	93.865		1-R01-HD-071920-01A1	-4,085	-4,085		-4,085
Comparative Effectiveness of Pregnancy Failure Management Regimens (Pre-Fai-R)	93.865		4-R01-HD-071920-05 Prefair	20,828	263,630		263,630
Contributions of infant learning to language acquisition	93.865		4-R01-HD-049681-09	5,550	228,383		228,383
Cooperative Multicenter Reproductive Medicine Network	93.865		2-U10-HD-027049-21		215,515		215,515
Developing a multi-modality, paradigm-shifting approach for in vivo assessment of the human placenta and the impact of maternal nutrition on its development and function	93.865		1-U01-HD-087180-01	48,865	964,551		964,551
Developing and Pilot Testing a Mobile Phone-Based HIV/STI Prevention Intervention	93.865		1-R01-HD-072825-01A1	34,880	123,400		123,400
Development of a serum biosignature for ectopic pregnancy	93.865		1-R01-HD-076279-01A1 Ectopic	412,222	810,226		810,226
Direct, Single Molecule RNA Expression and Mutational Profiling of Individual Microfluidic FISH-SCALYS	93.865	CALIFORNIA INSTITUTE OF TECHNOLOGY	68D-1097566			463	463
Early Childhood Development for the Poor: Impacting at Scale	93.865	YALE UNIVERSITY	C14AI1661 (A08990)			46,663	46,663
Eliciting Maternal Knowledge about the Technology of Skill Formation	93.865		4-R01-HD-073221-04	482,501	560,569		560,569
Epigenetic landscapes of embryonic lymphoid progenitors and HSCs	93.865		1-R21-HD-081054-01A1	131,785	125,947		125,947
Epigenetic regulation of histone eviction in spermatogenesis	93.865		1-F32-HD-086939-01A1		67,985		67,985
Flu2Text: A National, Practice-Based Randomized Controlled Trial of Text Message Reminders for 2nd Dose of Influenza	93.865	COLUMBIA UNIVERSITY	4(GG011848-01)			16,315	16,315
Functional Diffuse Optical Measurements of Psychomotor Function in Neonates with Hypoplastic Left Heart Syndrome (HLHS)	93.865		1-F31-HD-085731-01A1		35,135		35,135
Functional impact of differential expression and DNA methylation in mouse oocytes and embryos resulting from maternal diet-induced obesity	93.865	WASHINGTON UNIVERSITY IN ST. LOUIS	UWash-St.Louis Sub			-2,920	-2,920
Functional impact of differential expression and DNA methylation in mouse oocytes and embryos resulting from maternal diet-induced obesity	93.865		WU-18-39			135,745	135,745
Functions of MOV10L1 in piRNA biogenesis and germ cell development	93.865		4-R01-HD-069592-01A1		-19,306		-19,306
Gene Therapy for Urea Cycle Disorders	93.865		2-P01-HD-057247-05	-8,414	-16,411		-16,411
Gene Therapy for Urea Cycle Disorders	93.865		4-P01-HD-057247-10		-28,174		-28,174
Graduate Training in Demography	93.865		2-T32-HD-007242-31		21,038		21,038
Graduate Training in Developmental Biology	93.865		1-T32-HD-083185-01		342,491		342,491
High-Speed Motion-Corrected Pediatric Neuroimaging with MRI	93.865		7-R00-HD-074649-05		182,689		182,689
IDDRC	93.865	CHILDREN'S HOSPITAL OF PHILADELPHIA	ACTIVITY 321098 (PO#961915RSUB			47,850	47,850
Identifying sources of HIV infection in adolescent girls in rural South Africa	93.865	CAPRISA (CENTER FOR THE AIDS PROGRAMME OF RESEARCH IN SOUTH AFRICA)	SUB TO 1-R01-HD083343			32,837	32,837
Immigration and Fertility in the U.S.	93.865		1-R01-HD-075560-01A1		256,067		256,067
Improving Math Ability via Primitive Number Sense Training	93.865		7-R01-HD-79106-02	-11,900	202,727		202,727
Improving participation in vector control campaigns through behavioral economics	93.865		1-R01-HD-075869-01A1	248,899	542,384		542,384
Longitudinal study of adolescents, neighborhoods, and drinking	93.865	PACIFIC INSTITUTE FOR RESEARCH AND EVALUATION	Sub to 1-R01-HD-078415-01A1			27,975	27,975
Longitudinal study of adverse driving outcomes amoung adolescents with ADHD	93.865	CHILDREN'S HOSPITAL OF PHILADELPHIA	3210580717			5,201	5,201
Magnetoencephalographic Studies of Lexical Processing and Abstraction in Autism	93.865		4-R01-HD-073258-05	10,041	88,668		88,668
Male germline development and estrogenic exposures	93.865	WASHINGTON STATE UNIVERSITY	123853-G003469			66,366	66,366
Medical Optimization & Management of Pregnancies with Overt Type 2 Diabetes	93.865	UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL	5106229			20,723	20,723
Mobility, selectivity, and the migrant mortality advantage	93.865		1-R01-HD-079475-01A1	66,100	230,861		230,861
Neonatal and Pediatric Platelet Function and Pharmacology	93.865	COLUMBIA UNIVERSITY	1 (GG011666)			119,675	119,675

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Neurobehavioral study of graphic warnings on adolescents at risk for nicotine dependence	93.865		1-K99-HD-084746-01		36,177		36,177
NICHD Maternal Fetal Medicine Units Network	93.865		1-UG1-HD-087192-01		305,163		305,163
NICHD Neonatal Research Network (NRN) Capitation Funding	93.865	RESEARCH TRIANGLE INSTITUTE	MOU sub to U10HD036790	1,719		252,691	252,691
Optimizing Management of the Second Stage of Labor: Multicenter Randomized Trial	93.865	WASHINGTON UNIVERSITY IN ST. LOUIS	WU-15-54			209,518	209,518
Optimizing Respiratory Function in Delivery Room Resuscitation: The INFLATE Study (INFant Lung Aeration during Transition Events)	93.865		1-K23-HD-084727-01A1		144,939		144,939
Ovarian Reserve After Cancer: Longitudinal Effects (The ORACLE Study)	93.865		1-R01-HD062797-01		-17,731		-17,731
Pelvic Floor Disorders Network Clinical Sites (U10)	93.865		1-U10-HD-069010-01		-8		-8
Pelvic Floor Disorders Network Clinical Sites (UG1)	93.865		2-UG1-HD-069010-06		238,058		238,058
PFDN Capitation Funding	93.865	RESEARCH TRIANGLE INSTITUTE	PFDN CAPITATION FUNDING			148,298	148,298
Population Research Center Grant	93.865		4-R24-HD044964-14		619,951		619,951
Preterm Birth in Nulliparous Women: An Understudied Population at Great Risk	93.865		1-U10-HD063048-01		150		150
Promoting Recovery Optimization with Walking Exercise After Stroke	93.865	UNIVERSITY OF DELAWARE	44252			276,062	276,062
Reproductive Epidemiology Training Grant	93.865		2-T32-HD-007440-16		5,128		5,128
Reproductive Epidemiology Training Grant	93.865		2-T32-HD-007440-21		338,668		338,668
Reproductive Scientist Development Program (K12) - Scholar[NIH: 1 of 3]	93.865	WASHINGTON UNIVERSITY IN ST. LOUIS	WU-14-90			142	142
Respiratory function monitoring during resuscitation of extremely preterm infants: An ancillary study to the SAIL trial	93.865		1-R03-HD-086655-01A1	9,389	54,072		54,072
Sedation Strategy and Cognitive Outcome after Critical Illness in Early Childhood	93.865	SEATTLE CHILDREN'S HOSPITAL RESEARCH INSTITUTE	11119SUB			182,305	182,305
Single cell reconstruction of lineages and variability in C. elegans embryos	93.865		1-R21-HD-085201-01		84,862		84,862
SmarToyGym: Smart detection of atypical toy-oriented actions in at-risk infants	93.865		1-R21-HD-084327-01	11,779	16,953		16,953
Spontaneous Code Switching	93.865		1-R21-HD-078072-01A1		3,608		3,608
Sustained Aeration of Infant LUngs (SAIL)	93.865	CHILDREN'S HOSPITAL OF PHILADELPHIA	3210050618 / PO #961074RSUB			450,239	450,239
Systems Analysis of BMP Regulation in Developing Zebrafish Embryos	93.865	PURDUE UNIVERSITY	4102-57125			86,116	86,116
Targeting School Climate and Children's Behavioral Health in Urban Schools	93.865	CHILDREN'S HOSPITAL OF PHILADELPHIA	Activity #3209921217-P			11,366	11,366
Targeting the piRNA pathway and meiotic recombination for male contraception	93.865		1-U01-HD-084007-01		316,236		316,236
TBI: IgG Autoantibodies in Secondary Neuronal Injury	93.865	UNIVERSITY OF PITTSBURGH	0024922 (125803-11)			71,961	71,961
Temporal connectomics for infant brain: neurodevelopment modulated by pathology	93.865		1-R01-HD-089390-01A1	123,718	462,700		462,700
The CFAR Social & Behavioral Science Research Network National Scientific Meeting	93.865		4-R13-HD-074468-05	16,322	109,691		109,691
The Development of On-Line Sentence Processing in Children	93.865		4-R01-HD-037507-18		239,964		239,964
The Intellectual and Developmental Disabilities Research Center at CHOP/Penn	93.865	CHILDREN'S HOSPITAL OF PHILADELPHIA	321098 (PO#962254 RSUB)			3,417	3,417
The Intellectual and Developmental Disabilities Research Center at CHOP/Penn	93.865		321098 PO #961914RSUB			8,000	8,000
The Penn Center for Career Development in Women's Health Research	93.865		2-K12-HD-001265-16		345,310		345,310
The role of TLR signaling in fetal brain injury from prenatal inflammation	93.865		1-R01-HD-076032-01A1		320,547		320,547
The UNC/Emory Center for Innovative Technology (iTech) across the prevention and care continuum	93.865	UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL	5106045			161,721	161,721
Training in Sex and Gender Differences Research to Improve Women's Health	93.865		1-K12-HD-085848-01	181,972	389,763		389,763
Traumatic Bridging Vein Failure in Infants	93.865		1-R21-HD-078842-01A1		-120		-120
US-France Research Proposal: Modeling and Predicting Brain-Computer Interface Learning from Dynamic Networks	93.865		1-R01-HD-086888-01		49,638		49,638
Androgen Excess Polycystic Ovary Syndrome Society Meeting	93.865		1-R13-HD-089669-01A1		6,000		6,000
RESTORE resilience in critically ill children - R2	93.865		1-R21-HD-093369-01	100,660	194,403		194,403
Altered regulation of smooth muscle myosin in esophageal atresia	93.865		1-R21-HD087674-01		129,890		129,890
The COMET-PCOS trial - Comparing the effects of Oral Contraceptive Pills versus Metformin in the medical management of overweight/obese women with Polycystic Ovary Syndrome	93.865		1-R01-HD-091350-0	55,856	379,481		379,481
Long-term physiological and behavioral outcomes, epigenetic profiles and multigenerational phenotypes in a mouse ART model	93.865		1-R01-HD-092266-01		401,567		401,567
Investigation of epigenetic and morphological placental abnormalities induced by in vitro fertilization	93.865		1-F32-HD-089623-01A1		52,273		52,273
Reducing Risky Teen Cellphone Use While Driving Using Behavioral Economics, Technology, and Epidemiology	93.865		1-K23-HD-090272-01A1		128,835		128,835
Omega-3 supplementation to both parent and adolescent to reduce behavior problems	93.865		1-R01-HD-087485-01A1	239,398	433,271		433,271
Natural History of Sleep Disturbance in Childbearing Women: A Feasibility Study	93.865		7R21HD083628-02	10,301	191,542		191,542
Safer Food Allergy Management for Adolescents	93.865		1-R21-HD-088941-01A1	35,567	119,178		119,178
Global Age Patterns of Under-Five Mortality	93.865		1-R01-HD-090082-01	33,770	141,342		141,342
An Observational Study of Hepatitis C Virus in Pregnancy Protocol	93.865	GEORGE WASHINGTON UNIVERSITY	SUB TO U10HD036801			5,645	5,645
Molecular Identity of Maternal Regulators of the Egg to Embryo Transition	93.865		1-R21-HD-094096-01		198,003		198,003
Mobile health (mHealth) nutrition intervention for children with Autism Spectrum Disorder	93.865		1-R21-HD-091330-01A1	34,390	123,140		123,140
Surviving an Epidemic: Families and Well-Being, Malawi 1998-2020	93.865		1-R01-HD-087391-01A1		44,271		44,271
Addressing Community Violence-Related Traumatic Stress Symptoms in Children	93.865	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200710000			72,544	72,544
Mechanisms of endothelial-to-hemogenic transition mediated by RunX1	93.865	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200830522			128,241	128,241
Tranexamic Acid for the Prevention of Obstetrical Hemorrhage After Cesarean Delivery: A Randomized Controlled Trial (TXA)	93.865	GEORGE WASHINGTON UNIVERSITY	SUB TO U10HD036801			48,908	48,908
The Fetal Adrenal Gland as a Predictor of Spontaneous Preterm Birth	93.865	COLUMBIA UNIVERSITY	2 (ACCT #5-30279)/PO #G02789			26	26
PED Screen: Pediatric Sepsis EHR Registry, Clinical Outcomes, and Predictive Model	93.865	NORTHWESTERN UNIVERSITY	60046347 PENN			14,231	14,231
Neurobehavioral Study of Warnings for Adolescents at Risk for Nicotine Dependence	93.865	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI	0255-3971-4609			4,922	4,922
A Randomized Trial of Continuous Positive Airway Pressure (CPAP) for Sleep Apnea in PregnancySLEEP	93.865	GEORGE WASHINGTON UNIVERSITY	SUB TO U10HD036801			3,959	3,959
Assessing the effect of household member mortality on mental health outcomes using longitudinal data from South Africa	93.865		7-R03-HD-086497-03		75,914		75,914
Verb learning and the early development of sentence comprehension	93.865	UNIVERSITY OF ILLINOIS	070262-16642			29,588	29,588
Virtuus Children's Study: Validating Injury to the Renal Transplant Using Urinary Signatures in Children	93.865	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200880522			86,659	86,659
93.865 Total				**2,996,416**	**13,359,672**	**3,750,884**	**17,110,556**
Clinical Evaluation of Novel Products for Female Contraception (Main Study)	93.RD		HHSN2752013000201		95,698		95,698
Contraceptive Clinical Trials Network - Female Sites	93.RD		HHSN2752013000201		84,075		84,075
Pediatric Trials Network Database	93.RD	AMERICAN ACADEMY OF PEDIATRICS	UPENN PTN 2			33,227	33,227
93.RD Total					**179,773**	**33,227**	**213,000**
NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT/NIH/DHHS Total				2,996,416	13,539,445	3,784,111	17,323,556
NATIONAL INSTITUTE OF DENTAL AND CRANIOFACIAL RESEARCH/NIH/DHHS							
A Microfluidic System for POC Molecular Diagnosis of HPV in Oral Fluids	93.121	LUCIGEN	10049846			9,089	9,089
A novel anti-caries approach to modulate virulence of cariogenic biofilms	93.121		2-R01-DE-018023-07A1	112,163	413,064		413,064
A quiescent G0-like cell state as a barrier to eradication oral cancer stem cells	93.121		1-R21-DE-024396-01		-30,056		-30,056
A randomized trial of cognitive vs. behavioral incentives to induce sustained healthy oral hygiene habits and improve oral health	93.121		1-R34-DE-025426-01A1		63,643		63,643
A. actinomycetemcomitans Cdt induces pro-inflammatory innate immune responses	93.121		4-R01-DE-023071-04		318,398		318,398
BACTERIA AND LYMPHOCYTE SUPPRESSION IN PERIODONTITIS	93.121		2-R01-DE-006014-34A1		371,377		371,377
BACTERIA AND LYMPHOCYTE SUPPRESSION IN PERIODONTITIS	93.121		2-R01-DE-006014-14A1		-8		-8
Biofilm Elimination and Caries Prevention using Multifunctional Nanocatalysts	93.121		1-R01-DE-025848-01A1		388,919		388,919
Clinical Registry of Dental Outcomes in Head and Neck Cancer Patients	93.121	CAROLINAS HEALTH CARE SYSTEM	SUB TO 1U01DE022939-01			275,123	275,123
Contribution of G0-like Cells to Maintenance of the Oral Cancer Stem Cell Pool	93.121		1-F32-DE-024685-01		-106,611		-106,611
Defining the role and therapeutic implications of altered Notch signaling in oral cancer	93.121		1-F32-DE-026957-01		55,448		55,448
Del-1: Molecular and Cellular Targets in Periodontitis	93.121		1-R01-DE-024716-01		368,282		368,282
Dendritic Cells and Periodontal Disease	93.121		4-R01-DE-021921-05		198,105		198,105
Dendritic Cells and Periodontal Disease	93.121		2-R01-DE-021921-06		2,677		2,677
Diabetes-enhanced Experimental Periodontitis	93.121		2-R01-DE-017732-07A1		347,015		347,015
Epigenetic regulation of Epstein-Barr virus	93.121	WISTAR INSTITUTE	23675-02-319; WON			56,698	56,698
Epigenetics, dysbiosis and inflammation in epithelial cells	93.121		1-R01-DE-024160-01A1		324,478		324,478
FAS Controls Exosome-Mediated miRNA Transfer in MSC-Based Therapy	93.121		1-K99-DE-025915-01A1		70,658		70,658
Local endogenous regulators of functional immune plasticity in the periodontium	93.121		1-R37-DE-026152-01	140,742	336,433		336,433
Lysosomal maturation during periodontal infections	93.121		4-R01-DE-022465-05		177,848		177,848

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Mechanisms for Impaired Diabetic Oral Wound Healing	93.121		2-R01-DE-019108-06A1		372,036		372,036
Molecular and Antibody Detection of Zika Virus in Saliva at the Point of Care	93.121		1-R21-DE-026700-01		140,921		140,921
MOLECULAR BIOLOGY OF VIRULENCE IN PERIODONTAL DISEASE	93.121		2-R01-DE-009517-21A1		418,083		418,083
Neutrophil homeostasis and periodontitis: Novel concepts and treatments	93.121		1-R01-DE-024153-01A1		302,770		302,770
Novel mechanisms and 'complement-ary' therapy in periodontitis	93.121		4-R01-DE-021685-05		41,034		41,034
Oral Hygiene, Periodontal Disease and Infective Endocarditis	93.121	CAROLINAS HEALTH CARE SYSTEM	13-014S5 (3000300177)			79,867	79,867
OSTEOGENIC AND IMMUNOMODULATORY PROPERTIES OF DECIDUOUS TOOTH STEM CELLS	93.121		7-R01-DE-017449-08		238,009		238,009
P. gingivalis as a keystone pathogen	93.121		2-R01-DE-015254-12A1		378,545		378,545
Penn Multidisciplinary Consortium: Personalized Dental, Oral and Craniofacial Tissue Regeneration	93.121		1-R34-DE-025587-01		48,272		48,272
Regulation of embryonic patterning and adult stem cells of oral appendages	93.121		1-R01-DE-024570-01		300,131		300,131
Regulation of skeletal development and homeostasis by IFT protein	93.121		7-R01-DE-023105-04		417,970		417,970
Role of GtfB on S.mutans-C.albicans interactions and cariogenic biofilm formation	93.121		1-R03-DE-025728-01		36,716		36,716
Roles of Epithelial Splicing Regulatory Proteins in craniofacial development	93.121		1-R01-DE-024749-01	28,437	449,840		449,840
S. mutans-C. albicans interactions synergize the virulence of cariogenic biofilms	93.121		1-R01-DE-025220-01	48,800	341,180		341,180
Targeting mesenchymal-like cells in oral cancer to overcome cetuximab resistance	93.121		4-K08-DE-022842-05		23,806		23,806
Understanding revascularization and repair of cranial bone grafts via intravital imaging	93.121	UNIVERSITY OF ROCHESTER MEDICAL CENTER	41605-G			2,790	2,790
Screen for mutations affecting skull and suture formation in zebrafish	93.121		1-R01-DE-022955-01A1		-17,119		-17,119
The role of NF-kB in mesenchymal stem cells during diabetic wound healing	93.121		1-K08-DE-027129-01		85,337		85,337
JARID1B-mediated epigenetic regulation of oncogenic signals in oral cancer	93.121		1-R56-DE-027185-01		210,697		210,697
Determining the functions of molecularly defined populations of nociceptors in spinal and dental pain	93.121		1-K99-DE-026807-01A1		109,739		109,739
A New Model of Regenerative Wound Healing Via Inflammation-Modulating Biomaterial	93.121	LANKENAU INSTITUTE FOR MEDICAL RESEARCH	06297-0793			128,048	128,048
Targeted Cultivation of New Periodontal Pathogens	93.121		7R01DE024767-04	120,878	284,402		284,402
Establishing Lymphedema and Fibrosis Measures in Oral Cancer Patients	93.121		7-R01-DE-024982-04		30,626		30,626
Roles of KSHV Tegument Proteins in Virion Assembly	93.121		1-R01-DE-027901-01		67,112		67,112
93.121 Total				**451,020**	**7,579,777**	**551,615**	**8,131,392**
Dynamic Network Neuroscience and Control Theory: Toward Interventions for Cognitive Control Dysfunction	93.310		1-DP5-OD-021352-01		94,195		94,195
93.310 Total					**94,195**		**94,195**
NATIONAL INSTITUTE OF DENTAL AND CRANIOFACIAL RESEARCH/NIH/DHHS Total				451,020	7,673,972	551,615	8,225,587
NATIONAL INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES/NIH/DHHS							
10/16 Action for Health in Diabetes Extension Study Research Project	93.847		2-U01-DK-057135-17		340,661		340,661
A population-based cohort to study outcomes in end-stage liver disease patients	93.847		4-K08-DK-098272-04		190,088		190,088
A Program to Promote Diversity Within the American Society of Andrology	93.847	AMERICAN SOCIETY OF ANDROLOGY	SUB TO 1-R25-DK096957-01			19,330	19,330
A vascularized 3D biomimetic for islet function and physiology	93.847		1-UC4-DK-104196-01	403,851	1,209,376		1,209,376
Algorithms to identify non-coding mutational burden and disease-relevant pathways	93.847		1-R01-DK-101478-02	-5,445	600,693		600,693
Amylin modulates food reward	93.847		1-R01-DK-105155-01A1	220,808	490,585		490,585
Amylin receptors in the lateral dorsal tegmental area regulate food intake	93.847		1-F31-DK-105858-01A1		3,896		3,896
APOL1 associated kidney disease	93.847		1-R01-DK-105821-01A1		369,995		369,995
ATF5 in the developing pancreas and survival functions in the mature beta cell	93.847		1-F32-DK-103454-01		2,053		2,053
Beta Cell Regeneration by an Epigenetic Pathway	93.847		4-R01-DK-097555-04		137,913		137,913
Biology of the orphan receptor Rev-erb alpha	93.847		2-R01-DK045586-24		672,826		672,826
Biostatistics for Renal and Urologic Diseases	93.847		2-T32-DK-060455-11A1		74,187		74,187
Center for digestive and liver diseases	93.847		4-P30-DK-050306-20		239,601		239,601
Chronic Kidney Disease (CKD) Biomarkers Consortium Data Coordinating Center	93.847		1-U01-DK-103225-01	178,187	714,247		714,247
Clinical epidemiology training in gastroenterology	93.847		2-T32-DK-007740-16		-113		-113
Clinical epidemiology training in gastroenterology	93.847		2-T32-DK-007740-21A1		267,787		267,787
Clinical Islet Transplantation: Data Coordinating Center Limited Competition: Continuation of Clinical Islet Transplantation (CIT) Consortium (U01) B-Lymphocyte Immunotherapy in Islet Transplantation	93.847	UNIVERSITY OF IOWA	W000685190			9,436	9,436
Clinical Research Training in Kidney Disease	93.847		2-T32-DK-007785-16		232,582		232,582
Continuation of Clinical Islet Transplantation Consortium: Data Coordinating Center	93.847	UNIVERSITY OF IOWA	PO #1001235745/W000521064			10,932	10,932
Continuation of the Chronic Renal Insufficiency Cohort (CRIC) Study	93.847		2-U01-DK-060990-13	19,976	2,362,791		2,362,791
Control of adipose function through a PRDM16/Type 1 Interferon Axis	93.847		1-R01-DK-107589-01A1		735,799		735,799
Control of Brown Adipose Physiology Via Genomic Recruitment of Histone Deacetylase 3	93.847		1-F30-DK-104513-01		5,154		5,154
Control of Erythropoiesis by the Oxygen Sensor PHD2	93.847		1-R01-DK-104796-01A1		369,786		369,786
Control of intestinal regeneration by an Msi-mTORC1 signaling axis	93.847		1-R01-DK-106309-01A1		254,844		254,844
Cyclin D1/CDK4 Complex in Hepatocyte Proliferation	93.847	UNIVERSITY OF MINNESOTA	N005271001			11,557	11,557
Data Coordinating Center for Hemodialysis Pilot Studies Consortium	93.847		1-U01-DK-099919-01	108,458	959,238		959,238
Defining the role of Drip27, a novel long noncoding RNA, in erythropoiesis	93.847		1-K08-DK-102533-01A1		173,884		173,884
Determinants of Human Growth Hormone Expression and Pituitary Cell Differentiation	93.847		1-R01-DK-107453-01A1		468,140		468,140
Determining the function of Trim58 in terminal erythropoiesis	93.847		1-F30-DK-102291-01		-613		-613
Development and Assessment of Decision Supporting System for Renal Studies	93.847	EMORY UNIVERSITY	T674972			97,391	97,391
Development and Functional Analysis of a human adipose tissue chip	93.847	AUGUSTA UNIVERSITY	30367-2			120,051	120,051
Development of novel means to stimulate Ca2+-dependent exocytotic secretion	93.847		1-R01-DK-109979-01		339,776		339,776
Diabetes, Endocrine and Metabolic Disease	93.847		2-T32-DK-007314-36		333,510		333,510
Dietary Patterns and the Course of Inflammatory Bowel Disease	93.847		4-K24-DK-078228-10		115,262		115,262
Does a New Supermarket Improve the Diet and Food Environment of Residents	93.847	UNIVERSITY OF DELAWARE	38843			159,131	159,131
Does geographic access to care impact pediatric ESRD outcomes?	93.847	CHILDREN'S HOSPITAL OF PHILADELPHIA	321046			11,728	11,728
Drug-Drug Interactions Involving Antidiabetic Agents	93.847		1-R01-DK-102694-01	67,609	612,371		612,371
Eating Phenotypes for Childhood Obesity in the Context of Familial Obesity Risk	93.847		1-R01-DK-101480-01A1	44,461	385,869		385,869
Epidemiology of Diabetes Interventions and Complications (EDIC)	93.847	CASE WESTERN RESERVE UNIVERSITY	RES507516			3,325	3,325
Epidemiology of Diabetes Interventions and Complications (EDIC)	93.847		RES512857			201,939	201,939
Epigenetic drivers and biomarkers of diabetic kidney disease	93.847		1-DP3-DK-108220-01		416,577		416,577
Epigenetic Landscape of Chronic Kidney Disease	93.847		2-R01-DK-087635-06	23,460	458,617		458,617
Epigenetic Rejuvenation of Human Beta-Cells	93.847		1-UC4-DK-104119-01	184,675	430,027		430,027
Epigenomic Profiling of Normal and Diabetic Pancreatic Beta-Cells	93.847		1-R01-DK-088383-01		-565		-565
Epigenomics of the regenerating and aging beta-cell.	93.847		1-U01-DK-089529-01		253		253
Evaluation of Entero-Insular (Incretin) Axis in Cystic Fibrosis	93.847	CHILDREN'S HOSPITAL OF PHILADELPHIA	320981 / PO #960506RSUB			42,482	42,482
FGF-23 and Cardiovascular in CKD	93.847	DUKE UNIVERSITY	2036139			191,894	191,894
Formation and maturation of endocrine pancreas progenitors	93.847		1-R01-DK-105689-01A1	135,666	541,283		541,283
Fuel Metabolism and Insulin Secretion in KATP-Hyperinsulinism Human Islets	93.847	CHILDREN'S HOSPITAL OF PHILADELPHIA	321019 / PO #960980RSUB			27,078	27,078
Fuel Metabolism and Insulin Secretion in KATP-Hyperinsulinism Human Islets	93.847		321019 / PO #960981R5UB			20,543	20,543
Functional studies of KLF-14, a putative master regulator of metabolism	93.847		7-R01-DK-099571-02		249,309		249,309
Gender and hormonal influences on liver fibrosis after transplant for hepatitis C	93.847		4-K23-DK-090209-05		29,846		29,846
Gender Disparities and Vascular Function in Chronic Kidney Disease Outcomes	93.847	UNIVERSITY OF ILLINOIS	SUB TO 1-K23-DK-094829-01A1			17,671	17,671
Gene Therapy for Mucopolysaccharidosis	93.847		2-R01-DK-054481-18A1	18,561	473,412		473,412
Gene Transfer and NMR Studies in Alpha Man B	93.847	CHILDREN'S HOSPITAL OF PHILADELPHIA	FP21401_A1_SUB02_01			318,670	318,670
Genetic basis of liver repopulation	93.847		1-K08-DK-106478-01		195,711		195,711
Glucokinase Regulation of Hepatic Metabolism	93.847		1-K01-DK-111715-01		194,609		194,609
Glucose counterregulation in long standing type 1 diabetes	93.847		2-R01-DK-091331-06		325,186		325,186
HDAC2 Inhibition Mitigates Renal Ischemia Reperfusion Injury	93.847		1-R01-DK-106243-01A1	32,964	243,276		243,276

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Health Disparities in Chronic Kidney Disease	93.847	UNIVERSITY OF ILLINOIS	2011-06727-01-00			-8	-8
Hearing Impairment in Long-Term Type 1 Diabetes	93.847	CASE WESTERN RESERVE UNIVERSITY	RES508603			7,201	7,201
Heart Failure and Atrial Arrhythmias in CKD	93.847	UNIVERSITY OF WASHINGTON	UWSC8765			441,408	441,408
Hematopoiesis Training Grant	93.847		2-T32-DK-007780-16		371,208		371,208
Hispanic Chronic Renal Insufficiency Cohort (CRIC) Study	93.847	UNIVERSITY OF ILLINOIS	489983 E3922			12,975	12,975
Hispanic Chronic Renal Insufficiency Cohort (CRIC) Study	93.847	UNIVERSITY OF ILLINOIS AT CHICAGO	16587-00			107,047	107,047
Identification - Validation of Prognostic Biomarkers in Chronic Kidney Disease	93.847	UNIVERSITY OF MICHIGAN	3003823855			6,704	6,704
Identifying kidney cell phenotype factors using single cell RNA sequencing	93.847	UNIVERSITY OF SOUTHERN CALIFORNIA	84029069			158,760	158,760
Identifying Modifiable Biomarkers/Mediators for Cardiovascular Disease in Chronic Kidney Disease	93.847	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	9644sc			101,997	101,997
IMMUNE REGULATION AND CO-STIMULATION IN TREATMENT OUTCOME OF CHRONIC HEPATITIS B	93.847		5-U01-DK-082866-06		4,706		4,706
Infant Growth and Microbiome Study 2	93.847	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200040820			245,789	245,789
Innovative Genetic Approaches for Hepatic Repopulation	93.847		1-R01-DK-102667-01A1		448,890		448,890
Integrated Islet Distribution Program	93.847	BECKMAN RESEARCH INSTITUTE OF THE CITY OF HOPE	50578.914951.6560			43,825	43,825
Integrating cellular metabolic pathways into browning of white fat	93.847		1-R01-DK-107667-01A1		376,467		376,467
Integrative genomic, epigenetic and functional studies in diabetic kidney disease	93.847	BROAD INSTITUTE OF MIT AND HARVARD	5000110-5500000842			65,471	65,471
Integrative metabolic adaptions to environmental and nutritional challenge	93.847		5-P01-DK-049210-19		1,399		1,399
Integrative metabolic adaptions to environmental and nutritional challenge	93.847		4-P01-DK-049210-20	180,113	212,332		212,332
Integrative Nutrigenomic and Metabolomic Analyses of Africans with Variable Diets	93.847		1-R01-DK-104339-01	77,651	345,652		345,652
Interplay of IMP1 and autophagy in intestinal barrier function and tumorigenesis	93.847		1-F32-DK-107052-01		11,275		11,275
Interstitial Cystitis-Examination of the Central Autonomic Network (ICECAN)	93.847	MEDICAL COLLEGE OF WISCONSIN	SUB TO 5R01DK083538			10,389	10,389
Investigating the role of Pdx1 in coordinating translational regulation in pancreatic beta cells	93.847		1-F30-DK-105758-01		23,453		23,453
Is there a digital divide in chronic kidney disease (CKD)	93.847	DUKE UNIVERSITY	3020695			20,001	20,001
Islet Dysregulation in infants with Congenital Hyperinsulinism	93.847	CHILDREN'S HOSPITAL OF PHILADELPHIA	2042004l9			58,293	58,293
MAPP Research Network	93.847		2-U01-DK-082316-07	423,895	2,072,322		2,072,322
Measures of Fibrosis and Clinical Outcomes in Chronic Kidney Disease	93.847		1-R01-DK-104730-01		201,520		201,520
Mechanisms by Which IUGR Leads to Diabetes	93.847		1-R01-DK-114054-01	77,881	421,855		421,855
Mechanisms by which Obesity in Pregnancy Leads to Obesity in Offspring	93.847		1-R01-DK078761-01A2		-8,252		-8,252
Mechanisms of bile duct reprogramming	93.847		2-R01-DK-083355-06A1	138,824	781,607		781,607
Mediators & Prognostic Value of Muscle Mass & Function in Chronic Kidney Disease	93.847	YALE UNIVERSITY	M15A12103(A10152			9,070	9,070
Menin/MLL promotes cell survival in the setting of EGFR inhibition	93.847		1-K08-DK-106489-01		174,099		174,099
Metabolomics of CKD and CKD Progression	93.847	MASSACHUSETTS GENERAL HOSPITAL	Sub to U01DK106981			135,611	135,611
MIND the Kidneys	93.847	STANFORD UNIVERSITY	60233474-51126-G			34,891	34,891
MIND the Kidneys	93.847		60120672-51126-B			86,806	86,806
Mitotic chromatin and implications in erythroid transcriptional regulation	93.847		1-F30-DK-108469-01		6,892		6,892
Models for Optimal Liver Transplant Outcomes	93.847	STANFORD UNIVERSITY	60896108-116817			84,113	84,113
Molecular Stable Isotope Profiles of Dietary Exposure (MoSIPDE)	93.847	UNIVERSITY OF ALASKA FAIRBANKS	Sub to R01DK109946			84,205	84,205
Molecular Therapy for Cystic Fibrosis	93.847		2-P30-DK-047757-21	132,031	438,202		438,202
Muscle Accrual and Function in Cystic Fibrosis-Impact of Glucose Intolerance	93.847	CHILDREN'S HOSPITAL OF PHILADELPHIA	3258760720			7,020	7,020
Nephrotic Syndrome Rare Disease Clinical Research Network II	93.847	UNIVERSITY OF MICHIGAN	3003289619			37,556	37,556
Nephrotic Syndrome Rare Disease Clinical Research Network II	93.847		SUB TO 1U54DK083912			-2,281	-2,281
Networks for functional regulation of pancreatic acinar-ductal metaplasia and epithelial plasticity	93.847		2-R01-DK-060694-15		316,886		316,886
Neural hierarchy in the modulation of ingestive behavior	93.847		4-R01-DK-021397-39	35,072	286,871		286,871
Neural mechanisms of nausea, vomiting, and energy balance dysregulation in animal models	93.847		1-R01-DK-112812-01	38,249	351,730		351,730
Neuroendocrinology of energy balance control	93.847		4-R01-DK-096139-05		42,055		42,055
NIDDK Mentored Research Scientist Development Award	93.847		7-K01-DK-102868-02		121,362		121,362
Noninvasive subharmonic aided pressure estimation of portal hypertension	93.847	THOMAS JEFFERSON UNIVERSITY	080-30000-S09201			77,497	77,497
Novel Diagnostics and Therapeutic Targets for Calcification in CKD	93.847	NORTHWESTERN UNIVERSITY	60044864			84,558	84,558
Novel Kidney Injury Tools in Deceased Organ Donation to Predict Graft Outcome	93.847	YALE UNIVERSITY	M17A12557(A10910)			34,344	34,344
Nuclear hormone receptors in adipocyte differentiation	93.847		2--23		456,755		456,755
Oxalate and the Progression and Complications of CKD	93.847	BRIGHAM AND WOMEN'S HOSPITAL	113077			64,772	64,772
Pathophysiological role of Prorenin in CKD	93.847	UNIVERSITY OF UTAH	10030258-00			311,180	311,180
Patient Oriented Research in Kidney Disease	93.847	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	7521SC			-28	-28
PATTERNS AND IMPLICATIONS OF FUNCTIONAL DECLINE AMONG KIDNEY TRANSPLANT CANDIDATES	93.847	DREXEL UNIVERSITY	232664			3,887	3,887
Penn integrated Human Pancreas procurement and Analysis Program	93.847		1-UC4-DK-112217-01		4,094,741		4,094,741
Primary Outcomes in Glomerulonephritis Study (PROGRESS)	93.847		1-UM1-DK-100846-01	1,184,066	1,527,886		1,527,886
Prospective renal insufficiency cohort evaluation: PRICE	93.847		2-U01-DK-060984-13		684,958		684,958
Psychopathology, Disordered Eating, and Impulsivity as Predictors of Outcomes of Bariatric Surgery	93.847	TEMPLE UNIVERSITY	258377-UPENN			128,801	128,801
Psychosocial Determinants of Urinary Stone Disease	93.847	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200400817			267,239	267,239
Randomized study of daytime vs. delayed eating: Effect on weight and metabolism	93.847		1-R21-DK-100787-01		-37,715		-37,715
Regulation and function of the MEG3 locus in human beta-cells	93.847		2-R01-DK-088383-05		357,722		357,722
Regulation of adipose tissue inflammation by the miR-181 family	93.847		1-R21-DK-111755-01		185,769		185,769
Regulation of brown and beige adipocyte development through Ebf2	93.847		1-R01-DK-103008-01		89,962		89,962
Regulation of brown and beige adipogenesis by the histone reader DPF3	93.847		1-F31-DK-108507-01		29,819		29,819
Regulation of esophageal gene expression and function by KLF5 and p53	93.847		4-R01-DK-101294-04		18,240		18,240
Regulation of T cell differentiation during enteric viral infection	93.847		4-K08-DK-097301-05		33,824		33,824
Regulatory cascades in gastrointestinal proliferation	93.847		4-R37-DK-053839-19		-4,010		-4,010
Regulatory cascades in gastrointestinal proliferation	93.847		4-R37-DK-053839-20		489,450		489,450
Renal Research Training Program	93.847		2-T32-DK-007006-42		278,443		278,443
Research Regulation of Mature Beta Cell Function by the Transcription Factor FoxM1	93.847		1-R01-DK-110183-01A1		206,911		206,911
Residual beta cell function in patients with long-term Type1 diabetes (C-Peptide)	93.847	CASE WESTERN RESERVE UNIVERSITY	RES509457			2,371	2,371
Role of EGFR signaling in bone formation and the anabolic actions of PTH	93.847		4-R01-DK-095803-04		208,593		208,593
Role of the Notch Pathway in Kidney Injury	93.847		2-R01-DK-076077-06		96,146		96,146
Role of trans-endothelial fatty acid transport in insulin resistance	93.847		1-F31-DK-111091-01		41,848		41,848
Slit Diaphragm and Actin Dynamics	93.847		4-R01-DK-080751-10		269,409		269,409
Stem Cell Mobilization and Diabetic Skin Ulcers	93.847	UNIVERSITY OF MARYLAND	8875			27,657	27,657
Targeting NAD Metabolism to Improve Glucose Homeostasis in Obesity and Aging	93.847		1-R01-DK-098656-01A1	-1,991	-1,991		-1,991
Targeting NAD Metabolism to Improve Glucose Homeostasis in Obesity and Aging	93.847		4-R01-DK-098656-04	19,221	276,374		276,374
TGF-beta, matrix, and myofibroblasts in hepatic fibrosis	93.847		4-R01-DK-058123-15		241,108		241,108
The Gut Microbiome and The Metabolome in Chronic Kidney Disease	93.847		1-R01-DK-107566-01A1	44,948	335,103		335,103
The identification and characterization of a novel circadian ETS factor	93.847		1-F30-DK-112507-01		8,266		8,266
The Impact of Healthy Food Marketing Strategies In Supermarkets	93.847		1-R01-DK-101629-01A1	25,882	825,766		825,766
The LIN28B-Let7 axis in intestinal epithelial biology	93.847		2-R01-DK-056645-14A1		65,570		65,570
The role of Prdm16 in maintaining small intestinal crypt integrity	93.847		1-F32-DK-105743-01		54,366		54,366
Thyroid hormone receptors - regulation and function	93.847		4-R37-DK-043806		550,983		550,983
Towards Precision Medicine in Childhood Acquired Aplastic Anemia	93.847	CHILDREN'S HOSPITAL OF PHILADELPHIA	Activity #3210590715/PO# 961757 - R			10,486	10,486
Tracing transcriptomic changes to uncover unknown roles of TZDs	93.847		1-R01 DK-106027-01		315,556		315,556
Training Program in Gastrointestinal Sciences	93.847		2-T32-DK-007066-41		381,236		381,236
Transcriptional and epigenomic control of adipose tissue development and function	93.847		4-R01-DK-098542-04		308,044		308,044
Tubular Secretion in Chronic Kidney Disease	93.847	UNIVERSITY OF WASHINGTON	UWSC 9063			40,397	40,397
Undergraduate training in gastrointestinal sciences	93.847		2-R25-DK-066028-11		86,503		86,503
Unique and overlapping functions of BET proteins during erythroid differentiation	93.847		1-F30-DK-112573-01		31,669		31,669

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
University of Pennsylvania Diabetes Research Center	93.847		4-P30-DK-019525-40	83,882	84,051		84,051
University of Pennsylvania Diabetes Research Center	93.847		2-P30-DK-019525-41	235,514	2,123,954		2,123,954
University of Pennsylvania+ PLUS Clinical Center (PENN+PLUS CC)	93.847		1-U01-DK-106892-01	149,741	449,916		449,916
Urological and Renal Disease Engaging Adolescents in Adherence Collaborative Trial	93.847	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200370521 I PO# 962245 - RSUB			125,873	125,873
Visceral Adiposity and Fitness Among CRIC Participants (Phase 3)	93.847	BAYLOR COLLEGE OF MEDICINE	SUB TO R01DK101500			255,745	255,745
Visceral Adiposity and Physical Fitness in CKD	93.847	BAYLOR COLLEGE OF MEDICINE	5-R01-DK-101500-05			110,439	110,439
Vitamin D catabolism in chronic kidney disease	93.847	UNIVERSITY OF WASHINGTON	762370			41,270	41,270
Vitamin K status, CVD and arterial stiffness in chronic kidney disease	93.847	TUFTS UNIVERSITY	101517-00002			85,426	85,426
Whole-exome sequencing study of diabetic nephropathy	93.847	TULANE UNIVERSITY	TUL-HSC-553788-15/16			33,003	33,003
SIGNALING CROSSTALK AND THYROID CELL SURVIVAL	93.847		1-R01-DK-055757-01A1		-453		-453
Biophysical Properties of Renal Glomeruli and Podocytes	93.847	UNIVERSITY OF TEXAS	GMO140908 / RGC0000000436			61	61
The role of nuclear receptor ERRg in kidney biology and disease	93.847	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200530322			11,819	11,819
The role of AGRP neurons in mediating food intake, valence, and obesity	93.847		1-F32-DK-112561-01		57,185		57,185
Self-Management in Chronic Kidney Disease	93.847		1-F32-DK-113681-01A1		64,587		64,587
Center for Molecular Studies in Digestive and Liver Diseases	93.847		2-P30-DK-050306-21	20,000	1,173,671		1,173,671
Regional Cholangiocyte Stress Responses in Biliary Disease	93.847		1-R01-DK-111547-01A1		291,074		291,074
Developing and Validating Prognostic Metabolomic Signatures of Diabetic Kidney Diseases	93.847	UNIVERSITY OF CALIFORNIA, SAN DIEGO	89351749			4,723	4,723
Undergraduate Clinical Scholars Program: Pathway to Clinical Research Careers	93.847		1-R25-DK-108711-01A1		81,636		81,636
Role of Bacterial Urease in Host and Gut Microbiota Amino Acid Metabolism	93.847		1-K08-DK-106457-01A1		147,669		147,669
Cellular targets of acute and chronic strains of MNV	93.847		1-R03-DK-110397-01A1		87,049		87,049
Deconstructing the neural control of food seeking	93.847		1-R01-DK-114104-01		361,453		361,453
Waiting List and Kidney Transplant Outcomes for Patients with Hepatitis C Infection	93.847		1-R21-DK-108045-01A1	30,357	268,330		268,330
The role of progenitor cells in pancreatic acinar renewal and pre-malignant progression	93.847		1-K08-DK-109492-01A1	3,033	198,808		198,808
Molecular Control of Muscle Fuel Metabolism	93.847		2-R01-DK-045416-23A1		359,338		359,338
Elucidating Redox Regulation in the Repopulating Liver	93.847		1-F31-DK-113666-01A1		40,232		40,232
Functional testing of candidate HSC-derived Islet Cells	93.847	UNIVERSITY OF CALIFORNIA, SAN DIEGO	87022754			3,886	3,886
Impact of Daytime vs. Delayed Eating Schedule on Weight and Metabolic Markers Among Obese Persons: An Examination of Circadian Mechanisms	93.847		1-R01-DK-117488-01	31,411	319,370		319,370
Clinical and molecular epidemiology of acute kidney injury after lung transplant	93.847		1-R01-DK-111638-01A1	74,416	354,677		354,677
Communicating the Health Risks of Sugar-Sweetened Beverages	93.847		1-R01-DK-111558-01A1	82,575	424,192		424,192
Astrocytes mediate GLP-1 effects on energy balance	93.847		1-R56-DK-115762-01		189,975		189,975
Autophagy and esophageal tissue remodeling in EoE	93.847		1-R01-DK-114436-01		201,867		201,867
Drivers and consequences of beta cell DNA damage in type 1 diabetes	93.847		1-UC4-DK-116271-01		183,408		183,408
Impact of Synthetic Dietary Emulsifier CMC on Human Microbiota and Metabolism	93.847	GEORGIA STATE UNIVERSITY	SP00013024-01			38,085	38,085
The LIN28b-Let7-IMP1 axis in colonic epithelial biology	93.847		2-R01-DK-056645-17A1		208,163		208,163
CHOP Pediatric Center of Excellence in Nephrology	93.847	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200950818-XX/P 962748 -RSUB			60,895	60,895
A pilot trial of targeting out-of-dialysis unit vs. dialysis-unit blood pressure	93.847	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	10256SC			7,768	7,768
Effects of Type 1 Diabetes on Brain Structure and Neurochemistry: Proposed Study of the Epidemiology of Diabetes Interventions and Complications (EDIC) Cohort	93.847	WINTHROP-UNIVERSITY HOSPITAL	3500-07429 (PENN)			137,272	137,272
Characterization of the Role of Dlx1 and Dlx2 in the Enteric Nervous System	93.847		1-F30-DK-117546-01		12,144		12,144
Cortisol Synthesis Enzymes as Tissue Biomarkers for Diabetic Foot Ulcers	93.847	UNIVERSITY OF MIAMI	SPC-000434			6,588	6,588
A New Immunodeficient Mouse Model With Stable Hyperglycemia for the Study of Human Beta-Cells	93.847	BECKMAN RESEARCH INSTITUTE OF THE CITY OF HOPE	51504.2000556.669316			1,594	1,594
APOL1 Long-term Kidney Transplantation Outcomes (APOLLO) Network - Columbia Scientific and Data Research Center (Columbia SDRC)	93.847	COLUMBIA UNIVERSITY	1(GG011642-01)			25,597	25,597
Single cell transciptomics of diabetic kidney disease	93.847	AUGUSTA UNIVERSITY	32307-15			6,608	6,608
Social Network Interventions to Reduce Race Disparities in Living Kidney Donation	93.847	PENNSYLVANIA STATE UNIVERSITY	5821-UP-DHHS-4888			7,553	7,553
Psychological, cognitive, and genetic factors in a behavioral intervention to prevent weight gain	93.847	MASSACHUSETTS GENERAL HOSPITAL	231761			28,913	28,913
Developing technology-based approaches to improve access and quality of care in cirrhosis	93.847		1-K23-DK-115897-01		46,864		46,864
Role of Notch pathway in kidney injury	93.847		2-R01-DK-076077-10		40,835		40,835
Can genomic mosaicism explain the lobular nature of type 1 diabetes	93.847	BECKMAN RESEARCH INSTITUTE OF THE CITY OF HOPE	51504.2000556.669317			6,991	6,991
Mechanisms of high fat diet-induced circadian hepatic transcription and lipid metabolism reprogramming	93.847		1-F32-DK-116519-01A1		12,155		12,155
Role of ACTG2 Mutations in Visceral Myopathy	93.847		1-F30-DK-118827-01		2,027		2,027
Molecular Mechanisms of Toxin-induced Biliary Atresia	93.847		1-K08-DK-107910-01A1		162		162
Integrative Physiology of Thyroid Hormone Receptors and Nuclear Receptor Corepressors	93.847		2R01DK043806-28		552		552
93.847 Total				**4,520,002**	**43,514,455**	**5,073,271**	**48,587,726**
NATIONAL INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES/NIH/DHHS Total				4,520,002	43,514,455	5,073,271	48,587,726
NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES/NIH/DHHS							
African Odyssey: An Integrative Genomics Analysis of Complex Physiologic Traits	93.113		1-DP1-OD-006445-01		168		168
Center of Excellence in Environmental Toxicology	93.113		2-P30-ES-013508-10		1,629,223		1,629,223
Epigenetic Signatures of Developmental Reprogramming in Target and Surrogate Tissues	93.113	BAYLOR COLLEGE OF MEDICINE	PO #7000000399			98,092	98,092
INGOT: a family of statistical computing algorithms for hypothesis-driven imaging genomic and longitudinal neuroimaging analysis	93.113		1-K01-ES-026840-01		94,700		94,700
Paternal exposure to dioxins and offspring sex ratio distortion	93.113		1-R21-ES-024527-01		-12,835		-12,835
Protein kinase C and lung carcinogenesis	93.113		1-R01-ES-026023-01		364,259		364,259
Selective inhibitors of ubiquitin E3 ligase to treat high cholesterol	93.113	PROGENRA, INC.	RES025600A			-5,490	-5,490
Steer and trees summer research programs	93.113		4-R25-ES-021649-04		48,148		48,148
Transgenerational effects of endocrine disruptors: epigenetics and physiology	93.113		4-R01-ES-023284-04		384,191		384,191
Translational Research Training Program in Environmental Health Sciences	93.113		1-T32-ES-019851-01A1		431		431
Translational Research Training Program in Environmental Health Sciences	93.113		2-T32-ES0-19851-06		356,638		356,638
Preconception phthalate exposure and offspring outcomes	93.113		1-R01-ES-028206-01		393,715		393,715
Steer and trees summer research program	93.113		2R25ES021649-06		34,204		34,204
Prenatal Environmental Exposures and Reproductive Hormone Concentrations (PERCH)	93.113	SEATTLE CHILDREN'S HOSPITAL RESEARCH INSTITUTE	SUB TO 1R21ES023883-01			-6	-6
Mechanisms regulating the early stages of UV-induced skin cancer	93.113		1-R01-ES-028114-01A1		59,804		59,804
93.113 Total					**3,352,646**	**92,596**	**3,445,242**
Asbestos fate, exposure, remediation, and adverse health effects	93.143		1-P42-ES-023720-01	170,118	1,869,625		1,869,625
93.143 Total				**170,118**	**1,869,625**		**1,869,625**
NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES/NIH/DHHS Total				170,118	5,222,271	92,596	5,314,867
NATIONAL INSTITUTE OF GENERAL MEDICAL SCIENCES/NIH/DHHS							
Combating Bacterial Drug Resistance by Targeting the Enzymes of Evolution	93.310		1-DP2-GM-105444-01		59,291		59,291
93.310 Total					**59,291**		**59,291**
A Novel Mechanistic Paradigm for Cross-Coupling	93.859		1-R01-GM-113878-01		327,744		327,744
Alternative macrophage activation limits immunopathology	93.859		7-R01-GM-083204-09		254,608		254,608
An unexpected signaling output for the tumor suppressor APC	93.859		1-R01-GM-115517-01A1		393,428		393,428
Analysis of Septin Structure and Function	93.859		1-R01-GM-116876-01A1		419,883		419,883
Angstrom-scale structural dynamics of potassium channel	93.859		2-R01-GM-055560-18A1		451,788		451,788
Arylation of Weakly Acidic sp3 Hybridized C-H's	93.859		4-R01-GM-104349-04		-3,836		-3,836
Basis for genotoxic stress relief by ATP-dependent chromatin remodelers	93.859		1-R01-GM-115888-01		5,391		5,391
Biogenesis of voltage-gated K+ channels	93.859		2-R01-GM-052302-21		438,566		438,566
Biological super-resolution imaging using high-index microspheres for cancer research application	93.859	SPHEREVIS, LLC	sub to R41GM117844			8,119	8,119
Catalytic Oxidative Fragment Coupling Reactions	93.859		1-R01-GM-112684-01A1		378,574		378,574
Cell biology of meiotic drive in mammals	93.859		4-R01-GM-107086-04		189,202		189,202

University of Pennsylvania
Schedule of Expenditures
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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Centromere Identity and Function	93.859		4-R01-GM-082989-09		14,973		14,973
Centromere Identity and Function	93.859		2-R01-GM-082989-10		338,886		338,886
CG-GRID: Computational Genetics Grid Resource for Interaction Discovery	93.859	PARABON COMPUTATION, INC.	20150301-PCI-STTR-UPENN-051-001			-829	-829
Clinical Pharmacoepidemiology Training Grant	93.859		2-T32-GM-075766-11		266,500		266,500
Competition and morphogenesis in tip cell-mediated branching of tubular networks	93.859		2-R01-GM-089782-06		236		236
Computational genome-wide RNA profiling using next-generation sequencing	93.859		4-R01-GM-099962-05		18,843		18,843
Computational Methods for Selective Catalysis	93.859		2-R01-GM087605-04A1		308,546		308,546
Coupling kinetochore microtubule dynamics to chromosome motion	93.859		4-R01-GM-098389-05		46,443		46,443
Coupling kinetochore microtubule dynamics to chromosome motion	93.859		2-R01-GM-098389-06		294,659		294,659
Cytoskeletal Mechanisms of Endocytosis	93.859		4-R01-GM-095977-04		653		653
Cytoskeletal Motors and Scaffolds in Membrane Dynamics and Motility	93.859		2-P01-GM-087253-11		1,567,528		1,567,528
Defining the mechanistic basis of a prion disaggregase	93.859		2-R01-GM-099836-05		332,978		332,978
Defining the role of conformational entropy in high affinity protein interactions	93.859		1-F32-GM-117878-01A1		56,752		56,752
DNA Double Strand Break Chromatin Alterations and Genome Integrity	93.859		2-R01-GM-101149-05		484,509		484,509
Dorsal-Ventral Pattern Formation in the Zebrafish Embryo	93.859		2-R01-GM-056326-18		497,128		497,128
Dual-Action Virolytic Entry Inhibitors Against HIV-1	93.859	DREXEL UNIVERSITY	232511			164,497	164,497
Dynamics & energetics of p38a kinase regulation by ligands	93.859		4-R01-GM-100910-04	253	1,040		1,040
Electrophysiology of nuclear membrane InsP3 receptor	93.859		4-R37-GM-056328-18		572,195		572,195
Engagement of heterotrimeric G proteins by Sonic hedgehog	93.859		2-R01-GM-080396-05A1	135,000	231,289		231,289
Enhancer memory and dynamics of H. saltator reproductive plasticity	93.859		1-F32-GM-120933-01A1		56,784		56,784
Epigenetic mediated long-term aberrations in myeloid cells after critical illness	93.859		1-K23-GM-120630-01A1		170,228		170,228
Evolutionary and functional diversification of chromatin proteins	93.859		4-R00-GM-107351-03		209,944		209,944
Examining the role of Clk1/NDR kinase in regulating mRNA localization	93.859		4-R01-GM-097327-04		-601		-601
Exploring the molecular mechanisms of TET1 in genomic imprinting	93.859		1-F31-GM-119271-01		32,079		32,079
Functional characterization of piRNPs	93.859		2-R01-GM-072777-10		373,003		373,003
Genetic analysis of a developmental clock in Arabidopsis thaliana	93.859		4-R01-GM-051893-19		28,111		28,111
Genomics of rapid adaptation on seasonal timescales in D. melanogaster	93.859		2-R01-GM-100366-05		311,327		311,327
Graduate training in systems and integrative biology	93.859		4-T32-GM-007517-39		355,290		355,290
In Vivo Translational Analysis in Neurons	93.859		1-R01-GM-110005-01		250,230		250,230
Integrative Genomics of Body Size and Metabolism in Ethnically Diverse Africans	93.859		1-R01-GM-113657-01		338,436		338,436
Interaction of Inhaled Anesthetics with Macromolecules	93.859		4-P01-GM-055876-17	947,576	1,392,755		1,392,755
Interaction of Inhaled Anesthetics with Macromolecules	93.859		2-P01-GM-055876-14A1		-514		-514
Intersections of Sleep and Coma: Neural Pathways of Alpha-2 Adrenergic Hypnosis	93.859		1-K08-GM-123317-01		194,671		194,671
Investigating a mechanism for loss of competence during embryonic development	93.859		1-F31-GM-116588-01		2,309		2,309
Large Serine Recombinase Mechanisms	93.859		1-R01-GM-108751-01		155,223		155,223
Light-activated oligonucleotides for biological applications	93.859		2-R01-GM-083030-06A1		208,822		208,822
Mechanism of blood pressure lowering by fatty acid nutraceuticals	93.859		1-R01-GM-121375-01		500,242		500,242
Mechanism of Chromatin Accessibility Mediated by Pioneer Transcription Factors	93.859		1-F31-GM-112417-01A1		33,081		33,081
Mechanism of U1 snRNPs suppression of premature cleavage & polyadenylation	93.859		1-R01-GM-112923-01		337,512		337,512
Mechanisms Establishing Oocyte Polarity	93.859		1-R01-GM-117981-01		249,114		249,114
Mechanisms integrating lineage history with fate specification in C. elegans	93.859		4-R01-GM-105676-04		192,619		192,619
Mechanisms of Anesthesia Mediated Neurotoxicity	93.859		2-R01-GM-084979-06A1	11,570	395,990		395,990
Mechanisms of Balbiani body-generated early oocyte polarity in zebrafish	93.859		1-F31-GM-115066-01		1,394		1,394
Mechanisms of Cellular Stress-Induced Sleep	93.859		1-R01-GM-123783-01A1		234,116		234,116
Mechanisms of DNA synthesis during alternative lengthening of telomeres	93.859		1-F30-GM-120905-01		29,252		29,252
Mechanisms of spindle formation	93.859		1-R01-GM-102215-01		21,710		21,710
Mechanistic Analysis of Cytokinesis in Eukaryotes	93.859		1-R01-GM-115420-01		354,378		354,378
Medical Scientist Training Program	93.859		2-T32-GM-007170-39		2,331,526		2,331,526
Membrane shape transition control in cellular membrane trafficking phenomena	93.859		2-R01-GM-097552-06		352,420		352,420
Mitochondria-cytoplasm interactions for cytosolic Fe-S cluster assembly	93.859	UNIVERSITY OF MEDICINE AND DENTISTRY OF NJ	8159			107,378	107,378
Modeling how keystone individuals emerge and influence disease	93.859	UNIVERSITY OF CALIFORNIA, LOS ANGELES	0830 G UA376			86,961	86,961
Molecular analysis of methylated p53	93.859	UNIVERSITY OF COLORADO	SUB TO 3 R01-GM101664			-179	-179
Molecular and Architectural Mechanisms of Reprogramming to Pluripotency	93.859	UNIVERSITY OF CALIFORNIA, LOS ANGELES	1445 G UE023			451,183	451,183
Molecular function of Myosin-I	93.859		2-R37-GM-057247-18	32,311	511,383		511,383
Molecular Mechanisms and inhibition of Protein Acetyltransferases	93.859		1-R35-GM-118090-01		771,135		771,135
Molecular Mechanisms and Signal-Induced Regulation of Alternative Splicing	93.859		1-R35-GM-118048-01		734,671		734,671
Molecular mechanisms of ER luminal [Ca2+] modulation of InsP3R channel activity	93.859		1-R01-GM-114042-01A1		299,777		299,777
Molecular mechanisms of mitochondrial DNA deletion formation	93.859	UNIVERSITY OF PITTSBURGH	0047527 (125989-2)			21,552	21,552
Molecular Mechanisms of Protein Arginylation	93.859		1-R01-GM-104003-01A1		-50		-50
Molecular Mechanisms of Protein Arginylation	93.859		4-R01-GM-104003-04	33,304	87,026		87,026
Molecular Regulation of Exocytosis	93.859		1-R01-GM-111128-01		207,457		207,457
Multifaceted roles of nonmuscle myosin II in cell adhesion and migration	93.859		2-R01-GM-095977-05	5,971	331,611		331,611
NEURONAL BASIS UNDERLYING VOLATILE ANESTHETIC INDUCED HYPNOSIS	93.859		1-R01-GM-088156-01A1		-196		-196
Neurophysiological Basis of General Anesthesia	93.859		7-K08-GM-106144-04		88,291		88,291
Non-Organometallic Partners as Radical Precursors for the Diversification of Dual Catalytic Cross-Coupling Processes	93.859		1-F32-GM-117634-01		59,376		59,376
Non-Parametric Bayesian Methods for Causal Inference	93.859		1-R01-GM-112327-01	354,293	541,591		541,591
Novel Borazines: Syntheses and Elaboration	93.859		1-R01-GM-111465-01A1		218,094		218,094
Novel Organoboron Chemistry Utilizing Tetrahydroxydiborane	93.859		2-R01-GM-081376-05		-1		-1
Optoanesthesia	93.859		1-R01-GM-107117-01A1		318,981		318,981
Oxygen-dependent bacterial signaling	93.859		2-R01-GM080279-09		171,365		171,365
Physician Postdoctoral Research Training in Perioperative Medicine (PPRTPM)	93.859		1-T32-GM-112596-01		206,731		206,731
Predoctoral Training at the Chemistry-Biology Interface	93.859		2-T32-GM-071339-11	7,750	244,476		244,476
Predoctoral Training Grant in Pharmacology	93.859		2-T32-GM-008076-30		508,790		508,790
Predoctoral Training Program in Genetics	93.859		2-T32-GM-008216-28		360,110		360,110
Primordially conserved principles governing mucosal immune responses to pathogens and microbiota	93.859		2-R01-GM-085207-05	27,466	305,086		305,086
Protein structure and function by hydrogen exchange mass spectrometry analysis	93.859		2-R01-GM031847		297,425		297,425
Ras Signaling and Tubulogenesis in the C. elegans Excretory (renal) System	93.859		2-R01-GM-058540-14		440,455		440,455
Regulation and Function of Intermediate Filaments in Cell Mechanics	93.859	NORTHWESTERN UNIVERSITY	60029186UP			94,749	94,749
Regulation and functions of non-polyadenylated mRNAs and circular RNAs	93.859		1-R35-GM-119735-01		472,212		472,212
Regulation of actin during cell migration	93.859		1-R01-GM-108744-01		192,068		192,068
Regulation of cell division by mitotic kinases	93.859		2-R01-GM-083988-06A1		205,111		205,111
Regulation of meiosis in mice	93.859		1-R35-GM-118052-01		657,621		657,621
Respiratory Complex III: Supercomplexes and ROS, from Bacteria to Human	93.859		2-R01-GM-038237-27A1		307,105		307,105
Role of Mitochondria-Targeted CYP2D6 in Chemical Toxicity	93.859		2-R01-GM-034883-27A1	34,839	312,339		312,339
Semi-parametric joint models for longitudinal and time to event data	93.859		4-R01-GM-104470-04		104,120		104,120
Sequences controlling H19 Gene Imprinting	93.859		4-R37-GM-051279-23		383,314		383,314
Single Molecule Dynamics of mRNA Translation	93.859		4-R01-GM-080376-08		14,775		14,775
Site-resolved hydration dynamics of PDZ domains	93.859		1-F31-GM-116520-01		30,857		30,857
Spatial control of actin assembly by phosphoinositides	93.859		1-R01-GM-111942-01A1		556,192		556,192
Spatiotemporal regulation of mechanical networks drives coordinated epithelial cell shape changes	93.859		1-F31-GM-117708-01A1		30,845		30,845
Spectroscopic Study of Protein Folding Dynamics	93.859		2-R01-GM-065978-10		-1,119		-1,119

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Statistical Methods for Transcriptome Profiling Using RNA Sequencing	93.859		1-R01-GM-108600-01A1		165,661		165,661
Stem Cell Renewal and Differentiation in Spermatogenesis	93.859		2-R01-GM-060804-17		405,427		405,427
Structural Basis of Actin Cytoskeleton Dynamics	93.859		2-R01-GM-073791-10		268,723		268,723
Structural biology & molecular biophysics training program	93.859		2-T32-GM-008275-26		354,481		354,481
StructuraL Dynamics of Actomyosin Motility	93.859		4-R01-GM-086352-35	8,243	28,683		28,683
Structural Dynamics of Molecular Motors and the Ribosome	93.859		1-R35-GM-118139-01		462,934		462,934
Structure and Function of Biosynthetic Enzymes	93.859		2-R01-GM-056838-17		297,362		297,362
Structure and Function of Metalloenzymes	93.859		2-R01-GM-049758-20A1		333,627		333,627
Structure and Function of Metalloenzymes	93.859		2-R01-GM-049758-24		87,944		87,944
Structure determination by Vibrational Spectroscopy	93.859		2-R01-GM-076201-08A1		345,599		345,599
Structure-based antagonism of HIV-1 envelope function in cell entry	93.859	DREXEL UNIVERSITY	2-P01-GM-056550-17A1			317,932	317,932
Structure-Based Design of Xe-129 NMR Biosensors for Multiplexed Cancer Detection	93.859		2-R01-GM-097478-05	1,046	369,169		369,169
Targeting Nucleic Acid Junctions with Small Molecules	93.859		1-R01-GM-118510-01		455,239		455,239
The dynamic association of Aurora B with centromeric chromatin	93.859		1-R01-GM-105654-01A1		365,637		365,637
The Impact Of Surgery-Induced Neuroinflammation On Tau Pathology And Function	93.859	COLUMBIA UNIVERSITY	1(GG011920)			14,406	14,406
The Interaction of Cytoplasmic Dynein and Dynactin	93.859		2-R01-GM-048661-22		382,858		382,858
The mechanism and modulation of 5-methylcytosine oxidation by TET family enzymes	93.859		1-R01-GM-118501-01A1	11,776	371,892		371,892
The role of p53 family members in epithelial lineage establishment and maintenance	93.859		1-F31-GM-123744-01		44,358		44,358
The Role of the Exocyst in Cell Migration	93.859		4-R01-GM-085146-09		758		758
The role of YY1 in constitutive and inducible DNA loop formation	93.859		1-R01-GM-111384-01		345,848		345,848
Training Program in Cell and Molecular Biology	93.859		2-T32-GM-007229-38A1		469,404		469,404
Trans-acting Factors Causing Cell Specific Gene Control	93.859		2-R01-GM-036477-33		247,599		247,599
Ultrafast Optical Processes Laboratory	93.859		9-P41-GM-104605-31		273,315		273,315
Uncovering the localization and mechanism of RNA editing	93.859		1-F32-GM-120929-01A1		53,951		53,951
Understanding protein radicals	93.859		2-R01-GM-079190-06A1		381,790		381,790
Understanding the Role of Combinatorial Histone PTM Patterns	93.859		1-R01-GM-110174-01		234,266		234,266
University of Pennsylvania Postdoctoral Opportunities in Research and Teaching	93.859		2-K12-GM-081259-06	6,000	84,782		84,782
University of Pennsylvania Postdoctoral Opportunities in Research and Teaching	93.859		2-K12-GM-081259	28,521	845,500		845,500
UPenn Post Baccalaureate Research Education Program	93.859		2-R25-GM-071745-10		357,904		357,904
Using micropost arrays to measure traction forces during dendritic cell motility	93.859		4-R01-GM-104287-04	12,945	32,554		32,554
Water soluble variants of the human mu opioid receptor	93.859		1-R01-GM-111421-01		304,007		304,007
MECHANISMS OF ACTIVATION AND CATALYSIS IN BIOTIN SYNTHASE	93.859		1-R01-GM-059175-01		-594		-594
Molecular Basis of Polarized Exocytosis	93.859		2-R01-GM-064690-06		-402		-402
Genetic regulation of a developmental clock in Arabidopsis	93.859		2-R01-GM-051893-20		368,062		368,062
Examining the Intersection of Transitional Metals and Kinase Signal Transduction Networks	93.859		1-R35-GM-124749-01		373,609		373,609
Exosome Trafficking and Tumor Cell Invasion	93.859		2-R01-GM-085146-09A1		353,043		353,043
Structural Basis of HDAC Substrate Specificity and Inhibition	93.859		1-F32-GM-125141-01		50,491		50,491
The mechanochemical control of T-cell directional migration under flow	93.859		1-R01-GM-123019-01	24,706	221,818		221,818
Maintenance of X-chromosome inactivation during B cell development	93.859		1-F31-GM-123604-01A1		39,948		39,948
Nuclear Pore Complexes As Scaffolds For Genome Architecture And Epigenetic Maintenance	93.859		1-R01-GM-124143-01		286,703		286,703
Privacy-preserving methods and tools for handling missing data in distributed health data networks	93.859		1-R01-GM-124111-01	81,543	325,458		325,458
Merging hydrogen atom transfer processes with photoredox/nickel dual catalysis for the selective functionalization of C(sp3)-H bonds	93.859		1-F32-GM-125241-01		47,551		47,551
Causes and functional consequences of chromatin evolution	93.859		1-R35-GM-124684-01		134,023		134,023
Specialized regulation of non-AUG translation	93.859		1-K99-GM-126064-01		74,960		74,960
Multi-tier regulation of mitochondrial Nfs1 cysteine desulfurase	93.859		1-R01-GM-121717-01A1	36,698	100,058		100,058
Functional and structural studies of the transition from transcription initiation to elongation	93.859		1-R01-GM-123233-01		275,111		275,111
Regulation of opposite Wnt target genes in C. elegans embryonic development	93.859		1-F31-GM-123737-01A1		39,029		39,029
Statistical Methods for Single-Cell Transcriptomics	93.859		1R01GM125301-01	7,035	152,823		152,823
Statistical Methods for Microbiome and Metagenomics	93.859		1-R01-GM-123056-01A1		313,815		313,815
Mediation analysis methods for modeling microbiome mediating arsenic effects on children's health outcomes	93.859	DARTMOUTH COLLEGE	R990			36,014	36,014
Protein Arginylation as a Key Regulator of Cell Migration	93.859		1-R35-GM-122505-01		355,509		355,509
Targeting circulating endothelial glycocalyx fragments to reduce septic encephalopathy	93.859	UNIVERSITY OF COLORADO DENVER	FY18.575.005			15,829	15,829
Regulation of mitochondrial dynamics and homeostasis by cyclic actin assembly/disassembly	93.859		1-F31-GM-123644-01A1		36,128		36,128
Cell biological mechanisms of centromere drive	93.859		1-R35-GM-122475-01		114,146		114,146
Development of Arginine Linkage-Specific Antibodies	93.859	ABZYME THERAPEUTICS, LLC	SUB TO R43GM122126			15,959	15,959
Interpretation of the BMP Morphogen Gradient Patterning the Dorsal-Ventral Axis of the Developing Zebrafish Embryo	93.859		1-F31-GM-123633-01A1		18,423		18,423
Pharmacogenomics of Stain Therapy	93.859	CHILDREN'S HOSPITAL OAKLAND RESEARCH INSTITUTE	12_8036_03			29,738	29,738
The Molecular Basis for the Bacterial SOS Signal	93.859		1-R01-GM-127593-01		26,288		26,288
Mechanisms of Induced Nonsense Suppression and Misreading	93.859		1-R01-GM-127374-01		39,659		39,659
Methods for RNA splicing variations detection, quantification, visualization, and association from large heterogeneous datasets	93.859		1-R01-GM-128096-01		54,007		54,007
Function and RNA-mediated regulation of SCMH1 in Polycomb repression	93.859		1-R01-GM-127408-01		10,118		10,118
Molecular mechanisms of PARP-1 inhibition	93.859		1-F32-GM-128265-01		4,900		4,900
93.859 Total				**1,808,845**	**39,154,937**	**1,363,309**	**40,518,246**
NATIONAL INSTITUTE OF GENERAL MEDICAL SCIENCES/NIH/DHHS Total				1,808,845	39,214,228	1,363,309	40,577,537
NATIONAL INSTITUTE OF MENTAL HEALTH/NIH/DHHS							
1/2-Brain-Behavior and Genetic Studies of the 22q11DS	93.242		1-U01-MH-087626		-60,249		-60,249
1/3-A Neurobehavioral Family Study of Schizophrenia	93.242		2-R01-MH-042191-24A1		173,210		173,210
1/5 International Consortium on Brain and Behavior in 22q11.2 Deletion Syndrome	93.242		1-U01-MH-101719-01	193,517	307,720		307,720
1/9 - Predictors and Mechanisms of Conversion to Psychosis	93.242	YALE UNIVERSITY	C16A122293 (A10323)			151,614	151,614
2/2-- Attaining and Maintaining Wellness in OCD	93.242		2-R01-MH-045404-20		9,344		9,344
3/3: Pedigree-Based Whole Genome Sequencing of Affective and Psychotic Disorders	93.242		1-U01-MH-105634-01	49,640	192,700		192,700
3/5-The Autism Biomarkers Consortium DAAC	93.242	DUKE UNIVERSITY	2831144			6,650	6,650
A Hybrid Effectiveness-Implementation Trial of Group CBT in Urban Schools	93.242	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200290221			34,253	34,253
Aberrant Paranasal Sinus Development in Schizophrenia	93.242		1-R21-MH-108895-01		31,537		31,537
Activity as an endophenotype for genetic studies	93.242		1-R21-MH-103963-01A1		30,569		30,569
Addressing stigma among Black MSM in a mobile phone and internet HIV intervention	93.242	UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL	5105046			13,543	13,543
Animal Model of Genetics and Social Behavior in Autism Spectrum Disorders	93.242		7-R01-MH-096875	51,494	189,439		189,439
Associative Processes in Episodic Memory	93.242		2-R01-MH-055687-21		368,640		368,640
BAR PROTEINS LINKING MEMBRANE AND CYTOSKELETON DYNAMICS	93.242		2-R01-MH-087950-06A1		409,185		409,185
BRAIN Initiative: Integrated Muttimodal Analysis of Cell and Circuit-Specific Processes in Hippocampal Function	93.242	UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN	078288-16142			22,351	22,351
Brain Network Mechanisms of Instructed Learning	93.242	RUTGERS UNIVERSITY	SUB TO R01MH109520			84,929	84,929
Cellular and molecular analysis of startle modulation	93.242		1-R01-MH-109498-01		403,637		403,637
Cognitive Therapy for Suicidal Older Men	93.242		1-R01-MH-086572-01A2		-95		-95
Developing a Women-Focused PrEP Intervention for HIV Prevention	93.242		1-R34-MH-108437-01A1	137,719	276,310		276,310
Developing CBT-informed thespian training curricula for CHR youths	93.242		1-R34-MH-105248-01		28,618		28,618
Development of a Tailored HIV Prevention Intervention for Young Men	93.242		7-R34-MH-101997-03	21,719	153,955		153,955
Developmental Trajectories of Negative Symptoms in Schizophrenia	93.242		1-P50-MH-096891-01	28,174	258,165		258,165
Dimensional connectomics of anxious misery	93.242		1-U01-MH-109991-01		744,348		744,348
ED-SAFE-2: Translating Safety Planning into Practice	93.242	UNIVERSITY OF MASSACHUSETTS	WA00320041/RFS2016010			25,748	25,748
Electrophysiology of Human Spatial Cognition	93.242		2-R01-MH-061975-12A1	196,691	500,572		500,572

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Evaluating the Effects of Autism Insurance Mandates	93.242		4-R01-MH-096848-04	153,641	387,277		387,277
Evolution of the Linked Architecture of Network Control and Executive Function in Adolescence	93.242		1-R21-MH-106799-01A1		222,827		222,827
Feasibility of a Behavioral Activation Trial in Community Mental Health	93.242		1-R34-MH-108818-01	15,279	220,851		220,851
Genomics of Schizophrenia in the South African Xhosa	93.242	COLUMBIA UNIVERSITY	1(GG008292)/PO #G03931			111,111	111,111
Heme Oxygenase-1 as a novel therapeutic target in HIV-mediated neurodegeneration	93.242		1-F30-MH-102120-01A1		-1,262		-1,262
Higher Order Chromatin and Genetic Risk for Schizophrenia	93.242	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI	0255-8051-4609			47,365	47,365
Improving Community Mental Health Services for Adults with ASD and Co-Occurring Psychiatric Disorders	93.242		1-F32-MH-111166-01A1		59,820		59,820
Improving the Emergency Department Management of Deliberate Self-Harm	93.242		1-R01-MH-107452-01A1	311,921	659,341		659,341
Increasing accuracy and efficiency of fidelity measurement in CBT	93.242		1-R01-MH-108551-01	23,422	497,974		497,974
Individual, age-dependent differences in ACC-mediated adaptive decision making	93.242		1-R01-MH-098899-01		-1,600		-1,600
Integrating Organizational and Psychological Theories to Predict Implementation	93.242		1-R21-MH-106887-01A1		177,472		177,472
Integrative Training in the Neurocircuitry of Affective Disorders	93.242		1-T32-MH-106442-01A1		193,923		193,923
Inter-modal Coupling Image Analytics	93.242		1-R01-MH-112847-01		445,388		445,388
Intervention mapping to develop multi-level implementation strategies in partnership with stakeholders: Firearms means restriction for suicide prevention in pediatric primary care	93.242		1-R21-MH-109878-01	87,693	241,250		241,250
Investigating the Payer Role in the Implementation of EBP in the Public Sector	93.242		1-F32-MH-103960-01A1		26,738		26,738
Linking Synaptic and Cognitive Defects in a Model of Neuropsychiatric Disease	93.242		4-R00-MH099243-03		-15,363		-15,363
Longitudinal multi-modal neuroimaging of irritability in youth	93.242		1-R01-MH-107703-01		672,754		672,754
Maternal stress and the gut microblome:impact on neurodevelopment	93.242		1-F32-MH-109298-01A1		11,675		11,675
Maternal stress and the vaginal microbiome: impacts on brain development	93.242		1-R21-MH-104184-01		430,068		430,068
Mechanisms of Comorbidity and Specificity for Generalized Anxiety and Depression	93.242		1-R01-MH-094425-01A1		46,958		46,958
Mechanisms Regulating Complex Social Behavior	93.242		1-R01-MH-108627-01	376,893	739,749		739,749
Mental Health Biostatistics Training Grant	93.242		2-T32-MH-065218-11		91,055		91,055
Molecular Mechanisms of the Stress Response	93.242		1-R01-MH-100319-01A1		114,490		114,490
Molecular Profiling of Schizophrenia	93.242	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI	0255-2001-4609			139,900	139,900
Molecular-genetic analysis of habituation learning	93.242		1-F32-MH-107139-01		56,996		56,996
Multimodal brain maturation indices modulating psychopathology and nuerocognition	93.242		1-R01-MH-107235-01	49,998	332,224		332,224
Neural circuit mechanisms mediating TMS and oxytocin effects on social cognition	93.242		1-R37-MH-109728-01	34,322	541,289		541,289
Neural mechanisms underlying the antidepressant effects of sleep deprivation	93.242		1-R01-MH-107571-01A1		648,394		648,394
Neurocognitive variability in schizophrenia and youth at-risk for psychosis	93.242		1-K01-MH-102609-01A1		143,022		143,022
Neurodevelopment: Genes, Environment, and their Interactions	93.242	UNIVERSITY OF TEXAS RIO GRANDE VALLEY	7-R01-MH-107248 (1)			81,108	81,108
Neuronal Basis of Vicarious Reinforcement Dysfunction in Autism Spectrum Disorder	93.242		7-R01-MH-095894-		23,402		23,402
Neuronal ciRNA characterization and impact upon channel functioning	93.242		1-R01-MH-110180-01A1		823,097		823,097
Non-invasive neuromodulation mechanisms and dose/response metrics	93.242		1-R01-MH-111886-01	633	534,238		534,238
Novel neural circuit biomarkers of depression response to computer-augmented CBT	93.242		1-R01-MH-110939-01A1		437,382		437,382
Olfactory Neuroimaging Markers of Heightened Developmental Risk for Schizophrenia	93.242		4-R01-MH-099156-04		359,960		359,960
Oligodendrocyte damage and dysfunction in HIV associated neurocognitive disorder	93.242		4-R01-MH-098742-05	46,124	171,121		171,121
Oligodendrocyte damage and dysfunction in HIV associated neurocognitive disorder	93.242		2-R01-MH-098742-06A1		40,342		40,342
Oxidative Stress, Immune Activation, and Therapeutic Targeting in HIV/HAND	93.242		1-R01-MH-104134-01	271,104	646,727		646,727
Paternal stress epigenetic programming of offspring neurodevelopment	93.242		1-R37-MH-108286-01		68,396		68,396
Pathways of HIV Neurodegeneration and Dimethyl Fumarate (DMF/MMF) Neuroprotection	93.242		1-R01-MH-095671-01		-3,147		-3,147
Penn mental health AIDS research center	93.242		1-P30-MH-097488-01A1	283,043	1,283,380		1,283,380
Penn mental health AIDS research center	93.242		2-P30-MH-097488-06		307,980		307,980
Perfusion MRI for Multi-Site Studies for Brain Function	93.242	BETH ISRAEL MEDICAL CENTER	01027167			264,328	264,328
Person Centered Care Planning & Service Engagement	93.242	NEW YORK UNIVERSITY	F7437-01			60,138	60,138
Policy to implementation: Evidence-based practice in community mental health	93.242		4-K23-MH-099179-05		21,070		21,070
Prepubertal Stress, Windows of Risk & Sex Bias for Affective Disturbance	93.242		1-P50-MH-099910-01	13,380	575,581		575,581
Psychophysiology, Neurosteroids, and Stress in Premenstrual Dysphoric Disorder (PMDD)	93.242		1-K23-MH-107831-01A1		185,449		185,449
PTSD and Pregnancy: Psychophysiology, Response to Treatment & Pregnancy Outcome	93.242		7-K23-MH-102360-06		116,831		116,831
PTSD and Pregnancy: Psychophysiology, Response to Treatment & Pregnancy Outcome	93.242	WASHINGTON UNIVERSITY IN ST. LOUIS	WU-16-217			2,298	2,298
PTSD Monitoring System for Prolonged Exposure Therapy	93.242	ACLARIS MEDICAL, LLC	R43MH107089-S1			6,728	6,728
Quantitative Behavioral and Imaging Phenotypes of Amotivation in Schizophrenia	93.242		4-R01-MH-101111-04		205,080		205,080
RCT of TeachTown in Autism Support Classrooms: Innovation and Exnovation	93.242		1-R01-MH-106175-01A1		511,245		511,245
Recovering from Serious Mental Illness: Learning and Utilizing WRAP's Framework	93.242		1-F31-MH-105190-01A1		2,801		2,801
Recovery-Oriented Practices in Community Mental Health Centers: A National Study of Adherence and Participation	93.242	YALE UNIVERSITY	M151A11969 (A10040)			45,670	45,670
Regulation of Heme Oxygenase in HIV/HAND Pathogenesis	93.242		1-R01-MH-111389-01	166,620	645,635		645,635
Regulation of Neurogenesis and Behavior by GSK-3	93.242		1-R01-MH-100923-01A1		238,639		238,639
Remote supervision for implementing collaborative care for perinatal depression	93.242	UNIVERSITY OF WASHINGTON	UWSC9095			65,835	65,835
Retrotransposons in Schizophrenia	93.242		1-R01-MH-109260-01A1		602,660		602,660
RNA:RNA binding protein complexes in neurons and SIV encephalitis	93.242		1-R21-MH-106441-01A1		19,538		19,538
Role of heme oxygenase-1 microsatellite polymorphisms in HIV-associated neurocognitive disorders: utilizing Secoisolariciresinol diglucose as a targeted therapeutic approach in African American patients	93.242	ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI	0253-6142-4609			4,148	4,148
Role of PERK haplotypes in HIV-Associated Neurocognitive Disorders	93.242		1-R01-MH-109382-01A1	105,385	625,205		625,205
Schizophrenia: A Neuropsychiatric Perspective	93.242		2-T32-MH-019112-24		267,450		267,450
Secoisolariciresinol diglucoside to mitigate inflammation and toxicity in HAND	93.242		1-R01-MH-106967-01A1	352,005	611,789		611,789
Services to enhance social functioning in adults with autism spectrum disorder	93.242		1-R34-MH-104407-01	10,848	64,995		64,995
Social and Circadian Rhythms, Reward Sensitivity, and Risk for Bipolar Disorder	93.242	TEMPLE UNIVERSITY	360993-18110-02			66,193	66,193
Src mediates molecular alterations leading to NMDAR hypofunction in schizophrenia	93.242		2-R01-MH-075916-05A1	202,922	401,840		401,840
SSRI Effects on Depression and Immunity in HIV/AIDS	93.242		1-R01-MH-107276-01A1	212,306	730,412		730,412
Staff and School Factors Affecting Implementation of ASD Interventions in Schools	93.242	UNIVERSITY OF WASHINGTON	UWSC8785			928	928
Stress and Inflammation in the Pathophysiology of Late-Life Depression	93.242		4-R01-MH-098260-03	65,702	537,849		537,849
Studying epigenetic pathways in brain function and social behavior using ants	93.242		1-DP2-MH-107055-01		590,411		590,411
Suicide Risk Reduction in the Year Following Jail Release	93.242	MICHIGAN STATE UNIVERSITY	RC105383UofPenn			12,077	12,077
Team Functioning in School Mental Health Teams Implementing CBT	93.242		1F32MH103955-01		-264		-264
The Depression/Hypertension COACH Study	93.242	UNIVERSITY OF ROCHESTER	PO #416223-G			115,143	115,143
The Effects of Medicaid Waivers on Autism Service Use and Expenditures	93.242	PENNSYLVANIA STATE UNIVERSITY COLLEGE OF MEDICINE	UPENNMH108558			89,886	89,886
The influence of arousal state on coordinated neural dynamics	93.242		1-R21-MH-107001-01		-15,868		-15,868
The Molecular Mechanisms of Cortical Interneuron Fate Determination	93.242		1-F30-MH-105045-01A1		2,211		2,211
The Neural Basis of Social Knowledge	93.242	TEMPLE UNIVERSITY	255791-UPENN			12,942	12,942
The Role of Place and Grid Cells in Human Spatial Navigation and Memory	93.242	COLUMBIA UNIVERSITY	3 (GG009422			7,667	7,667
Training program in behavioral/cognitive neuroscience	93.242		2-T32-MH-017168-31		237,563		237,563
Training Program in Neuropsychopharmacology	93.242		2-T32-MH014654-40		238,739		238,739
Transcranial Direct Current Stimulation (tDCS) as a Treatment for Acute Fear	93.242	DUKE UNIVERSITY	2035098			-3,722	-3,722
Understanding the Epigenetic Mechanisms Underlying Stress-Related Neuropsychiatric Disorders	93.242		1-R56-MH-111719-01		219,413		219,413
Understanding the Epigenetic Mechanisms Underlying Stress-Related Neuropsychiatric Disorders	93.242		1-R01-MH-111719-01A1		201,495		201,495
Weight History, Brain Activation to Food Cues and Eating Disorder Progression	93.242	DREXEL UNIVERSITY	232616			250,729	250,729
Zero Suicide Implementation and Evaluation in Outpatient Mental Health Clinics	93.242	COLUMBIA UNIVERSITY	1(GG011969-01)			139,214	139,214
Anti-HIV Neuroimmunmodulatory Therapy with Neurokinin-1 (NK1R) Antagonists	93.242	CHILDREN'S HOSPITAL OF PHILADELPHIA	950480RSUB			-46	-46
The academic-community experience (ACE): A postdoctoral training fellowship in implementation science to promote mental health	93.242		1-T32-MH-109433-01A1		117,688		117,688
Neurobiological Underpinnings of Two Suicidal Subtypes	93.242	COLUMBIA UNIVERSITY	1(GG011930)			95,760	95,760
Transforming mental health delivery through behavioral economics and implementation science	93.242		1-P50-MH-113840-01	68,239	1,033,734		1,033,734

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
CRCNS: Decision Making in Changing Environments	93.242		1-R01-MH-115557-01	28,072	151,220		151,220
Brain structure and function in infants a longitudinal study	93.242	CHILDREN'S HOSPITAL OF PHILADELPHIA	3210640821			35,756	35,756
Genetics of Severe Mental Illness	93.242	UNIVERSITY OF CALIFORNIA, LOS ANGELES	2000 G VA473			79,530	79,530
Role of dorsomedial striatum low-threshold spiking interneurons in goal-directed behavior	93.242		1-F32-MH-114506-01		61,085		61,085
Cornerstone: Boundary Spanning Case Management and Peer Support for Transition Age Youth with Mental Disorders	93.242	NEW YORK UNIVERSITY	F7280-02			8,908	8,908
Community psychosis risk screening: An instrument development study	93.242	TEMPLE UNIVERSITY	260864-Penn			9,991	9,991
The Bipolar Sequencing Consortium for Combined Analyses and Follow-up	93.242	JOHNS HOPKINS UNIVERSITY	2003487677			49,205	49,205
iPSC-Based Platform Development for Major Psychiatric Disorder Modeling and Discovery	93.242		7-U19-MH-106434-02	1,676,657	2,658,669		2,658,669
Mapping Heterogeneity of Neuroanatomical Imaging Signatures of Psychosis via Pattern Analysis	93.242		1-R01-MH-112070-01A1	16,500	241,584		241,584
Localizing Abnormalities in Goal-Directed Behavior to Striatal Circuits in the Neurexin1α Mouse Model	93.242		1-F31-MH-114528-01		39,029		39,029
PRIDE: sub Saharan Africa - Partnerships in Research to Implement and Disseminate Sustainable and Scalable EBPs (Evidence Based Practices) in sub-Saharan Africa	93.242	RESEARCH FOUNDATION FOR MENTAL HYGIENE, INC.	26657			83,422	83,422
Identifying Neural Mechanisms of PTSD Symptom Reduction Induced By Combined Estrogen and Prolonged Exposure Therapy	93.242	UNIVERSITY OF ILLINOIS AT CHICAGO	16626			204,227	204,227
INNOVATIVE INCENTIVE STRATEGIES FOR SUSTAINABLE HIV TESTING AND LINKAGE TO CARE	93.242	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	10288sc			104,801	104,801
AGRICULTURAL INTERVENTION FOR FOOD SECURITY AND HIV HEALTH OUTCOMES IN KENYA	93.242	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	10287sc			15,023	15,023
Deconstructing the hypothalmic ontogeny and plasticity via clonal analysis	93.242		7-R21-MH-110160-03		135,487		135,487
Next generation real-time monitoring for PrEP adherence in young Kenyan women	93.242	MASSACHUSETTS GENERAL HOSPITAL	227381			8,102	8,102
Circuitry mechanisms underlying normal and aberrant adult hippocampal neurogenesis	93.242		7-R01-MH-105128		265,367		265,367
Leveraging Routine Clinical Materials and Mobile Technology to Assess CBT Quality	93.242	PALO ALTO VETERANS INSTITUTE FOR RESEARCH	WIS0003-05			140,437	140,437
Disclosure of Serious Mental Illness in the Workplace	93.242	ARIZONA STATE UNIVERSITY	18-285			66,334	66,334
Molecular and Circuit Mechanisms of Neurexin1-Mediated Goal-Directed Dysfunction	93.242		1-R01-MH-115030-01		236,509		236,509
Recording neural activities onto DNA	93.242		7-R01-MH-103910-06	617,956	971,466		971,466
Individual differences in ovarian hormones during late adolescence: Impact on functioning of positive and negative valence systems	93.242	UNIVERSITY OF CHICAGO	FP062571			16,521	16,521
Model behavior in zebrafish: characterization of the startle response	93.242		1-F32-MH-115434-01		31,253		31,253
2/5 Phenotypic profiling of ASD risk	93.242	BROAD INSTITUTE OF MIT AND HARVARD	5000960-5500001080			19,550	19,550
Adolescent Neurodevelopment and Impaired Intrinsic Motivation in Psychosis Risk	93.242		1-R01-MH-113565-01A1		58,107		58,107
A Community Resource for Single Cell Data in the Brain	93.242	ALLEN INSTITUTE FOR BRAIN SCIENCE	2017-0567			57,317	57,317
LifeSense: Transforming Behavioral Assessment of Depression Using Personal Sensing Technology	93.242	NORTHWESTERN UNIVERSITY	60047194 UP			19,825	19,825
A Prospective Examination of Epigenetic Correlates of Depression and the Role of Stressful Life Events	93.242		1-F31-MH-114609-01A1		20,459		20,459
Secondary distribution of HIV self-tests: an innovative strategy for promoting male partner testing and reducing risk	93.242		R01MH111602		539,609		539,609
Development of Electronic Quality Reporting System for Behavioral Activation for MDD in CMHC Setting	93.242		1-R21-MH-116362-01		28,592		28,592
Mechanism of Lithium in Neurogenesis and Behavior	93.242		1F32MH113334-01A1		16,051		16,051
Microenterprise to Improve Child Development in Households Exposed to HIV	93.242		7-K23-MH-106362-04		10,907		10,907
Longitudinal Mapping of Network Development Underlying Executive Dysfunction in Adolescence	93.242		1-R01-MH-113550-01A1		22,756		22,756
SABER: Scalable Analytics for Brain Exploration Research using X-Ray Microtomography and Electron Microscopy	93.242	JOHNS HOPKINS UNIVERSITY	145276			13,175	13,175
Down modulating Monocyte/Macrophage Activation for HAND	93.242		2-R01-MH-061139-11A1		-69,450		-69,450
93.242 Total				**5,869,621**	**30,061,684**	**2,886,612**	**32,948,296**
Engineering 3-D Epigenome Topology with Light	93.310		1-DP2-MH-110247-01		744,720		744,720
Identification and validation of cell specific eQTLs by Bayesian modeling	93.310		1-R01-MH-101822-01	44,920	42,761		42,761
Role of Single Cell mRNA Variation in Systems Associated Electrically Excitable Cells	93.310		1-U01-MH-098953-01	4,500	674,175		674,175
Sub-Micrometer X-Ray Tomography for Neuroanatomy	93.310	NORTHWESTERN UNIVERSITY	SP0032978-PROJ0012567			83,698	83,698
93.310 Total				**49,420**	**1,461,656**	**83,698**	**1,545,354**
NATIONAL INSTITUTE OF MENTAL HEALTH/NIH/DHHS Total				5,919,041	31,523,340	2,970,310	34,493,650
NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE/NIH/DHHS							
A critical period of sleep required for normal brain development	93.853		1-K08-NS-090461-01		211,067		211,067
A New View of PAH Allostery - Correlation with Disease-Associated Alleles	93.853	FOX CHASE CANCER CENTER	FCCC 15099-01			16,981	16,981
A Novel Method for Glutamate Imaging	93.853		1-R01-NS-087516-01		336,402		336,402
A Phase 3 double-blind placebo-controlled parallel group study if isradapine as a disease modifying agent in patients with early Parkinson's disease. STEADY PD	93.853	NORTHWESTERN UNIVERSITY	60036745 UPA			39,301	39,301
Alpha-synuclein biomarkers in Parkinson disease	93.853		1-K08-NS-093127-01		142,563		142,563
Autoimmune Mechanisms in a Novel Aire-Deficient Model of Peripheral Neuropathy	93.853	UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL	5-33303			17,936	17,936
Axon initial segment made simple: Architecture of the cytoskeletal network	93.853		1-K22-NS-091189-01A1		34,385		34,385
Biological 'Living Electrodes' Using Tissue Engineered Axonal Tracts to Probe and Modulate the Nervous System	93.853		1-U01-NS-094340-01	223,912	688,807		688,807
Biomarkers for Lewy Body Dementia	93.853	CLEVELAND CLINIC	718-SUB			59,118	59,118
Brain Injury Training Grant	93.853		2-T32-NS-043126-11		232,195		232,195
Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial (CREST-2) Trial	93.853	MAYO CLINIC JACKSONVILLE	SUB TO 5-U01NS080168-02			304	304
Cellular and molecular mechanisms of peripheral nerve regeneration	93.853		1-R56-NS-097914-01		34,407		34,407
Cellular and molecular mechanisms of peripheral nerve regeneration	93.853		1-R01-NS-097914-01A1		359,450		359,450
Combination Therapy, Biomarkers, and Imaging in Canine Krabbe Disease	93.853		1-R01-NS-096087-01	264,357	763,446		763,446
Connectomics meets neuro-oncology: mapping the brain for treatment planning	93.853		1-R01-NS-096606-01	35,643	601,984		601,984
Controlling neural circuits with single-cell resolution in behaving animals	93.853		4-R01-NS-084835-04		337,428		337,428
Cycling in a circadian circuit	93.853		2-R37-NS-048471-10	23,546	412,820		412,820
Defuse 3: EnDovascular ThErapy Following Imaging EvalUation for ISchemic StrokE 3	93.853	UNIVERSITY OF CINCINNATI	135731			10,441	10,441
Detection and Mechanisms of Mild Traumatic Brain Injury	93.853		1-R01-NS-092398-01		383,968		383,968
Detection of Cerebral Ischemia With a Noninvasive Neurometabolic Optical Monitor	93.853		1-R01-NS-082309-01A1	47,737	619,014		619,014
Development of an information-rich assay for C9ORF72 as a test for ALS and FTD	93.853	ASURAGEN, INC.	C90RF72			93,444	93,444
Developmental endothelial locus-1 (Del-1) is a hemostatic factor in thrombotic stroke	93.853		1-R21-NS-091793-01		86,503		86,503
Diffuse Optics for Acute Stroke Management	93.853		2-R01-NS-060653-06	93,611	490,243		490,243
Dissection of a new spinal cord circuit in pain sensation	93.853		1-R01-NS-094224-01A1	195,776	658,293		658,293
Disseminated AAV Vector Transport in the Brain Via Neuronal Pathways	93.853	CHILDREN'S HOSPITAL OF PHILADELPHIA	20479-10-01 / PO #951200RSUB			39,602	39,602
Distinct effects of frataxin missence point mutations on mitochondrial localization, protein processing, and cellular metabolism	93.853		1-F31-NS-098768-01A1		25,147		25,147
Dynamic regulation of autophagy in neurons during synaptic plasticity and aging	93.853		1-F32-NS-100348-01		59,570		59,570
Early Detection of Huntington's Disease: Longitudinal Analysis of Basal Ganglia and Cortical Thickness	93.853		1-R01-NS-094456-01A1	120,584	317,294		317,294
Early Life Seizures Disrupt Critical Period Plasticity	93.853		4-R01-NS-080565-04	50,492	-41,895		-41,895
Effects of Apparent Body Size on Motor Function	93.853		1-R21-NS-089084-01A1	9,881	33,647		33,647
Enabling widespread use of high resolution imaging of oxygen in the brain	93.853		1-R24-NS-092986-01	57,466	220,845		220,845
Endothelial plasticity in glioma vascularization and therapy resistance	93.853		1-R01-NS-094533-01		337,979		337,979
Epigenetic Changes associated with Neurodegenerative Diseases	93.853		4-R01-NS-078283-05	27,536	75,220		75,220
Epigenetic Editing of Mutant C9orf72	93.853		1-R01-NS-095793-01		335,642		335,642
Exploring and enhancing Karyopherin beta-2 disaggregate activity	93.853		1-R21-NS-090205-01A1		236,013		236,013
Feasibility of Direct Quantitative Magnetic Resonance Imaging of Myelin	93.853		1-R21-NS-082953-01A1		40,348		40,348
Feeding state-dependent hormonal modulation of a well-defined microcircuit	93.853		2-R01-NS-029436-26A1	91,527	426,630		426,630
Futility Study of Deferoxamine Mesylate in Intracerebral Hemorrhage (HI-DEF)	93.853	BETH ISRAEL MEDICAL CENTER	Sub to U01-NS-074425-01			1,506	1,506
Greater Philadelphia Southern New Jersey NETT Network ESETT Trial	93.853	UNIVERSITY OF MICHIGAN	SUBK00004105-ESETT	6,000		9,667	9,667
Greater Philadelphia Southern New Jersey NETT Trial POINT	93.853	UNIVERSITY OF MICHIGAN	3001413184-PNT/Sub to U01-NS-062835	23,800		22,222	22,222
Greater Philadelphia-Southern New Jersey NETT Network	93.853		2-U10-NS-058960-06		64,780		64,780
Greater Philadelphia-Southern New Jersey NETT: ISPOT	93.853	UNIVERSITY OF MICHIGAN	sub to 1-U01-NS-079077-01A1			1	1
Identification neurons controlling sleep/wake in the nematode C. elegans	93.853		1-R21-NS-091500-01		27,211		27,211
Identification of Endophenotypes in the Behavioral-Variant of Frontotemporal Deme	93.853		1-K23-NS-088341-01		171,382		171,382
Inherited Neuropathies Consortium	93.853	UNIVERSITY OF IOWA	W000750292			102,551	102,551
Intrathecal cyclodextrin therapy of feline Niemann-Pick type C disease	93.853		1-R01-NS-073661-01		-226		-226

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Investigating excitatory neuronal function across development in CDKL5 disorder	93.853		1-F30-NS-100433-01		32,212		32,212
Lentiviral-mediated Hematopoietic Stem Cell Gene Therapy for Canine Globoid Cell Leukodystrophy	93.853		1-F32-NS-093898-01A1		57,822		57,822
Localizing epileptic networks using novel 7T MRI glutamate imaging	93.853		1-K23-NS-092973-01A1		179,419		179,419
LRRK2, KIF5A and Parkinson's Disease	93.853	JOHNS HOPKINS UNIVERSITY	2003127266			65,932	65,932
Mechanisms of autophagosome biogenesis and maturation in primary neurons	93.853		4-R00-NS-082619-03		282,097		282,097
Mechanisms of Caspr2 antibodies	93.853		4-K08-NS-075142-05		410		410
Mechanisms of remodeling circuit connectivity after traumatic brain injury	93.853		1-R01-NS-088176-01A1		403,633		403,633
Mechanistic analysis of axonal transport defects in neurodegenerative disease	93.853		2-R01-NS-060698-06A1		382,900		382,900
MEKK3-ERK5-KLF signaling in CCM pathogenesis	93.853	DUKE UNIVERSITY	2034906			347,162	347,162
Midline Radial Glial-like Cells Promote Longitudinal Growth and Guidance of Spinal Cord Dorsal Column Axons During Development	93.853		1-F31-NS-100325-01A1		42,292		42,292
Modeling synaptic vesicles: how does α-Synuclein inhibit fusion	93.853	UNIVERSITY OF MINNESOTA	A003585702			54,649	54,649
Molecular Genetic Insight into Neurodegenerative Disease from Drosophila	93.853		1-R35-NS-097275-01		531,025		531,025
Molecular mechanisms in controlling development of touch-sensing neurons	93.853		4-R01-NS-083702-04		320,998		320,998
Molecular mechanisms in controlling development of touch-sensing neurons	93.853		1-R01-NS-083702-01		-6,369		-6,369
Molecular mechanisms of axon guidance receptor regulation and signaling	93.853		1-R35-NS-097340-01		535,617		535,617
Molecular neuropathology of TDP-43 proteinopathies	93.853		1-R21-NS-087749-01		202,220		202,220
Murine coronavirus neurovirulence: role of type I interferon response	93.853		4-R01-NS-081008-05		105,780		105,780
Network Dysfunction and Neuromodulation following TBI	93.853		1-R01-NS-101108-01		418,673		418,673
Neural mechanisms underlying circadian rhythms in behavior	93.853		1-F31-NS-100395-01		41,945		41,945
Neurologic Clinical Epidemiology Training Grant	93.853		2-T32-NS-061779-06		132,325		132,325
Neuronal Circuit Mechanisms	93.853	CHILDREN'S HOSPITAL OF PHILADELPHIA	20459 / PO #960209RSUB			-9,286	-9,286
Neuropathological Characterization of 'CTE'	93.853		1-R01-NS-094003-01A1	41,508	594,098		594,098
Neuropeptidergic regulation of sleep in C. elegans	93.853		1-R01-NS-088432-01A1		377,780		377,780
Neurophysiologically Based Responsive Brain Modulation	93.853	MAYO CLINIC ROCHESTER	THE-214838	53,580		201,626	201,626
Neuroscience Neuroimaging Center	93.853		2-P30-NS-045839-11A1		321,585		321,585
Nicotinic & dopaminergic mechanisms regulating in vivo plasticity	93.853		7-R01-NS-021229-29		-297,363		-297,363
Objective Translational Multi-domain Early Concussion Assessment	93.853		1-R01-NS-097549-01A1	363,484	596,698		596,698
Optical study of secretion in mammalian nerve terminals	93.853		4-R01-NS-040966-12		13,364		13,364
Paraneoplastic Disorders of the CNS: Autoantigen Profiling	93.853		9-R01-NS-077851-05A2	180,475	268,513		268,513
Parkinson's Disease and Dementia	93.853		2-P50-NS-053488-06		-11,104		-11,104
Pathogenic Mechanisms of Reduced Transport Initiation in Perry Syndrome	93.853		1-F30-NS-092227-01		29,584		29,584
Persistent measles virus in the brain after resolution of acute infection	93.853		1-F31-NS-092307-01		-986		-986
Pharmacotherapy to Counteract Parathion-Induced NMJ Dysfunction	93.853	UNIVERSITY OF MASSACHUSETTS	1-U01-NS083452-01			31,497	31,497
Phase 3 trial of inosine for Parkinson's disease CCC	93.853	MASSACHUSETTS GENERAL HOSPITAL	SUB TO 1U01NS090259			27,446	27,446
Predicting brain tumor progression via multiparametric image analysis and modelin	93.853		2-R01-NS-042645-11A1	60,634	597,405		597,405
Pressor Choice Influences Protection Of Autoregulation in Brain Injury	93.853		1-R01-NS-090998-01A1	54,457	249,648		249,648
Preventing Epilepsy using Vigabatrin in Infants with Tuberous Sclerosis Complex	93.853	UNIVERSITY OF ALABAMA AT BIRMINGHAM	000510297-006			54,397	54,397
Proof of Principle for a Diagnostic Blood Test of Recurrent Seizures	93.853	COGNIZANCE BIOMARKERS	1-R43-NS-079029-01A1			10,484	10,484
Propagation of Lewy pathology in Parkinsons disease	93.853		1-R01-NS-088322-01A1		351,511		351,511
Rational Design of TMS for Neuromodulation	93.853	DUKE UNIVERSITY	203-5257			21,686	21,686
Regulation of Neuronal Excitability by Extracellular Calcium	93.853		1-R01-NS-074257-01		299,368		299,368
Reliable Seizure Prediction Using Physiological Signals and Machine Learning	93.853	MAYO CLINIC ROCHESTER	THE-213453			29,400	29,400
Remapping neurology through translation and innovation	93.853		1-T32-NS-091008-01		188,222		188,222
Research Training Program in Disease-Oriented Neuroscience	93.853		2-R25-NS-065745-06		223,250		223,250
RNAi therapy for Spinocerebellar Ataxia Type 1	93.853	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200071216			78,809	78,809
Role of brain mechanosensors on outcome after traumatic brain injury	93.853		1-R21-NS-093293-01		22,829		22,829
Role of type I interferon signaling in Zika virus infection of the brain	93.853		1-R21-NS-100182-01	4,129	100,353		100,353
Safety and Efficacy of Systemic Gene Therapy in Informative Models for DMD	93.853		1-R01-NS-094705-01	206,905	630,683		630,683
Self-association and membrane binding of alpha-synuclein	93.853		7-R01-NS079955-04		159,794		159,794
Semi-synthetic a-Synuclein for Tracking Aggregation and Cell-to-Cell Transmission	93.853		2-R56-NS-081033-05A1		301,935		301,935
Single-molecule resolution of RNA editing of mRNAs: visualizing GRIA2 editing in situ in ALS	93.853		1-F30-NS-100595-01		34,794		34,794
Sodium Leak Channels and Regulation by Neurotransmitters	93.853		4-R01-NS-055293-09		167,320		167,320
Spatiotemporal Modeling of MRI Grain Lesion Trajectories of Biomarker Discovery	93.853		1-R21-NS-093349-01A1	146,032	227,838		227,838
Spinal Fiber Optic Monitoring	93.853	STONY BROOK	76068			143,934	143,934
Spinal Fiber Optic Monitoring	93.853	UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER	GMO 181204			23,428	23,428
Statistical Methods for Causal Inference in Observational Studies	93.853		7-R21-NS-091630-03		103,644		103,644
Statistical Methods for Large and Complex Databases of Ultra-High-Dimensional	93.853		4-R01-NS-085211-04	136,362	282,092		282,092
Stroke Hyperglycemia Insulin Network Effort (SHINE) Trial	93.853	UNIVERSITY OF MICHIGAN	3002111996-SHN	8,500		15,817	15,817
Targeted Modulation of the Death Receptor as a Therapeutic Strategy for Glioma	93.853		1-K08-NS-076548-01		6,171		6,171
Targeting tumors with NF1 loss	93.853	DARTMOUTH COLLEGE	R837			79,971	79,971
TBI and Amyloid-Beta Pathologies	93.853		2-R01-NS-038104-15A1	43,604	452,371		452,371
TDP43 mRNA complex transport in physiologic and pathologic states	93.853		1-K08-NS-094744-01		99,649		99,649
Temporal Lobe Epilepsy and Retrotransposons	93.853		1-R21-NS-095756-01	43,983	107,882		107,882
The Frontotemporal lobar degeneration clinical research consortium	93.853	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	8567			261,399	261,399
The Genetic Regulation and Disease Function of the Frontotemporal Dementia Protein TMEM106B	93.853		4-R01-NS-082265-04		409,840		409,840
The impact of hedgehog signaling during neuroinflammation	93.853		1-K01-NS-097519-01		197,263		197,263
The molecular pathogenesis of cerebral cavernous malformations	93.853		1-F30-NS-100252-01		34,915		34,915
The Philadelphia Regional Stroke Trials Network Coordinating Center (PRSTNCC)	93.853		1-U10-NS-086474-01	19,564	390,372		390,372
The Role of Connexin32 in the Pathogensis of CMTX	93.853		4-R01-NS-055284-9		-10,598		-10,598
The role of RBM3 in Huntingtons disease: pathogenesis and protection	93.853		1-F31-NS-098739-01		43,044		43,044
Towards a blood-based diagnostic panel for confirmation of Parkinson's disease	93.853		1-U01-NS-097056-01A1		514,224		514,224
Training in Neurovirology	93.853		2-T32-NS-007180-32		228,003		228,003
Training Program in Neuroengineering and Medicine	93.853		1-T32-NS-091006-01		253,495		253,495
Transcriptional control of sonic Hedgehog signaling	93.853		2-R01-NS-039421-15		381,445		381,445
Transforming Research and Clinical Knowledge in Traumatic Brain Injury	93.853	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	9819sc			-30,730	-30,730
Two-Photon Microscopy of Oxygen Consumption in the Brain	93.853	MASSACHUSETTS GENERAL HOSPITAL	226626			101,736	101,736
Ultrafast Genetically Encoded Voltage Indicators Designed from First Principles	93.853		1-R01-NS-101106-01		496,629		496,629
Unbiased Approaches to Novel Biomarker Discovery in Parkinson's Disease	93.853		1-U01-NS-082134-01		-13,533		-13,533
Understanding Action Selection in the Tool Use Network	93.853	MOSS REHABILITATION RESEARCH INSTITUTE	491401			95,312	95,312
Understanding the Pathogenic Mechanisms of Rett Syndrome	93.853		4-R01-NS-081054-04		253,650		253,650
Vasoactive Agents and Cerebral Outcomes in Brain Injury	93.853	UNIVERSITY OF WASHINGTON	UWSC8805			5,362	5,362
Virtual Resection to Treat Epilepsy	93.853		1-R01-NS-099348-01	40,661	640,013		640,013
Waxholm Space for Rodent Neuroinformatics	93.853		1-R01-NS-096720-01A1	191,462	540,370		540,370
Whole transcriptome studies of patients with Transient Ischemic Attacks (TIAs)	93.853	UNIVERSITY OF CALIFORNIA, DAVIS	201600371-02			31,761	31,761
GENE TRANSFER TO AND EXPRESSION IN NEURONS IN VIVO	93.853		2-RO1-NS-029390-17A1		-8,413		-8,413
ASTROCYTE ACTIVATION BY SMALL MOLECULE P2Y1 AGONISTS FOR TREATMENT OF TBI	93.853	ASTROCYTE PHARMACEUTICALS, INC.	SUB TO 1R41NS093756			132,254	132,254
Efficient statistical methods for assessing dementia risk in Parkinson's disease	93.853		1-R01-NS-102324-01	17,858	194,770		194,770
Characterizing the role of robo2 in target-specific nerve regeneration	93.853		1-F31-NS-103394-01		41,989		41,989
Isolating small-molecule enhancers of HtrA1, an alpha-synuclein disaggregase	93.853		1-R21-NS-102687-01		200,308		200,308
TLR4 and the microbiome in CCM disease	93.853		1-R01-NS-100949-01	147,351	512,702		512,702
Parkinson's Disease and Dementia (bridge funding)	93.853		2-P50-NS-053488-11		972,489		972,489

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Language in Context: The Neural Basis of Indirect Speech Act Comprehension in Health and Dementia	93.853		1-F31-NS-101863-01		43,864		43,864
Virtual Reality Treatment of Phantom Leg Pain	93.853		1-R21-NS-099645-01A1	35,697	210,559		210,559
Modeling Disorders of Consciousness	93.853		1-F32-NS-103253-01		52,292		52,292
Clinical Research in ALS & Related disorders for Therapeutic Development (CREATE)	93.853	UNIVERSITY OF MIAMI	668005			19,674	19,674
Dopaminergic regulation of in vivo plasticity & memory retention	93.853		2-R01-NS-021229-33A1		373,070		373,070
Epigenetic regulation of neurogenesis	93.853		7-P01-NS-097206-02	452,596	910,505		910,505
Discovery of Post-transcriptional utrophin upregulator small molecules for Duchenne Muscular Dystrophy therapeutics	93.853		1-R21-NS-102838-01		264,512		264,512
Local circuitry mechanisms regulating adult hippocampal neurogenesis	93.853		4-R37-NS-047344-14		458,287		458,287
Massive scale electrical neural recordings in vivo using commercial ROIC chips	93.853		7-U01-NS-094248-03	94,854	258,616		258,616
Defining the molecular basis of substrate selection by diverse Hsp104 homologues	93.853		1-F31-NS-101807-01A1		38,277		38,277
Circular RNAs and CNS Gene Transfer	93.853	UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL	5108302			44,410	44,410
Intraoperative studies of flexible decision-making	93.853		1-U01-NS-103799-01		190,242		190,242
Targeted treatment for radiculopathy via engineered PLA2-responsive multifunctional micelles	93.853		1-R01-NS-100892-01A1		246,351		246,351
Investigating the role of CDKL5 in the synapse	93.853		: 1-F31-NS101762-01A1		36,128		36,128
How do dominant PMP2 mutations cause demyelinating neuropathy?	93.853		1-R21-NS-104874-01		122,359		122,359
Natural History of Traumatic Microvascular Injury	93.853		1-K23-NS-104239-01		150,255		150,255
Multicolor labeling for cell identification in the C. Elegans Nervous system	93.853		1-R21-NS-101629-01A1	73,126	199,485		199,485
Impact of Anticholinergic and Dopamine Receptor Blocking Drug Exposure on Parkinson Disease Trajectory and Outcomes	93.853		1-R01-NS-099129-01A1		191,345		191,345
The rat pre-formed alpha-synuclein fibril model of Parkinson's disease	93.853	MICHIGAN STATE UNIVERSITY	RC107677UP			27,738	27,738
Investigating the genetic control of early life sleep using Drosophila	93.853		1-F31-NS-105447-01		38,987		38,987
Functional roles of genetic risk factors for brain disorders in neurogenesis and neurodevelopment	93.853		7-R35-NS-097370-02		487,963		487,963
Astroglial Glutamate Transporters, Calcium, and Mitochondria	93.853	CHILDREN'S HOSPITAL OF PHILADELPHIA	3209700718			22,404	22,404
A novel role for the Lrp4 receptor in peripheral nerve regeneration	93.853		1-F32-NS-103219-01		27,356		27,356
The role of uncertainty for motor learning and adaptation	93.853		7-R01-NS-063399-09		151,424		151,424
Early anatomic markers and genetic risk factors for frontotemporal degeneration in amyotrophic lateral sclerosis	93.853		1-F31-NS-106754-01		18,860		18,860
POINT: PLATELET-ORIENTED INHIBITION IN NEW TIA	93.853	UNIVERSITY OF MICHIGAN	3004674950-PNT	6,495		37,541	37,541
CEREBRAL ISCHEMIA AND EXPRESSION OF STRESS GENES	93.853		5-R01-NS-029331-15 revised		197		197
Statistical Methods for Multilevel Multivarate Functional Studies	93.853	JOHNS HOPKINS UNIVERSITY	2003724400			71,149	71,149
AtRial Cardiopathy and Antithrombotic Drugs In prevention After cryptogenic stroke (ARCADIA)	93.853	UNIVERSITY OF CINCINNATI	010785-135731			5,140	5,140
Integration of circadian and homeostatic signals in a peptidergic circuit in Drosophila	93.853		1-K99-NS-105942-01		15,612		15,612
Interaction between epilepsy and AD: novel therapeutic strategies	93.853		1-R21-NS-105437-01A1		29,958		29,958
The role of oxidative stress and inflammation in epileptogenesis	93.853		1-R01-NS-101156-01A1		129,658		129,658
Impact of coding and non-coding variation in progressive supranuclear palsy	93.853	UNIVERSITY OF CALIFORNIA, LOS ANGELES	2000 G VK 398			48,058	48,058
Carotid Revascularization and Medical Management for Asymptomatic Carotid Stenosis Trial - Hemodynamics (CREST-H)	93.853	MAYO CLINIC JACKSONVILLE	THE-232483			765	765
Pathogenic Studies of CDKL5 Disorder	93.853		1-R01-NS-102731-01A1		5,516		5,516
Gene therapy for spinocerebellar ataxia 1 (SCA1)	93.853	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200071217			157,704	157,704
93.853 Total				**3,695,186**	**29,809,144**	**2,621,703**	**32,430,847**
NATIONAL INSTITUTE OF NEUROLOGICAL DISORDERS AND STROKE/NIH/DHHS Total				3,695,186	29,809,144	2,621,703	32,430,847
NATIONAL INSTITUTE OF NURSING RESEARCH/NIH/DHHS							
A Longitudinal Study of Adherence to Medication in Black Men with Hypertension	93.361		1-R01-NR-013491-01A1		-2,400		-2,400
A Personalized Behavioral Intervention to Improve Physical Activity, Sleep and Cognition in Sedentary Older Adults	93.361		1-K99-NR-016484-01A1		80,561		80,561
Advanced Training in Nursing Outcomes Research	93.361		2-T32-NR-007104-16		541,342		541,342
An Objective Snoring Index and Its Association with Carotid Atherosclerosis	93.361		1-K99-NR-013177-01		18,172		18,172
Comparing Quality and Cost of Care across Nursing Environments	93.361	CHILDREN'S HOSPITAL OF PHILADELPHIA	3200390519			182,279	182,279
Decoding the microbial bioburden of diabetic foot ulcers: A metagenomic approach	93.361		1-R01-NR-015639-01	76,853	297,228		297,228
Enhanced ultrasound treatment of chronic wounds with monitoring of healing and quality of life outcomes	93.361	DREXEL UNIVERSITY	800066			26,643	26,643
Individualized Care for at Risk Older Adults	93.361		2-T32-NR-009356-06A1		517,378		517,378
Mechanisms of a Symptom Cluster: Dyspnea, Fatigue and Sleep Disturbance in Chronic Illness	93.361		1-K23-NR-014885-01		24,316		24,316
Negotiated Decision-Making: Feasibility of the BREATHE Asthma Intervention Trial	93.361	COLUMBIA UNIVERSITY	1(GG011577-01)			60,370	60,370
Panel Study of Effects of Changes in Nursing on Patient Outcomes	93.361		1-R01-NR-014855-01		318,135		318,135
Promoting Teen Health: A Web-based Intervention to Prevent Risky Driving	93.361		4-R00-NR-013548-03	19,378	97,227		97,227
Psychological Effects of Injuries in Urban Black Men: A Disparate Health Issue	93.361		1-R01-NR-013503-01	7,625	45,060		45,060
Research on Vulnerable Women, Children and Families	93.361		2-T32-NR-007100-16		512,123		512,123
Revealing the Role of the Cervico-Vaginal Microbiome in Spontaneous Preterm Birth	93.361		4-R01-NR-014784-04	127,934	465,890		465,890
Sepsis Survivors' Post-Acute Outcomes: Impact of Early Home Health and MD Visits	93.361	VISITING NURSE SERVICE OF NEW YORK	4598p			20,226	20,226
Severe Pain During Wound Care Procedures: Model and Mechanisms	93.361	UNIVERSITY OF IOWA	W000711747			83,802	83,802
Sodium-restricted diets and symptoms in end stage renal disease: An RCT	93.361		1-K23-NR-015058-01		13,348		13,348
Technology Application to Enhance Discharge Referral Decision Support	93.361	RIGHTCARE SOLUTIONS	SUB TO 2R44NR013609			-3,038	-3,038
Testing a Latino web-based parent-adolescent sexual communication intervention	93.361		7-R01-NR-013505-04	16,169	15,747		15,747
The Impact of Nursing on In-Hospital Cardiac Arrest Patient Outcomes	93.361		1-R01-NR-016002-01	16,428	204,094		204,094
The Role of Palliative Care Interventions to Reduce Circadian Rhythm Disorders in Persons with Dementia	93.361		1-R01-NR-015226-01A1		657,659		657,659
Transitional Telehealth Home Care: REACH	93.361	CHILDREN'S HOSPITAL OF PHILADELPHIA	951260RSUB			26,736	26,736
From the front-line to the community: Evaluating the relationship of pain and post-traumatic stress after combat injury and the effectiveness of regional anesthesia	93.361		1-F31-NR-017151-01A1 REVISED		38,779		38,779
Center for Innovation in Sleep Self Management (CISSM)	93.361	UNIVERSITY OF WASHINGTON	UWSC10149			10,873	10,873
A Problem Solving Intervention for Hospice Caregivers	93.361		7-R01-NR-012213-05		7,538		7,538
Identifying barriers, facilitators and outcomes of advance care planning conversations with Medicare patients	93.361	BRIGHAM AND WOMEN'S HOSPITAL	117914			40,054	40,054
Neural response to food stimuli: fMRI changes following cognitive behavioral therapy for binge eating disorder	93.361		1-K23-NR-017209-01A1		26,669		26,669
Home-based Pediatric Palliative Care Outcomes Study	93.361		1-F31-NR-017554-01A1		3,444		3,444
93.361 Total				**264,387**	**3,882,310**	**447,945**	**4,330,255**
NATIONAL INSTITUTE OF NURSING RESEARCH/NIH/DHHS Total				264,387	3,882,310	447,945	4,330,255
NATIONAL INSTITUTE ON AGING/NIH/DHHS							
A Randomized Controlled Trial of Incentives for Habit Formation	93.310		1-R01-AG-043844-01	30,113	123,515		123,515
Alzheimer's Prevention Initiative APOE4 Trial	93.310	BANNER HEALTH	0435-02-48535	27,498		419,837	419,837
93.310 Total				**57,611**	**123,515**	**419,837**	**543,352**
A Model-Based Approach to Understanding Memory Impairments in Normal Aging	93.866		1-R21-AG-048233-01A1		81,203		81,203
A novel and tractable model to address telomere dysfunction in a human tissue	93.866		1-R21-AG-054209-01		187,657		187,657
A Randomized Trial of Financial Incentives for Maintenance of Weight Loss	93.866		4-R01-AG-045045-04	12,871	151,324		151,324
AD-specific changes in the MTL: Novel biomarkers using in vivo / ex vivo imaging	93.866		1-R01-AG-056014-01	75,600	457,257		457,257
Age, Hearing Loss, and Sentence Comprehension: Neural Correlates	93.866		4-R01-AG-038490-05	44,710	55,873		55,873
Aging, gender and arterial stiffness in atherosclerosis	93.866		1-R01-AG-047373-01		387,509		387,509
Alzheimer's Disease Core Center	93.866		2-P30-AG-010124-26		2,329,497		2,329,497
Alzheimer's Disease Genetics Consortium	93.866		5-U01-AG-032984-07	1,248,132	3,152,209		3,152,209
Alzheimer's Disease Neuroimaging Initiative 3 (ADNI3)	93.866	UNIVERSITY OF SOUTHERN CALIFORNIA	79634962			14,562	14,562
Alzheimer's Prevention Initiative APOE4 Trial	93.866	BANNER HEALTH	0435-02-42372			66,499	66,499
Anti-Amyloid in Asymptomatic Alzheimers Disease, Ethics Sub Study	93.866	UNIVERSITY OF CALIFORNIA, SAN DIEGO	39177054			102,876	102,876
Anti-Amyloid Treatment in Asymptomatic Alzheimer's Disease (A4 Study)-NIH	93.866	UNIVERSITY OF SOUTHERN CALIFORNIA	NIH-022 A4 75697387			19,778	19,778
Autophagy-mediated chromatin degeneration in aging and age-related diseases	93.866		1-K99-AG-053406-01A1		94,259		94,259
Causal role of PFC in perceptual and cognitive auditory processing and age-related plasticity	93.866	UNIVERSITY OF CALIFORNIA, DAVIS	201402652-01			75,684	75,684

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Center on the Demography of Aging	93.866		2-P30-AG-012836-21	20,693	326,739		326,739
Citalopram Decreases CSF Aß: A Randomized Dose Finding Trial	93.866		7-R01-AG-041502-03	31,975	193,706		193,706
Clinical Importance of Drug-Drug Interactions	93.866		2-R01-AG-025152-11		496,750		496,750
Clinical, Imaging, and Pathological studies in the Oldest Old: The 90+ Study	93.866	UNIVERSITY OF CALIFORNIA, IRVINE	Sub to 2-R01-AG-021055-11 REVISED			87,619	87,619
Communicating with African Americans at the End of Life: a Church-based Model	93.866		1-R21-AG-044677-01A1		58,222		58,222
Connectomic imaging in familial and sporadic frontotemporal degeneration	93.866		1-U01-AG-052943-01	814,387	1,247,703		1,247,703
Consortium for Alzheimers Sequence Analysis (CASA)	93.866		1-UF1-AG-047133-01	2,174,050	3,057,181		3,057,181
Coordinating Center for Genetics and Genomics of Alzheimer's Disease (CGAD)	93.866		1-U54-AG-052427-01	1,605,779	2,529,633		2,529,633
Data and Safety Monitoring Board	93.866	UNIVERSITY OF CALIFORNIA, SAN DIEGO	47180199			32,841	32,841
Default palliative care consultation for seriously ill hospitalized patients	93.866		1-UH2-AG-050311-01	228,639	839,547		839,547
Determining if Reduced Insulin Response in the Brain is Linked to Cognitive Loss	93.866		1-R21-AG-052097-01A1		191,573		191,573
Development of R-Spondin 1 as an Anabolic Agent for the Treatment of Estrogen Deficiency-Induced Bone Loss	93.866	VIBE PHARMACEUTICALS	IR43AG050332-01A1			39,819	39,819
Diet and fecal incontinence in older women	93.866		1-R03-AG-053277-01		55,933		55,933
Do Executive Skills and Musical Sophistication Preserve Function in Older Adults with Mild Cognitive Impairment?	93.866		1-F31-AG-055148-01A1		4,103		4,103
Early Markers of Alzheimer's Disease (AD) in BLSA Participants - Structural and Functional Brain Changes: Quantitative Analysis of Longitudinal MR Images	93.866		HHSN271201500049C		-726		-726
Effects of tryptophan depletion and adverse childhood experiences on neural markers of executive function in menopausal women	93.866		1-F30-AG-055256-01		29,249		29,249
Epigenetics of Aging and Age-associated Diseases	93.866		2-P01-AG-031862-06A1		2,815		2,815
Epigenetics of Aging and Age-associated Diseases	93.866		4-P01-AG-031862-09	474,291	2,165,113		2,165,113
Four Repeat Tauopathy Neuroimaging Initiative	93.866	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	9409sc			478,908	478,908
Four Repeat Tauopathy Neuroimaging Initiative	93.866		6482sc			-29,278	-29,278
Frontotemporal Dementias: Genotypes and Phenotypes	93.866		2-P01-AG-017586-16	34,980	2,511,982		2,511,982
Function of Regulator of G protein signaling in aging skeleton	93.866		7-R01-AG-48388-03	34,969	373,340		373,340
Genetic Architecture of Memory and Executive Functioning in Alzheimer's Disease	93.866	UNIVERSITY OF WASHINGTON	763366			19,050	19,050
Group Learning Achieves Decrease Incidents of Lower Urinary Symptoms (GLADIOLUS)	93.866	BEAUMONT HOSPITAL, ROYAL OAK CAMPUS	PO #100-2940836			21,280	21,280
Health and Retirement Study (Years 23-28)	93.866	UNIVERSITY OF MICHIGAN	3002222932			105,700	105,700
Heterogeneity of Multi-modal Imaging Signatures of Aging, MCI, Alzheimer's disease via Pattern Analysis	93.866		1-RF1-AG-054409-01		676,884		676,884
Immediate Fit Using Innovative Technology Trantibial Prosthesis	93.866	IFIT PROSTHETICS	SUB TO 2R42AG050430-04			-5,082	-5,082
Impact of Disclosing Amyloid Imaging Results to Cognitively Normal Individuals	93.866	BRIGHAM AND WOMEN'S HOSPITAL	113049			167,226	167,226
Internal Ethics Committee	93.866	UNIVERSITY OF CALIFORNIA, SAN DIEGO	37458739			21,606	21,606
Long Life Family Study	93.866	BOSTON MEDICAL CENTER	5-U01-AG-023755-08			25,600	25,600
Longitudinal Evaluation of Familial Frontotemporal Dementia Subjects (LEFFTDS)	93.866	MAYO CLINIC ROCHESTER	PO #63788299			259,054	259,054
Longitudinal Evaluation of Familial Frontotemporal Dementia Subjects (LEFFTDS)	93.866		63788299			16,145	16,145
Metabolic Networks and Pathways in Alzheimers Disease	93.866	DUKE UNIVERSITY MEDICAL CENTER	2034217			23,240	23,240
Metabolic Signatures Underlying Vascular Risk Factors for Alzheimer-type Dementias	93.866	DUKE UNIVERSITY	2034990			223,242	223,242
Metabolic Signatures Underlying Vascular Risk Factors for Alzheimer-type Dementias	93.866		2035330			53,096	53,096
Midcareer Investigator Award in Patient-Oriented Research in Aging	93.866		4-K24-AG-042765-03		230,586		230,586
Midcareer Mentoring Award for Patient-Oriented Research in Aging	93.866		1-K24-AG-047908-01		187,823		187,823
Modeling Splicing in normal tissues and neurodegenerative disease	93.866		1-R01-AG-046544-01A1		443,201		443,201
Modulators of Medial Temporal Lobe Subregion Structure and Function in Normal and Pathological Aging	93.866		1-R01-AG-055005-01		533,423		533,423
Molecular mechanisms and cellular implications of tau dysfunction	93.866		1-RF1-AG-053951	399,175	716,071		716,071
Molecular Mechanisms of Rapamycin's effects on Health and longevity	93.866		4-R01-AG-043483-04		303,715		303,715
Monitored Breathing Awareness Therapy for Insomnia Disorder in Older Adults	93.866	ADVANCED MEDICAL ELECTRONICS	SUB TO 1R32AG049524			152,788	152,788
Multimodal Biomarkers in Frontotemporal Lobar Degeneration	93.866		4-K01-AG-043503-04		140,816		140,816
National Alzheimer's Coordinating Center (NACC)	93.866	UNIVERSITY OF WASHINGTON	762205			34,489	34,489
Nighttime Agitation and Restless Legs Syndrome in People with Alzheimer's Disease	93.866	UNIVERSITY OF TEXAS AT AUSTIN	UTA17-000231			129,964	129,964
Optimized Arterial Spin Labeling MRI in Mild Cognitive Impairment	93.866		4-R01-AG-040271-05		117,426		117,426
Orally-absorbed, small molecule microtubule-stabilizers for tauopathy treatment	93.866		4-R01-AG-044332-04	417,038	625,174		625,174
ORCATECH Collaborative Aging (in Place) Research Using Technology (CART)	93.866	OREGON HEALTH & SCIENCE UNIVERSITY	1009166_UPA			11,819	11,819
Pathological tau strains and transmission in Alzheimer's disease and other tauopathies	93.866		1-F32-AG-053036-01A1		58,686		58,686
Penn Roybal Center in Behavioral Economics and Health	93.866		2-P30-AG-034546-06	33,966	556,535		556,535
Physical Activity & Cognitive Health Among Older Latinas	93.866	UNIVERSITY OF CALIFORNIA, DAVIS	201121619-04			6,861	6,861
Pleiotropy GWAS of Alzheimer's Disease	93.866		1-R01-AG-054060-01	144,487	306,597		306,597
Processing Speed Training to Preserve Driving and Function Competencies in MCI	93.866	UNIVERSITY OF ALABAMA AT BIRMINGHAM	000504619-001			64,668	64,668
Prospective Assessment of The Etiology of Insomnia in Middle Aged & Elder Adults	93.866		4-R01-AG-041783-04		220,556		220,556
Short Sleep: Locus Coeruleus Metabolics and the Temporal Progression of Alzheimers	93.866		1-RF1-AG-054104-01		429,810		429,810
Sirtuin regulation of aging human primary adipose tissue	93.866		4-K08-AG-042496-04		98,643		98,643
Sleep/Wake Fragmentation with Age: Molecular Mechanisms	93.866		4-P01-AG-017628-14	502,395	1,286,877		1,286,877
Statistical methods for vitamin D targets for functional outcomes in older adults	93.866	UNIVERSITY OF MARYLAND	1600268			45,905	45,905
Stem cell aging and the control of abscission	93.866		1-R21-AG-047915-01A1		384,412		384,412
Testosterone Trial	93.866		1-U01-AG-030644-01A1		-1,805		-1,805
The Alzheimer's Disease Neuroimaging Initiative 3 Biomarker Core	93.866	NORTHERN CALIFORNIA INSTITUTE FOR RESEARCH AND EDUCATION	WEI2015-14			478,025	478,025
The Benefits of Knowledge: Mortality Risks, Mental health and Life-Cycle Behaviors	93.866		1-R21-AG-053763-01	29,756	142,838		142,838
The Bone Trial of the Testosterone Trial	93.866		1-R01-AG-037679-01A1	0	-985		-985
The Contribution of Diabetes to Mortality in the United States	93.866		1-R03-AG-055724-01	21,000	78,957		78,957
The Contribution of Obesity to International Differences in Longevity	93.866		1-R01-AG-040212-01		8,841		8,841
The Macrovascular and Microvascular Contributions to Alzheimer's Disease	93.866	WAKE FOREST UNIVERSITY	WFUHS 112971			14,194	14,194
THE NIA GENETICS OF ALZHEIMER'S DISEASE DATA STORAGE SITE	93.866		2-U24-AG-041689-06		1,394,881		1,394,881
The role of ATR in preventing age-related diseases	93.866		2-R01-AG-027376-06		-2,188		-2,188
Three Approaches to Maintenance Therapy for Chronic Insomnia in Older Adults	93.866		1-R56-AG-050620-01A1	15,844	218,371		218,371
Training in age related neurodegenerative diseases	93.866		4-T32-AG-000255-19		447,890		447,890
Training in age related neurodegenerative diseases	93.866		2-T32-AG-000255-21		46,815		46,815
Training in Healthcare Financing, Organization and Delivery for Aging Populations	93.866		1-T32-AG-051090-01		103,493		103,493
Understanding the Benefit of Trauma Center Triage for Injured Older Adults	93.866		1-R03-AG-052117-01A1	6,588	20,545		20,545
UNDERSTANDING THE ROLE OF PHYSICIAN INTEGRATION WITHIN NURSING HOMES IN POST-ACUTE CARE OUTCOMES	93.866		1-K08-AG-052572-01		188,892		188,892
Understanding Variations in Hip Fracture Outcomes across the Continuum of Care	93.866		4-K08-AG-043548-05		47,327		47,327
Using Patient Outcomes to Inform Surgical Education	93.866		1-R01-AG-049757-01A1	424,831	542,105		542,105
Young-Onset Dementia in Colombia	93.866		1-R21-AG-046499-01		3,692		3,692
Mechanisms of Health Disparities in Parkinsonism	93.866		1-K23-AG-034236-01A1		-11		-11
Changing the Trajectory of Mild Cognitive Impairment with CPAP Treatment of Obstructive Sleep Apnea	93.866		1-R01-AG-054435-01A1	369,042	1,354,285		1,354,285
Immediate Fit Using Innovative Technology Prosthetic Systems	93.866	IFIT PROSTHETICS	Sub to 2-SB1-AG-050430-06			249,571	249,571
Behavioral Sleep Medicine: Training in Sleep and Aging	93.866		1-K24-AG-055602-01		152,855		152,855
Functional, Cognitive, and Social Vulnerabilities and Hospital Readmission	93.866		7-K23-AG-045338-05		122,701		122,701
Integrated target discovery in Alzheimer's disease	93.866		1-RF1-AG-055477-01		426,525		426,525
Characterizing metabolomic links between sleep deprivation and Alzheimers disease	93.866		1-F32-AG-056081-01		56,694		56,694
High-throughput multi-modal analysis of natural variation in C. elegans healthspan	93.866		1-R21-AG-053638-01A1	48,291	156,082		156,082
Contributions of episodic memory to intertemporal decision-making across adulthood	93.866		1-F32-AG-054032-01A1		46,803		46,803
Addressing Disparities in Healthcare Access and Outcomes among Chronically Ill Older Adults: Assessing the Feasibility of an Agent-Based Modeling Approach	93.866	VISITING NURSE SERVICE OF NEW YORK	4614			122,462	122,462
Epigenetic regulation of extreme longevity differences in ant castes	93.866		1-R01A-G-055570-01		264,334		264,334
A Panel Study of Hospital Nursing Resources and Racial Disparities in Elder Outcomes	93.866		2-R01-AG-041099-04		106,213		106,213
Learning and decision-making in healthy aging and preclinical Alzheimer's Disease	93.866		1-RF1-AG-058065-01		111,985		111,985

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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Characterization of a Novel Mutation Associated with Vacuolar Tauopathy	93.866		1-F30-AG-058317-01		29,909		29,909
Forgetting to sleep: metabolic consequences of sleep loss and associated neurocognitive deficits	93.866		1-R21-AG-052905-01		104,794		104,794
Leveraging the Electronic Health Record to Nudge Clinicians to Prescribe Evidence-Based Statin Medications to Reduce the Risk of Cardiovascular Disease	93.866		1-R21-AG-057380-01		73,280		73,280
Effects of Informal Care for persons with Alzheimer's Disease and Related Dementias	93.866		1-R01-AG-057501-01	72,097	348,884		348,884
Epigenetic Correlates of Adolescent Depression	93.866	UNIVERSITY OF CHICAGO	FP056559-C			6,103	6,103
The regulation of health and longevity by branched-chain amino acids	93.866	UNIVERSITY OF WISCONSIN - MADISON	785K492			105,767	105,767
Neurocognitive Disorder after Appendectomy in the Elderly: A Natural Experiment	93.866	CHILDREN'S HOSPITAL OF PHILADELPHIA	Activity # 3200620420			147,294	147,294
Multicultural Healthy Diet Reduces Cognitive Decline and Alzheimer's Disease Risk	93.866	ALBERT EINSTEIN COLLEGE OF MEDICINE, INC	sub to R01AG055527-01A1			24,970	24,970
Functional characterization of Alzheimer's disease associated genetic variants	93.866	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	10387sc			209,141	209,141
Reducing Disability via a Family-centered Intervention for Acutely Ill Persons with Alzheimer's Disease and Related Dementias (FAM-FCC)	93.866	PENNSYLVANIA STATE UNIVERSITY	5714-UP-DHHS-01A1			26,603	26,603
Investigating the influence of mTOR signaling on lipid metabolism in adipose tissue.	93.866		1-F31-AG-057171-01		23,303		23,303
ACTIVE 20-YR FOLLOW-UP	93.866	UNIVERSITY OF WASHINGTON	UWSC10172			61,895	61,895
Metabolic Network Analysis of Biochemical Trajectories in Alzheimer's Disease	93.866	DUKE UNIVERSITY	2036654			21,123	21,123
Metabolic Network Analysis of Biochemical Trajectories in Alzheimer's Disease	93.866		2036653			53,898	53,898
Reducing disability following hospital discharge in vulnerable older adults: the CAPABLE intervention	93.866	JOHNS HOPKINS UNIVERSITY	2003755014			47,266	47,266
Imaging oxidative stress in an animal model of AD with PET	93.866		1-R21-AG-055142-01A1		85,795		85,795
Posttranslational Protein Modification in Alzheimer Pathology	93.866		1-R01-AG-057197-01A1		60,397		60,397
Medial Temporal Lobe Subregion MRI Biomarkers for ADNI3	93.866	NORTHERN CALIFORNIA INSTITUTE FOR RESEARCH AND EDUCATION	WEI-2015-17			12,919	12,919
The Health and Behavioral Effects of Sleep Deprivation Among the Urban Poor in India	93.866		1-K01-AG-055691-01A1		39,088		39,088
A Drosophila Model for Behavioral Sleep Modification in Alzheimer's Disease	93.866		1-F30-AG-058409-01		20,486		20,486
Brain-enriched microRNAs detectable in plasma as biomarkers of Alzheimer's disease	93.866	DIAMIR, LLC	SUB TO 2R44AG044860			3,899	3,899
Effects of episodic memory retrieval on intertemporal choice in cognitively normal older adults	93.866	DUKE UNIVERSITY	203-6989			30,863	30,863
Additional Sequencing Cohorts for the Alzheimer's Disease Sequencing Project - NIAGADS	93.866	UNIVERSITY OF MIAMI	SPC-000516			6,276	6,276
Current and Future Costs of Alzheimer's and Dementia Care	93.866		7-R01-AG-049815-04		32,260		32,260
A Pilot CSF Catheter Study to Evaluate the Effect of CT1812 Treatment on Aβ Oligomer Clearance into CSF in Subjects with Mild to Moderate Alzheimer's Disease	93.866	COGNITION THERAPEUTICS, INC.	SUB TO RF1AG057780			35,155	35,155
Predictors of Severity in Alzheimer's Disease	93.866	DUKE UNIVERSITY	1 (GG012937-01)			3,999	3,999
The feasibility of a tailored music intervention to reduce symptoms of sleep disruption in older adults with dementia	93.866		1-F32-AG-060630-01A1		2,888		2,888
Additional Sequencing Cohorts for the Alzheimer's Disease Sequencing Project - GCAD	93.866	UNIVERSITY OF MIAMI	SPC-000472			1,659	1,659
Behavior Change for Good: Creating Enduring Exercise Habits	93.866	NATIONAL BUREAU OF ECONOMIC RESEARCH, INC.	4121B.09.02.00_PENN			39,999	39,999
A Longitudinal Network Study of Alzheimer's and Dementia Care in Relation to Disparities in Access and Outcomes	93.866	VISITING NURSE SERVICE OF NEW YORK	1-R56-AG-056347-01			2,367	2,367
93.866 Total				**9,285,584**	**35,156,105**	**3,971,407**	**39,127,512**
Early Markers of Alzheimer's disease (AD) in BLSA Participants - Structural and Functional Brain Changes: Quantitative Analysis of Longitudinal MR Images	93.RD		HHSN271201600059C		306,539		306,539
93.RD Total					**306,539**		**306,539**
NATIONAL INSTITUTE ON AGING/NIH/DHHS Total				9,343,194	35,586,159	4,391,244	39,977,403
NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM/NIH/DHHS							
2/2 Pharmacogenetic Treatment for Alcoholism	93.273		4-R01-AA-021164-05		296,703		296,703
A randomized trial of abandoned housing remediation, substance abuse and violence	93.273		1-R01-AA-024941-01	183,808	393,158		393,158
A randomized trial of urban vacant lot stabilization and substance abuse outcomes	93.273		1-R01-AA-020331-01A1		51,411		51,411
An RCT of Brief Intervention for Problem Drinking and Partner Violence	93.273		1-R01-AA-018705-01A1		2,430		2,430
CYP2E1 Mediated Mitochondrial Injury and Cell Damage in Alcohol Liver Disease	93.273		1-R01-AA-022986-01A1	142,251	494,961		494,961
Effectiveness of Topiramate: Characterizing Individual Differences	93.273		1-K23-AA-023894-01		130,489		130,489
Impact of enhancements to smartphone-based continuing care for alcohol dependence	93.273		1-R01-AA-022595-01A1	92,093	738,040		738,040
Pharmacogenetic Analysis of Topiramate Treatment of AUD	93.273		1-R01-AA-023192-01		566,042		566,042
Social Media Interventions to Reduce Alcohol Use among Youth	93.273	UNIVERSITY OF MICHIGAN	303940750			7,850	7,850
The pathogenesis of insulin resistance in alcoholic liver disease	93.273		4-K08-AA-021424-04		174,510		174,510
The Regulation of Lipid Droplet Biogenesis in Alcoholic Liver Disease	93.273		1-F32-AA-024347-01A1		58,921		58,921
Mechanisms of behavior change in alcohol use disorder treatment	93.273	UNIVERSITY OF NEW MEXICO	028372-874D			63,215	63,215
Molecular mechanisms of post-transplant recurrent alcoholic liver disease	93.273		1-R01-AA-026302-01		210,967		210,967
Interventions to reduce alcohol use and increase adherence to TB preventive therapy among HIV/TB co-infected drinkers (DIPT 2/2)	93.273	UNIVERSITY OF CALIFORNIA, SAN FRANCISCO	10509sc			16,832	16,832
93.273 Total				**418,153**	**3,117,632**	**87,897**	**3,205,529**
NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM/NIH/DHHS Total				418,153	3,117,632	87,897	3,205,529
NATIONAL INSTITUTE ON DEAFNESS & OTHER COMMUNICATION DISORDERS/NIH/DHHS							
A Novel Regulated Nanohydrogel Delivery System for Targeted Inner Ear Application	93.173		1-R01-DC-014464-01		285,554		285,554
Allele specific expression of TAS2R38 in human taste and nasal tissue	93.173		1-R21-DC-013886-01A1		-9,685		-9,685
Chronic Rhinosinusitis and genetics of bitter taste receptors	93.173		1-R01-DC-013588-01A1	206,347	647,222		647,222
Circuit mechanisms of sound processing and detection in the auditory pathway	93.173		1-R01-DC-014479-01		546,707		546,707
Conceptual Combination	93.173		1-R01-DC-015359-01A1	63,531	562,085		562,085
Conferences for Advances and Perspectives in Auditory Neurophysiology (APAN)	93.173		2-R13-DC-010549-06		6,378		6,378
Contribution of the parietal cortex to auditory-stream perception	93.173		1-F32-DC-015709-01		17,261		17,261
Cortical Mechanisms of Auditory-Vocal Interaction	93.173		1-K08-DC-014299-01		265,886		265,886
Figurative Language in Aphasic and Health Participants	93.173		4-R01-DC-012511-04		282,964		282,964
Genomic architecture of Shh dependent cochlear morphogenesis	93.173		2-R01-DC-006254-11A1		414,028		414,028
Identifying the molecular determinants of selective axonal fasciculation in the olfactory nerve	93.173		1-R21-DC-015885-01		237,279		237,279
Investigating the Roles of Epithelial Splice Regulatory Proteins in Inner Ear Development	93.173		1-F31-DC-014647-01		28,934		28,934
Linguistic and Nonlinguistic Functions of Frontal Cortex	93.173		2-R01-DC-009209-11		465,939		465,939
Modulation of Odorant Receptor Function	93.173	DUKE UNIVERSITY	2032340			78,356	78,356
Multi-scale study of auditory scene analysis in the ventral auditory pathway	93.173		1-R01-DC-013961-01A1	23,546	379,119		379,119
Neural representations of spatial directions in language, schemas, and images	93.173		1-F32-DC-015203-01		55,549		55,549
Neuronal circuits supporting learning-driven changes in auditory perception	93.173		1-R01-DC-015527-01A1		342,540		342,540
Objective evaluation of conductive olfactory losses and nasal obstruction symptoms	93.173	OHIO STATE UNIVERSITY	60051959			26,291	26,291
Olfactory coding in mammals	93.173		2-R01-DC-006213-11A1	205,030	704,922		704,922
Representations of sound processing in the auditory cortex	93.173		2-R01-DC-009224-07A1		423,583		423,583
Role of CALHM1 ion channel in taste transduction	93.173		4-R01-DC-012538-04		215,191		215,191
Semantic Memory and Language Learning in Alzheimer's Disease and Semantic Dementia	93.173	TEMPLE UNIVERSITY	254692-UPENN			193,381	193,381
Sweet receptor (T1R2/3) signaling in the upper airway and regulation of immunity	93.173		1-R03-DC-013862-01A1		150,234		150,234
Targeting of Sensory Axons in the Olfactory Bulb	93.173		4-R01-DC-012854-04		391,115		391,115
The role of cortical interneurons in auditory processing and learning	93.173		1-R03-DC-013660-01		-4,458		-4,458
Theory-driven treatment of language and cognitive processes in aphasia	93.173	TEMPLE UNIVERSITY	253763-UPENN			66,617	66,617
TMS as a Biomarker of Plasticity in Aphasia Recovery	93.173		4-R01-DC-012780-04	55,873	258,375		258,375
International Conference on Auditory Cortex	93.173		1-R13-DC-015739-01		43,562		43,562
Altered ionotropic receptor maturation in the impaired auditory critical periods of Fmr1 knockout mice	93.173		1-F31-DC-016192-01A1		41,743		41,743
The function of cortical gain adaptation in detecting sounds in noise	93.173		1-F31-DC-016524-01		39,512		39,512
Spatiotemporal Mechanisms of Olfactory Processing in the Human Brain	93.173		7-R01-DC-013243-06	7,139	147,844		147,844
Perceptual Coding and Modulation of Odor Objects in the Human Brain	93.173		7-R01-DC-010014-10		183,265		183,265
Principles of olfactory reward processing in the human brain	93.173	NORTHWESTERN UNIVERSITY	60044484 PENN			16,253	16,253
Mapping and function of odorant receptors in the human olfactory system	93.173	NORTHWESTERN UNIVERSITY	Sub to 5-R01-DC-014426-03			256,854	256,854
Bitter and sweet taste receptor physiology in airway ciliated cells	93.173		1-R01-DC-016309-01A1		115,253		115,253

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Schedule of Expenditures
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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
93.173 Total				**561,465**	**7,237,901**	**637,752**	**7,875,653**
NATIONAL INSTITUTE ON DEAFNESS & OTHER COMMUNICATION DISORDERS/NIH/DHHS Total				561,465	7,237,901	637,752	7,875,653
NATIONAL INSTITUTE ON DRUG ABUSE/NIH/DHHS							
Brain and behavioral effects of graphic cigarette warning labels	93.077		1-R01-DA-036028-01		552,843		552,843
Evaluating New Nicotine Standards for Cigarettes	93.077	UNIVERSITY OF PITTSBURGH	9013734 (129303-2)			41,561	41,561
Evaluating New Nicotine Standards for Cigarettes	93.077	WAKE FOREST UNIVERSITY	Sub to 7-U54-DA-031659-06			123,565	123,565
Evaluating New Nicotine Standards for Cigarettes - Project 2	93.077	UNIVERSITY OF MINNESOTA	P006513908			47,875	47,875
93.077 Total					**552,843**	**213,001**	**765,844**
A Pilot Implementation Project of Methadone and Suboxone for Injecting Drug Users	93.279		4-R01-DA-033671-05	116,667	380,572		380,572
A Placebo Controlled Trial of Varenicline for Smoking among those with HIV/AIDS	93.279		4-R01-DA-033681-05		224,821		224,821
Acute nicotine decreases alcohol-induced dopamine response & increases drinking	93.279		2--16A1		197,192		197,192
ADAR2 editing of GluA2 and cocaine reinstatement	93.279	MASSACHUSETTS GENERAL HOSPITAL	226055			24,581	24,581
Alpha 5 nAChR is a risk factor within the dopamine system for nicotine addiction	93.279		1-R01-DA-036572-01		434,161		434,161
AMP-activated protein kinase (AMPK) and nicotine dependence	93.279		1-R01-DA-041180-01A1	51,358	446,319		446,319
Anhedonia as a Risk Factor and Consequence of Substance Use	93.279	UNIVERSITY OF SOUTHERN CALIFORNIA	35609807			3,284	3,284
Behavioral Treatment of Adolescent Marijuana Use	93.279	DARTMOUTH COLLEGE	1347			14,782	14,782
Causal Inferences for treatment moderators on Zero-Inflated outcomes of HIV risk	93.279		1-R01-DA-036557-01A1		80,687		80,687
Center for the Development of Novel Medications for Cocaine Dependence	93.279		1-U54-DA-039002-01	414,513	1,420,397		1,420,397
Clinical and Genetic Characteristics of Opioid Addiction in Chronic Pain	93.279		4-R01-DA-032776-04	1,936	242,608		242,608
Clinical Trials Network Mid-Atlantic Integrated Care Research Collaborative	93.279	JOHNS HOPKINS UNIVERSITY	2002753634			26,000	26,000
Cocaine-induced histone post-translational modifications	93.279		1-R21-DA-040837-01A1		170,005		170,005
Delaware Valley Node of the Clinical Trials Network	93.279		2-U10-DA-013043-11	-16,691	-16,691		-16,691
Development of Novel Dopamine D3 Receptor Selective Antipsychotics	93.279	UNIVERSITY OF NORTH TEXAS HEALTH SCIENCE CENTER AT FORT WORTH	RN0127-2015-0148			131,365	131,365
Dissection of the Organizational Differences Between Paw and Trunk Pain Circuits	93.279		1-F31-NS-092297-01		26,484		26,484
Economic Evaluation of Medication-Assisted Substance Abuse Treatment	93.279	CORNELL UNIVERSITY	R01-DA035808			43,497	43,497
Florida Node Alliance of Drug Abuse Clinical Trials Network	93.279	UNIVERSITY OF MIAMI	665615	61,315		78,666	78,666
GABA B agonists revisited: Brain, behavioral and genetic effects in smokers	93.279		4-R01-DA-030394-05		22,802		22,802
Genetics of Opioid Dependence	93.279	YALE UNIVERSITY	M14A11735 (A09415)			39,337	39,337
Health economics of substance abuse and HCV/HIV treatment in the era of integrated health care	93.279	CORNELL UNIVERSITY	15070983-02			293,374	293,374
Influence of the natural hormonal milieu on perfusion fMRI smoking cue responses	93.279		1-R01-DA-040670-01A1		614,514		614,514
Mechanisms of Resistance in HESN-IDU Subjects: Induction of IFN-mediated Factors and S100 Proteins as Determinants of NK Cell-Mediated Clearance and Low CD4 T Cell Infectivity	93.279	WISTAR INSTITUTE	25251-03-324			48,695	48,695
Methodology for PET Imaging of Role of Dopamine D3 Receptor in Addiction	93.279		1-K01-DA-040023-01A1		175,191		175,191
Mobile DNA in Drug Abuse	93.279		1-R01-DA-040972-01A1	23,155	308,405		308,405
mPFC, n, accumbens and reinstatement of cocaine seeking	93.279		2-R01-DA-015214-12A1		346,958		346,958
Multimodal Imaging of Progesterone/Neurosteroid Effects in Nicotine Addiction	93.279		1-R01-DA-037289-01A1		636,770		636,770
Neural basis of smoking relapse	93.279		1-R01-DA-041402-01		660,956		660,956
Neuroimaging study of HIV-prevention public service announcements	93.279		1-R03-DA-035683-01		31,057		31,057
Opioid Relaps & HIV Risk: 48 vs. 24 weeks of ER injectable Naltrexone	93.279		4-R01-DA-033670-05	41,208	273,787		273,787
Optimizing HIV counseling testing and referral through an adaptive drug use intervention	93.279	UNIVERSITY OF MICHIGAN	3003985347			255,251	255,251
Optogenetic Toolbox for Studying Regulators of G-Protein Signaling in Addiction	93.279		1-R21-DA-040434-01		8,125		8,125
PET Radiotracers for Imaging the Dopamine D3 Receptor	93.279		2-R01-DA-029840-06A1	153,229	614,559		614,559
Pharmacogenetics of Opioid Agonist Therapy	93.279		-1R21-DA-036808-01		-166		-166
Predicting AOD Relapse and Treatment Completion from Social Media Use	93.279		7-R01-DA-039457-02		261,901		261,901
Quantitative Methods to Subtype Drug Dependence and Detect Novel Gene Variants	93.279	UNIVERSITY OF CONNECTICUT	81436			22,081	22,081
Repurposing cholinesterase inhibitors for smoking cessation	93.279		4-K23-DA-035295-04		116,260		116,260
Repurposing Melatonin Receptor Agonists as Adjunct Treatments for Smoking Cessation	93.279		1-R21-DA-040902-01		131,570		131,570
T32 Translational Addiction Research Fellowship Program	93.279		2-T32-DA-028874-03A1		303,506		303,506
Targeting dopamine D3 receptors in cocaine addiction	93.279		1-R01-DA-039215-01A1		456,318		456,318
The HIV-1 and HCV Transmission Bottleneck in Chinese Injection Drug Users	93.279		1-R01-DA-037244-01		4,231		4,231
The influence of nicotinic hepatic metabolism on neuroreceptor substrates of nicotine addiction	93.279		1-K23-DA-038726-01A1		175,062		175,062
The Logics for HIV Risk among Street-Based Heroin Injectors	93.279		2-R01-DA-010164-13	71,055	74,144		74,144
The PFT Intervention: Linking triply-diagnosed inpatients to community care	93.279		4-R01-DA-036503-04		427,350		427,350
The role of central GLP-1 receptors in animal models of cocaine addiction	93.279		1-R01-DA-037897-01A1		296,353		296,353
The role of the delta-opioid receptor gene, OPRD1, in opioid addiction treatment	93.279		1-K01-DA-036751-01A1		143,058		143,058
Transgenerational effects of drug-exposure: epigenetic and behavioral impact	93.279		4-R01-DA-033646-05		43		43
Trans-generational effects of nicotine self-administration	93.279		1-R21-DA-039393-01A1		162,054		162,054
Transgenerational inheritance of a Cocaine resistance phenotype	93.279		2-R01-DA-033641-06		407,013		407,013
Understanding the Role of Cognitive Dysfunction in the Treatment of Nicotine Dependence among HIV-Infected Smokers	93.279		1-R01-DA-042682-01		593,500		593,500
Varenicline for the treatment of cocaine dependence: Phase II	93.279		1-U01-DA-032629-01A1		85,213		85,213
Adaptive Treatment Models for the Management of Drug Use Disorders	93.279		2-K24-DA-029062-06		156,111		156,111
Behavioral and epigenetic changes following adolescent oxycodone exposure	93.279		1R21DA044017-01A1		206,672		206,672
Chromatin-mediated alternative splicing in reward pathophysiology	93.279		1-DP1-DA-044250-01		436,279		436,279
Neurobiology of care giving in opioid dependent mothers	93.279		1-R21-DA-043983-01A1	13,889	97,347		97,347
Nicotine's effects on medial habenula neurophysiology	93.279		1-R21-DA-043993-01A1		252,888		252,888
Targeting the Cholinergic Pathway in HIV-associated Inflammation and Cognitive Dysfunction	93.279		1-R01-DA-044906-01		481,058		481,058
Neural basis of eating behavior in abstinent smokers	93.279		1-R01-DA-041409-01A1		263,112		263,112
Variation in opioid prescribing and quantifying the costs of transition to chronic use among opioid-naive patients undergoing common surgeries	93.279	WEILL CORNELL MEDICAL COLLEGE	1709239			20,000	20,000
Linkage to Commuity-Based Pre-Exposure Prophylaxis Care Among At-Risk Women Upon Release From Incarceration	93.279	RHODE ISLAND HOSPITAL	7017137280			30,300	30,300
Acute Pain Management and Long-term Opiod Use after Surgery	93.279	SUNNYBROOK RESEARCH INSTITUTE	2017-1218			309,973	309,973
Leveraging Predictive Analytics within Social Networks to Maximize Drug and Alcohol Treatment Efficacy and Relapse Prevention	93.279	SOBER GRID, INC.	SUB TO R43DA044062			10,447	10,447
A Patient-Oriented Research Mentoring Program in Tobacco Dependence Research	93.279		1-K24-DA-045244-01A1		43,264		43,264
Clinical and Genetic Study of Prescription Opioid Addiction	93.279	GEISINGER HEALTH SYSTEM	626510UP01			106,458	106,458
Flavored e-cigarette use in adolescents: Behavioral, cellular, and epigenetic mechanisms	93.279		1-R01-DA-044205-01A1		70,785		70,785
Light activated CRISPR epigenome editing in cocaine abuse	93.279	UNIVERSITY OF MARYLAND	1802582			3,833	3,833
93.279 Total				**931,635**	**12,944,605**	**1,461,924**	**14,406,529**
Centers of Excellence for Pain Education (CoEPE)	93.RD		HHSN271201500067C	7,246	84,654		84,654
93.RD Total				**7,246**	**84,654**		**84,654**
NATIONAL INSTITUTE ON DRUG ABUSE/NIH/DHHS Total				938,881	13,582,102	1,674,925	15,257,027
NATIONAL INSTITUTE ON MINORITY HEALTH AND HEALTH DISPARITIES/NIH/DHHS							
Comprehensive Center of Excellence in Health Disparities	93.307		4-P60-MD-006900-05	338,724	492,163		492,163
Health Promotion for Positives: A Randomized Trial with HIV Positive Black Men	93.307		4-R01-MD-006232-05		407,948		407,948
MUSC Transdisciplinary Collaborative Center in Precision Medicine and Minority Men's Health	93.307	MEDICAL UNIVERSITY OF SOUTH CAROLINA	MUSC16-081-8C186			143,230	143,230
Prospective study of racial and ethnic disparities in chronic pain and pain burden	93.307	RAND CORPORATION	9920170019			233,307	233,307
Reducing HIV vulnerability through a multilevel life skills intervention for adolescent men	93.307		1-U01-MD-011274-01	1,144,857	1,758,396		1,758,396
Studying Socioeconomic Disparities in Cancer Survival with Tapered Matching	93.307	CHILDREN'S HOSPITAL OF PHILADELPHIA	ACTIVITY #321042			79,642	79,642

University of Pennsylvania
Schedule of Expenditures
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Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
UPCC 03715: A Randomized Recruitment Intervention Trial BMT CTN 1505	93.307	UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT HOUSTON	0008663BN			416	416
West Philadelphia Consortium to Address Disparities - Phase 3	93.307		2-R24-MD-001594-09		76,710		76,710
The Impact of Nursing on Racial Disparities in Surgical Outcomes	93.307		1-R01-MD-011679-01	95,719	315,944		315,944
Disparities in the Outcomes and Processes of Care for In-Hospital Cardiac Arrest: The Role of Differences in the Organization and Delivery of Nursing	93.307		1-R01-MD-011518-01A1	11,173	169,290		169,290
Effects of Comprehensive Care for Joint Replacement Model on Racial Disparities in Lower Extremity Joint Replacements	93.307	OREGON HEALTH & SCIENCE UNIVERSITY	1009809_UPA			72,624	72,624
Feasibility of a Protocol to Understand Biological, Behavioral, and Social Factors Associated with Cardiovascular Disease Risk among Black Men	93.307	MEDICAL UNIVERSITY OF SOUTH CAROLINA	MUSC18-024-8C186			959	959
93.307 Total				**1,590,473**	**3,220,451**	**530,178**	**3,750,629**
NATIONAL INSTITUTE ON MINORITY HEALTH AND HEALTH DISPARITIES/NIH/DHHS Total				1,590,473	3,220,451	530,178	3,750,629
NATIONAL INSTITUTES OF HEALTH							
OZONE ALTERS AIRWAY SMOOTH MUSCLE FUNCTION IN ASTHMA	93.381		1-R01-HL-080676-01		-389		-389
93.381 Total					**-389**		**-389**
TRAINING GRANT IN HEMNATOPOIESIS	93.849		1-T32-DK-007780-01		-352		-352
93.849 Total					**-352**		**-352**
AFFERENT CONTROL OF LOCUS COERULEUS	93.854		7-R01-NS-024698-11		-35		-35
93.854 Total					**-35**		**-35**
Mindfulness-Based Relapse Prevention (MBRP): An Aftercare Treatment Study for Those in Early Addiction Recovery	93.RD	DELAWARE STATE UNIVERSITY				10,659	10,659
93.RD Total						**10,659**	**10,659**
NATIONAL INSTITUTES OF HEALTH Total					-776	10,659	9,883
NATIONAL LIBRARY OF MEDICINE							
Bioinformatics Strategies for Genome-Wide Association Studies	93.879		7-R01-LM-010098-06	200,837	454,843		454,843
Bioinformatics Strategies for Multidimensional Brain Imaging Genetics	93.879	INDIANA UNIVERSITY	IN4687237UP			13,284	13,284
Harnessing the Power of Public Library and Other Staff to Improve Population Health	93.879	UNIVERSITY OF PITTSBURGH	0050256 (127316-9)			-185	-185
Mining Social Network Postings for Mentions of Potential Adverse Drug Reactions	93.879		7-R01-LM-011176-05		15,017		15,017
Statistical Methods and Software for Multivariate Meta-Analysis	93.879	UNIVERSITY OF MINNESOTA	P004683901			565	565
Biomedical Computing and Informatics Strategies for Precision Medicine	93.879		1-R01-LM012601-01	42,120	165,485		165,485
A General Framework to Account for Outcome Reporting Bias in Systematic Reviews	93.879		1-R01-LM-012607-01	1,322	217,727		217,727
93.879 Total				**244,279**	**853,072**	**13,664**	**866,736**
NATIONAL LIBRARY OF MEDICINE Total				244,279	853,072	13,664	866,736
OFFICE OF THE DIRECTOR, NATIONAL INSTITUTES OF HEALTH/NIH/DHHS							
Image-Based Phenotyping of Hepatocellular Carcinoma Cell Survival Under Ischemic Stress: Toward Metabolic Imaging of Cancer Dormancy Using Hyperpolarized Carbon-13 Technology	93.310		1-DP5-OD-021391-01		425,316		425,316
Impact of Racially Targeted Food and Beverage Ads on Adolescent Behavior	93.310	NEW YORK UNIVERSITY	15-A0-00-004321-01			25,732	25,732
Dynamic Network Neuroscience and Control Theory: Toward Interventions for Cognitive Control	93.310	DREXEL UNIVERSITY	800134			149,432	149,432
93.310 Total					**425,316**	**175,164**	**600,480**
Referral Ctr-Animal models of human genetic disease	93.351		2-P40-OD-010939-29	7,482	94,175		94,175
Resources for Education and Action for Community Health in Ambler (REACH Ambler)	93.351		4-R25-OD-010521-05		67,190		67,190
Short-term Training: students in health professional schools	93.351		2-T35-OD-010919-16		74,999		74,999
Computational Resource for Structural Biology and Molecular Biophysics	93.351		1-S10-OD-023592-01		402,250		402,250
Multi-Parameter Fluorescence Detection Single Molecule Microscopy	93.351		1-S10-OD-021573-01A1		483,569		483,569
Enhancement and Expansion: Penn Neurophysiology and Behavior Testing Facility	93.351		1-G20-OD-021951-01		244,167		244,167
Biomedical Image Computing and Informatics Cluster	93.351		1-S10-OD-023495-01		1,254,434		1,254,434
Aperio VERSA Digital Slide Scanner, eSlide Manager Database, and Advanced Image Analysis Software	93.351		1-S10-OD-023465-01A1		310,458		310,458
93.351 Total				**7,482**	**2,931,242**		**2,931,242**
Mouse models for esophageal Cox-2 oxidative stress and DNA damage	93.357		4-K26-OD-012097-04		21,940		21,940
93.357 Total					**21,940**		**21,940**
Short-term Training: students in health professional schools	93.867		2-T35-OD-010919-21		49,910		49,910
93.867 Total					**49,910**		**49,910**
OFFICE OF THE DIRECTOR, NATIONAL INSTITUTES OF HEALTH/NIH/DHHS Total				7,482	3,428,408	175,164	3,603,572
DEPARTMENT OF HEALTH AND HUMAN SERVICES Total				***68,537,778***	***492,440,242***	***66,452,770***	***558,893,012***
CORPORATION FOR NATIONAL AND COMMUNITY SERVICE							
CORPORATION FOR NATIONAL AND COMMUNITY SERVICE							
UPenn Subaward	94.026	UNIVERSITY OF TEXAS AT AUSTIN	UTA17-000410			49,428	49,428
94.026 Total						**49,428**	**49,428**
PFS Project	94.RD	THIRD SECTOR CAPITAL PARTNERS				413,745	413,745
94.RD Total						**413,745**	**413,745**
CORPORATION FOR NATIONAL AND COMMUNITY SERVICE Total						463,173	463,173
CORPORATION FOR NATIONAL AND COMMUNITY SERVICE Total						***463,173***	***463,173***
SOCIAL SECURITY ADMINISTRATION							
SOCIAL SECURITY ADMINISTRATION							
MRRC19 - Causes and Consequences of Financial Mismanagement at Older Ages	96.007	UNIVERSITY OF MICHIGAN	SUB TO 6 RRC08098401-09-00			97,446	97,446
(MRRC18-A) Time Discounting and Economic Decision-making Among the Elderly	96.007	UNIVERSITY OF MICHIGAN	SUB TO 5 RRC08098401-08-00			8,497	8,497
96.007 Total						**105,943**	**105,943**
SOCIAL SECURITY ADMINISTRATION Total						105,943	105,943
SOCIAL SECURITY ADMINISTRATION Total						***105,943***	***105,943***
DEPARTMENT OF HOMELAND SECURITY							
DEPARTMENT OF HOMELAND SECURITY							
IAI CAMEL Phase II	97.005	INTELLIGENT AUTOMATION, INC.	2209-1			11,424	11,424
97.005 Total						**11,424**	**11,424**
Identifying and Reducing Barriers to Infrastructure Insurance	97.061	UNIVERSITY OF ILLINOIS	077083-16402			233,600	233,600
97.061 Total						**233,600**	**233,600**
Validation Protocol For PetPace Collar	97.RD	PETPACE, LLC	SUB TO HSHQDC-17-9-00016			1,842	1,842
Evaluating the Private Flood Insurance Market	97.RD		HSHQDC-17-C-B0032	34,399	224,856		224,856

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97.RD Total				**34,399**	**224,856**	**1,842**	**226,698**
DEPARTMENT OF HOMELAND SECURITY Total				34,399	224,856	246,866	471,722
DEPARTMENT OF HOMELAND SECURITY Total				***34,399***	***224,856***	***246,866***	***471,722***
Research and Development Cluster Total				***83,226,288***	***594,525,262***	***83,977,518***	***678,502,780***
Student Financial Assistance Cluster							
DEPARTMENT OF EDUCATION							
DEPARTMENT OF EDUCATION							
SEOG - Supplemental Educational Opportunity Grant	84.007		P007A153720		-1,724		-1,724
SEOG - Supplemental Educational Opportunity Grant	84.007		P007A163720		9,526		9,526
FSEOG - Supplemental Educational Opportunity Grant	84.007		P007A172720		2,966,459		2,966,459
84.007 Total					**2,974,261**		**2,974,261**
CWSP - Federal Work Study	84.033		P033A153720		63,858		63,858
FWS - Federal Work Study	84.033		P033A173720		3,805,753		3,805,753
84.033 Total					**3,869,611**		**3,869,611**
Perkins Loan Administrative cost allowance	84.038				381,101		381,101
Perkins Loan New loans issued during 2018	84.038				1,334,495		1,334,495
Perkins Loan Outstanding loans issued as July 1, 2017	84.038				57,894,798		57,894,798
84.038 Total					**59,610,394**		**59,610,394**
PELL GRANT	84.063		P063P20152158		-8,300		-8,300
PELL GRANT	84.063		P063P20162158		51,485		51,485
PELL GRANT	84.063		P063P20142158		-1,385		-1,385
PELL GRANT	84.063		P063P172158		7,066,139		7,066,139
84.063 Total					**7,107,939**		**7,107,939**
Federal Direct loans	84.268				198,612,235		198,612,235
84.268 Total					**198,612,235**		**198,612,235**
Teach Grant	84.379		P379T182158		1,868		1,868
84.379 Total					**1,868**		**1,868**
DEPARTMENT OF EDUCATION Total					272,176,308		272,176,308
DEPARTMENT OF EDUCATION Total					***272,176,308***		***272,176,308***
DEPARTMENT OF HEALTH AND HUMAN SERVICES							
HEALTH RESOURCES & SERVICES ADMINISTRATION (HRSA)							
Nurse Faculty Loan Program Issued during FY18	93.264				334,814		334,814
Nurse Faculty Loan Program Outstanding as of 07/01/17	93.264				1,244,718		1,244,718
93.264 Total					**1,579,532**		**1,579,532**
HPL Dental issued after 07/01/2017	93.342				1,497,090		1,497,090
HPL Dental Outstanding as 07/01/17	93.342				8,246,529		8,246,529
HPL Medical Outstanding as 07/01/17	93.342				201,100		201,100
HPL Vet issued after 07/01/17	93.342				182,431		182,431
HPL Vet Outstanding as 07/01/17	93.342				2,799,979		2,799,979
LDS Dental Outstanding as 06/30/2018	93.342				2,201		2,201
LDS Medical Outstanding as 07/01/17	93.342				1,367,529		1,367,529
93.342 Total					**14,296,859**		**14,296,859**
Nursing Student Loan Graduate Outstanding New loans issued during 2018	93.364				96,400		96,400
Nursing Student Loan Undergraduate New loans issued during 2018	93.364				172,000		172,000
Nursing Student Loan Graduate Outstanding loans issued as July 1, 2017	93.364				401,628		401,628
Nursing Student Loan Undergraduate Outstanding loans issued as July 1, 2017	93.364				2,537,049		2,537,049
93.364 Total					**3,207,077**		**3,207,077**
HEALTH RESOURCES & SERVICES ADMINISTRATION (HRSA) Total					19,083,468		19,083,468
DEPARTMENT OF HEALTH AND HUMAN SERVICES Total					***19,083,468***		***19,083,468***
Student Financial Assistance Cluster Total					***291,259,776***		***291,259,776***
CCDF CLUSTER							
DEPARTMENT OF HEALTH AND HUMAN SERVICES							
ADMINISTRATION FOR CHILDREN AND FAMILIES/DHHS							
Child-Centered Assessment of Approaches to Learning: Development and Validation of a Measure for Use in Preschool Child Care Classrooms	93.575		90YE0162-01-00		2,477		2,477
The Penn Literacy Network Early Childhood Literacy Program 2017-2018	93.575	PUBLIC HEALTH MANAGEMENT CORPORATION	8701-0618-24			20,783	20,783
93.575 Total					**2,477**	**20,783**	**23,260**
ADMINISTRATION FOR CHILDREN AND FAMILIES/DHHS Total					2,477	20,783	23,260
DEPARTMENT OF HEALTH AND HUMAN SERVICES Total					***2,477***	***20,783***	***23,260***
CCDF CLUSTER Total					***2,477***	***20,783***	***23,260***
Economic Development Cluster							
DEPARTMENT OF COMMERCE							
DEPARTMENT OF COMMERCE							
Economic Development Administration:Preparing a Plan to Sustain Small Pennsylvania Businesses in the Coal Economy	11.307		01-69-14738		31,634		31,634
11.307 Total					**31,634**		**31,634**
DEPARTMENT OF COMMERCE Total					31,634		31,634
DEPARTMENT OF COMMERCE Total					***31,634***		***31,634***
Economic Development Cluster Total					***31,634***		***31,634***
Maternal, Infant, and Early Childhood Home Visiting Cluster							
DEPARTMENT OF HEALTH AND HUMAN SERVICES							
HEALTH RESOURCES & SERVICES ADMINISTRATION (HRSA)							

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Affordable Care Act (ACA) Maternal, Infant and Early Childhood Home Visiting Program	93.505	United Way of Lancaster County	X10MC29500			448,705	448,705
93.505 Total						**448,705**	**448,705**
HEALTH RESOURCES & SERVICES ADMINISTRATION (HRSA) Total						448,705	448,705
DEPARTMENT OF HEALTH AND HUMAN SERVICES Total						***448,705***	***448,705***
Maternal, Infant, and Early Childhood Home Visiting Cluster Total						***448,705***	***448,705***
Medicaid Cluster							
DEPARTMENT OF HEALTH AND HUMAN SERVICES							
DEPARTMENT OF HEALTH & HUMAN SERVICES							
IDS Base Unitary	93.778	CITY OF PHILADELPHIA	1720074			154,641	154,641
93.778 Total						**154,641**	**154,641**
DEPARTMENT OF HEALTH & HUMAN SERVICES Total						154,641	154,641
DEPARTMENT OF HEALTH AND HUMAN SERVICES Total						***154,641***	***154,641***
Medicaid Cluster Total						***154,641***	***154,641***
SNAP CLUSTER							
DEPARTMENT OF AGRICULTURE							
DEPARTMENT OF AGRICULTURE							
PA Nutrition Education TRACKS Program	10.561	PENNSYLVANIA STATE UNIVERSITY	5315-TUP-COP-9151			-34	-34
SNAP-Ed/DPW PANEP 17	10.561	PENNSYLVANIA STATE UNIVERSITY	5541-TUP-COP-9151			307,705	307,705
PA Nutrition Education Tracks Program (PANEP 18)	10.561	PENNSYLVANIA STATE UNIVERSITY	5741-UNI-COP-9151			787,064	787,064
10.561 Total						**1,094,735**	**1,094,735**
DEPARTMENT OF AGRICULTURE Total						1,094,735	1,094,735
DEPARTMENT OF AGRICULTURE Total						***1,094,735***	***1,094,735***
SNAP CLUSTER Total						***1,094,735***	***1,094,735***
TRIO Cluster							
DEPARTMENT OF EDUCATION							
DEPARTMENT OF EDUCATION							
Educational Opportunity Center	84.066		P066A120055		12,405		12,405
84.066 Total					**12,405**		**12,405**
DEPARTMENT OF EDUCATION Total					12,405		12,405
OFFICE OF POSTSECONDARY EDUCATION/DEPARTMENT OF EDUCATION							
Office of Postsecondary Education (OPE): Student Support Services Program CFDA Number 84.042	84.042		P042A150394		185,491		185,491
84.042 Total					**185,491**		**185,491**
University of Pennsylvania Talent Search Program	84.044		9044A160227		277,788		277,788
84.044 Total					**277,788**		**277,788**
Upward Bound	84.047		P047A131651 ACTION 1		505,812		505,812
Upward Bound Math and Science Program	84.047		P047M130476		276,767		276,767
Veterans Upward Bound Program	84.047		P047V120006		46,406		46,406
UNIVERSITY OF PENNSYLVANIA VETERANS UPWARD BOUND PROGRAM	84.047		P047V170188		276,404		276,404
84.047 Total					**1,105,389**		**1,105,389**
OFFICE OF POSTSECONDARY EDUCATION/DEPARTMENT OF EDUCATION Total					1,568,668		1,568,668
DEPARTMENT OF EDUCATION Total					***1,581,073***		***1,581,073***
TRIO Cluster Total					***1,581,073***		***1,581,073***
TANF CLUSTER							
DEPARTMENT OF HEALTH AND HUMAN SERVICES							
ADMINISTRATION FOR CHILDREN AND FAMILIES/DHHS							
Career Exposure-Rising 8th graders	93.558	PHILADELPHIA YOUTH NETWORK	10573/C113			37,003	37,003
93.558 Total						**37,003**	**37,003**
ADMINISTRATION FOR CHILDREN AND FAMILIES/DHHS Total						37,003	37,003
DEPARTMENT OF HEALTH AND HUMAN SERVICES Total						***37,003***	***37,003***
TANF CLUSTER Total						***37,003***	***37,003***
Other Programs							
DEPARTMENT OF DEFENSE							
DEFENSE ADVANCED RESEARCH PROJECTS AGENCY							
DARPA IPA #0246 J.M. SMITH	12.U23		IPA 0246		243,755		243,755
12.U20 Total					**243,755**		**243,755**
DEFENSE ADVANCED RESEARCH PROJECTS AGENCY Total					243,755		243,755
DEFENSE LOGISTICS AGENCY							
Southeast Pennsylvania Procurement Technical Assistance Program (PTAP)	12.002		SP4800-16-2-1636	111,339	117,207		117,207
Southeast Pennsylvania Procurement Technical Assistance Program (PTAP)	12.002		SP4800-17-2-1736	187,457	247,069		247,069
12.002 Total				**298,796**	**364,276**		**364,276**
DEFENSE LOGISTICS AGENCY Total				298,796	364,276		364,276
DEPARTMENT OF DEFENSE Total				***298,796***	***608,031***		***608,031***
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT							
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT							
Continuum of Care Program	14.267				1,401,724		1,401,724
14.267 Total					**1,401,724**		**1,401,724**
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT Total					1,401,724		1,401,724
DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT Total					***1,401,724***		***1,401,724***
DEPARTMENT OF INTERIOR							

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NATIONAL PARK SERVICE							
2017-18 NWP National Park Service Collaboration Grant	15.954	NATIONAL WRITING PROJECT	2017-18 NWP			3,500	3,500
15.954 Total						**3,500**	**3,500**
Independence National Park Service - 2017	15.U07				1,500		1,500
15.U18 Total					**1,500**		**1,500**
NATIONAL PARK SERVICE Total					1,500	3,500	5,000
DEPARTMENT OF INTERIOR Total					***1,500***	***3,500***	***5,000***
DEPARTMENT OF JUSTICE							
NATIONAL INSTITUTE OF JUSTICE/DEPARTMENT OF JUSTICE							
Quality Improvement & Accreditation Advancement	16.758	National Children's Alliance	ERIE-PA-2QIAA17			7,475	7,475
16.758 Total						**7,475**	**7,475**
NATIONAL INSTITUTE OF JUSTICE/DEPARTMENT OF JUSTICE Total						7,475	7,475
OFFICE OF JUSTICE PROGRAMS/DEPARTMENT OF JUSTICE							
Penn Resilience Program for Law Enforcement Officers	16.738	INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE	SUB TO 2017-VI-BX-K001			99,971	99,971
16.738 Total						**99,971**	**99,971**
OFFICE OF JUSTICE PROGRAMS/DEPARTMENT OF JUSTICE Total						99,971	99,971
OFFICE OF JUVENILE JUSTICE AND DELINQUENCY PREVENTION/DEPARTMENT OF JUSTICE							
OJJDP FY 2015 Design Study of Dual System Youth Project	16.818	CALIFORNIA STATE UNIVERSITY	UPENN231236			60,980	60,980
16.818 Total						**60,980**	**60,980**
OFFICE OF JUVENILE JUSTICE AND DELINQUENCY PREVENTION/DEPARTMENT OF JUSTICE Total						60,980	60,980
DEPARTMENT OF JUSTICE Total						***168,426***	***168,426***
U.S. DEPARTMENT OF STATE							
U.S. DEPARTMENT OF STATE							
Fulbright Foreign Language Teaching Assistants Summer Orientation 2017	19.400	INSTITUTE OF INTERNATIONAL EDUCATION	IIE 0136_Penn 5.15.17			67,142	67,142
19.400 Total						**67,142**	**67,142**
Fulbright Foreign Language Teaching Assistants Summer Orientation 2018	19.418	INSTITUTE OF INTERNATIONAL EDUCATION	FST1801 Penn 5.1.18			112	112
19.418 Total						**112**	**112**
English for Journalism Online Course	19.421	FHI 360	PO18000081			35,187	35,187
19.421 Total						**35,187**	**35,187**
Proposal for Massive Open Online Courses (MOOCs) for English Language Learners under the English Access Microscholarship Program	19.U20	FHI 360	PO16000435			52,772	52,772
19.U05 Total						**52,772**	**52,772**
U.S. DEPARTMENT OF STATE Total						155,213	155,213
U.S. DEPARTMENT OF STATE Total						***155,213***	***155,213***
DEPARTMENT OF TREASURY							
FEDERAL RESERVE BANK OF PHILADELPHIA							
Reinventing Older Communities	21.U01		CONFERENCE ORGANIZATION AGREEMENT		-136		-136
21.U06 Total					**-136**		**-136**
FEDERAL RESERVE BANK OF PHILADELPHIA Total					-136		-136
DEPARTMENT OF TREASURY Total					***-136***		***-136***
UNITED STATES CONGRESS							
UNITED STATES CONGRESS							
Teacher inquiry: Exploring primary sources through the lenses of civics, science, and community	42.U05	WAYNESBURG UNIVERSITY	SUB TO GA GA08C0016			835	835
42.U23 Total						**835**	**835**
UNITED STATES CONGRESS Total						835	835
UNITED STATES CONGRESS Total						***835***	***835***
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION							
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION							
Cognition training and support	43.002	NATIONAL SPACE BIOMEDICAL RESEARCH INSTITUTE	NCC9-58- 159			-462	-462
43.002 Total						**-462**	**-462**
Life Science Professional Development for Philadelphia Teachers	43.U08	NASA PENNSYLVANIA SPACE GRANT CONSORTIUM	SUB TO NASA			1,993	1,993
43.U16 Total						**1,993**	**1,993**
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION Total						1,531	1,531
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION Total						***1,531***	***1,531***
NATIONAL ENDOWMENT							
INSTITUTE OF MUSEUM AND LIBRARY SERVICES							
Unpacking the Past: A Penn Museum Learning Program Serving Seventh Grade Students and Teachers of the School District of Philadelphia, KIPP and Mastery Charter Schools	45.301		MA-10-15-0299-15		-6,640		-6,640
To Capture and Keep! Establishing Preservation Practices for Born Digital Art Collections	45.301	PHILA MUSEUM OF ART				36,726	36,726
45.301 Total					**-6,640**	**36,726**	**30,086**
Mapping Manuscript Migrations	45.312		LG-00-17-0102-17		83,364		83,364
Opening access to mid-20th century serials	45.312		LG-74-17-0161-17		16,260		16,260
45.312 Total					**99,624**		**99,624**
INSTITUTE OF MUSEUM AND LIBRARY SERVICES Total					92,984	36,726	129,710
NATIONAL ENDOWMENT FOR THE ARTS							
K-12 Learning Programs for New Signature Galleries of the Middle East	45.024		17-4400-7129		12,544		12,544
Dayme Arocena	45.024	MID ATLANTIC ARTS FOUNDATION	29601			1,400	1,400
Danz Abierta	45.024	MID ATLANTIC ARTS FOUNDATION	29634			7,000	7,000
45.024 Total					**12,544**	**8,400**	**20,944**

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NATIONAL ENDOWMENT FOR THE ARTS Total					12,544	8,400	20,944
NATIONAL ENDOWMENT FOR THE HUMANITIES							
Completing the Royal Inscriptions of the Neo-Assyrian Period (RINAP): Assyrian Imperial Sources from Apex to Annihilation (668-609 BCE)	45.149		PW-228092-15		18,082		18,082
Completing the Royal Inscriptions of the Neo-Assyrian Period (RINAP): Assyrian Imperial Sources from Apex to Annihilation (668-609 BCE)	45.149		PW-253771-17		119,856		119,856
Providing Global Access to Penn's Indic Manuscripts, circa 1527-1930 (bulk 1700-1850)	45.149		PW-51547-14		351		351
The New Schoenberg Database of Manuscripts: A Research Tool for Tracking the Current and Historic Locations of Manuscripts	45.149		PW-51580-14		-2,684		-2,684
45.149 Total					**135,605**		**135,605**
Galleries of the Ancient Middle East	45.164		GI-253978-17		250,000		250,000
45.164 Total					**250,000**		**250,000**
The Philadelphia Playbills Project	45.169		HAA-255999-17		30,597		30,597
Digital Humanities from an Indigenous Perspective: Strengthening Partnerships between Indigenous Communities, Humanities Scholars, Museums, and Archives	45.169		HAA-258754-18		1,179		1,179
45.169 Total					**31,776**		**31,776**
W.E.B. DU BOIS'S THE PHILADELPHIA NEGRO: A CENTENARY REAPPRAISAL	45.U04		RX-21550-94		284		284
45.U01 Total					**284**		**284**
VETERANS UPWARD BOUND AT THE UNIVERSITY OF PENNSYLVANIA: STANDING TOGETHER AND GROWING TOGETHER THROUGH THE HUMANITIES	45.U10	PA HUMANITIES COUNCIL	SPS-17-02			2,200	2,200
45.U15 Total						**2,200**	**2,200**
NATIONAL ENDOWMENT FOR THE HUMANITIES Total					417,665	2,200	419,865
NATIONAL ENDOWMENT Total					***523,193***	***47,326***	***570,519***
SMALL BUSINESS ADMINISTRATION							
SMALL BUSINESS ADMINISTRATION							
EmPOWERing Pennsylvania Small Businesses	59.037		SBAHQ-16-B-0077	9,829	52,178		52,178
Pennsylvania Portable Assistance Project: A Silver Lining Playbook: Catalyzing a Delaware Valley Innovation Corridor in the wake of the DuPont Downsizing - A Bi-State Partnership	59.037		SBAHQ-16-B-0076		40,785		40,785
Pennsylvania Small Business Development Centers	59.037		SBAHQ-14-B-0055		-13,620		-13,620
PENNSYLVANIA SMALL BUSINESS DEVELOPMENT CENTERS 2017 SBA PROPOSAL	59.037		SBAHQ-17-B-0057	3,567,421	4,539,508		4,539,508
Revitalizing Small Businesses Impacted by Job Losses in the Coal Industry	59.037		SBAHQ-15-B-0078	13,845	13,426		13,426
Transitioning Workers into Entrepreneurs	59.037		SBAHQ-17-B-0077	10,525	24,868		24,868
Planning for Profits: "Decision Makers"	59.037		SBAHQ-17-B-0080		10,448		10,448
Pennsylvania Small Business Development Centers 2018 SBA Proposal	59.037		SBAHQ18B0054	244,739	601,440		601,440
59.037 Total				**3,846,359**	**5,269,033**		**5,269,033**
Pennsylvania FAST 2016 Innovation Partnership Proposal	59.U19	BEN FRANKLIN TECHNOLOGY PARTNERS CORPORATION	SBA-FAST PROGRAM	36,000		48,588	48,588
59.U12 Total				**36,000**		**48,588**	**48,588**
SMALL BUSINESS ADMINISTRATION Total				3,882,359	5,269,033	48,588	5,317,621
SMALL BUSINESS ADMINISTRATION Total				***3,882,359***	***5,269,033***	***48,588***	***5,317,621***
DEPARTMENT OF VETERAN AFFAIRS							
DEPARTMENT OF VETERANS AFFAIRS							
IPA - Ruben Gur	64.U11		IPA RUBEN GUR		4,492		4,492
64.U09 Total					**4,492**		**4,492**
VA IPA for JASON A. BLAKE - CPPF	64.U06		IPA - Jason Blake		1,210		1,210
64.U10 Total					**1,210**		**1,210**
IPA - Laurie Downing	64.U13		IPA LAURIE DOWNING		9,719		9,719
64.U19 Total					**9,719**		**9,719**
VA IPA Agreement for Akudo Ejelonu	64.U15		IPA AGREEMENT		16,100		16,100
64.U21 Total					**16,100**		**16,100**
IPA - Laurie Downing	64.U16		IPA LAURIE DOWNING		16,974		16,974
64.U13 Total					**16,974**		**16,974**
IPA Agreement - Lynch	64.U12		IPA KEVIN LYNCH		5,400		5,400
64.U14 Total					**5,400**		**5,400**
VA IPA for ADON ROSEN	64.U14		IPA AGREEMENT		10,748		10,748
64.U17 Total					**10,748**		**10,748**
IPA agreements for Yonghai Li and Akudo Ejelonu	64.U22		IPA AGREEMENT		96,434		96,434
64.U22 Total					**96,434**		**96,434**
VA IPA for Allison M Port	64.U09		IPA AGREEMENT		2,053		2,053
64.U08 Total					**2,053**		**2,053**
DEPARTMENT OF VETERANS AFFAIRS Total					163,130		163,130
MINNEAPOLIS VA HEALTH CARE SYSTEM							
IPA - Kehle-Forbes PI (Minneapolis VA)	64.U17		IIR 14-030		26,198		26,198
64.U04 Total					**26,198**		**26,198**
MINNEAPOLIS VA HEALTH CARE SYSTEM Total					26,198		26,198
DEPARTMENT OF VETERAN AFFAIRS Total					***189,328***		***189,328***
ENVIROMENTAL PROTECTION AGENCY							
ENVIRONMENTAL PROTECTION AGENCY							
SMALL BUSINESS EPA COMPLIANCE & REGULATORY ASSISTANCE PROGRAM	66.U02		X825046-01-0		-131		-131
66.U02 Total					**-131**		**-131**
ENVIRONMENTAL PROTECTION AGENCY Total					-131		-131
ENVIROMENTAL PROTECTION AGENCY Total					***-131***		***-131***
DEPARTMENT OF EDUCATION							
DEPARTMENT OF EDUCATION							

University of Pennsylvania
Schedule of Expenditures
For the year ended June 30, 2018

Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
Title VI FLAS Fellowship Funding 2014-2018	84.015		P015B140143		273,346		273,346
Title VI FLAS Fellowship Funding 2014-2018	84.015		P015B140144	8,500	238,374		238,374
Title VI FLAS Fellowship Funding 2014-2018	84.015		P015B140137		336,433		336,433
Title VI National Resource Center Funding 2014-2018	84.015		P015A140137	8,500	151,496		151,496
Title VI National Resource Center Funding 2014-2018	84.015		P015A140143	5,000	294,987		294,987
84.015 Total				**22,000**	**1,294,636**		**1,294,636**
IMPROVEMENT OF EDUCATION - EARMARKED APPLICATION	84.215		R215K010107-01		-128		-128
84.215 Total					**-128**		**-128**
21st Century Community Learning Center (21CCLC) Cohort 8	84.287	PENNSYLVANIA DEPARTMENT OF EDUCATION	FC #4100071658	9,500		427,249	427,249
21st Century Learning Community Centers -- Cohort 7	84.287	PENNSYLVANIA DEPARTMENT OF EDUCATION	4100068078	9,500		444,462	444,462
21st Century Community Learning Center Cohort 9	84.287	PENNSYLVANIA DEPARTMENT OF EDUCATION	SUB TO S287C170038	11,500		246,732	246,732
84.287 Total				**30,500**		**1,118,443**	**1,118,443**
Gear Up CCRCs	84.334	SCHOOL DISTRICT OF PHILADELPHIA	005/F16			-1,046	-1,046
Gear Up CCRCs	84.334		005/F17	110,956		152,345	152,345
Gear Up CCRCs	84.334		005/F18			87,499	87,499
84.334 Total				**110,956**		**238,798**	**238,798**
2017-2018 NWP CRWP-SEED High-Need School Grant	84.367	NATIONAL WRITING PROJECT	92-PA06-B-SEED2017-CRWPPD			12,544	12,544
Investing in the National Writing Project's College-Ready Writers Program: Expanding the Reach of Effective Teacher-Leaders to Support all Students	84.367	NATIONAL WRITING PROJECT	92-PA06-B-SEED2016			1,307	1,307
Invitational Leadership Institute	84.367	NATIONAL WRITING PROJECT	92-PA06-B-SEED2016-ILI			22	22
84.367 Total						**13,873**	**13,873**
GEAR UP - AVID Partnerships	84.U03	SCHOOL DISTRICT OF PHILADELPHIA	593/F11			-94	-94
84.U03 Total						**-94**	**-94**
DEPARTMENT OF EDUCATION Total				163,456	1,294,508	1,371,020	2,665,528
OFFICE OF POSTSECONDARY EDUCATION/DEPARTMENT OF EDUCATION							
Intensive Advanced Program for Zulu in South Africa	84.021		P021A160057		102,113		102,113
84.021 Total					**102,113**		**102,113**
GAANN Mechanical Engineering Program in Fundamentals of Advanced Manufacturing (FAM)	84.200		P200A160282		429,955		429,955
84.200 Total					**429,955**		**429,955**
OFFICE OF POSTSECONDARY EDUCATION/DEPARTMENT OF EDUCATION Total					532,068		532,068
DEPARTMENT OF EDUCATION Total				***163,456***	***1,826,576***	***1,371,020***	***3,197,596***
DEPARTMENT OF HEALTH AND HUMAN SERVICES							
BUREAU OF HEALTH PROFESSIONS/HRSA/DHHS							
Keystone Geriatrics Center for Enhancing Primary Care and Community Education	93.969		1 U1QHP282720-01-00	272,890	905,058		905,058
93.969 Total				**272,890**	**905,058**		**905,058**
BUREAU OF HEALTH PROFESSIONS/HRSA/DHHS Total				272,890	905,058		905,058
CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)							
Cooperative Agreements for State-Based Comprehensive Breast and Cervical Cancer Early Detection Programs	93.919	Family Health Council of Central PA	4100066441			129,135	129,135
93.919 Total						**129,135**	**129,135**
CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC) Total						129,135	129,135
CENTERS FOR MEDICARE AND MEDICAID SERVICES/DHHS							
Resource Development and Dissemination for PA's Certified Older Adult Peer Specialists Initiative	93.829	COMMONWEALTH OF PENNSYLVANIA	Sub to 1LICMS030173-01-11			70,781	70,781
93.829 Total						**70,781**	**70,781**
CENTERS FOR MEDICARE AND MEDICAID SERVICES/DHHS Total						70,781	70,781
HEALTH RESOURCES & SERVICES ADMINISTRATION (HRSA)							
Care Services Case Management	93.914	CITY OF PHILADELPHIA	1720668			47,923	47,923
Care Services Case Management	93.914		1720666			45,313	45,313
Care Services Case Management	93.914		1720668-01			21,837	21,837
Care Services Case Management	93.914		1720666-01			12,577	12,577
HIV Emergency Relief Projects Grants	93.914	CITY OF PHILADELPHIA	1720668			217,840	217,840
HIV Emergency Relief Projects Grants	93.914		1720668-01			106,503	106,503
Mental Health Services	93.914	CITY OF PHILADELPHIA	1720666-01			33,389	33,389
Mental Health Services	93.914	CITY OF PHILADELPHIA	1720666			59,483	59,483
Part A Formula Ryan White HIV/AIDS Treatment Modernization Act	93.914	CITY OF PHILADELPHIA	1720667/R7731			221,873	221,873
Part A Formula Ryan White HIV/AIDS Treatment Modernization Act	93.914		1720667/R8731			96,598	96,598
Part A RW HIV/AIDS Minority Aids Initiative	93.914	CITY OF PHILADELPHIA	1720666			231,800	231,800
Part A RW HIV/AIDS Minority Aids Initiative	93.914		1720666-01			93,312	93,312
Outpatient/Ambulatory Medical Care	93.914	CITY OF PHILADELPHIA	1720665			41,345	41,345
Outpatient/Ambulatory Medical Care	93.914		1720665-01			22,552	22,552
93.914 Total						**1,252,345**	**1,252,345**
Grants to provide Outpatient Early Intervention Services with respect to HIV Disease	93.918				177,341		177,341
RW Part C HIV Early Prevention	93.918	CITY OF PHILADELPHIA	1820058			100,000	100,000
Outpatient Early Intervention Service with Respect to HIV Disease- Part C	93.918	DREXEL UNIVERSITY	800100			36,972	36,972
93.918 Total					**177,341**	**136,972**	**314,313**
HIV Emergency Relief Projects Grants	93.940	CITY OF PHILADELPHIA	1620357-01			38,756	38,756
HIV Emergency Relief Projects Grants	93.940		1820469			32,341	32,341
93.940 Total						**71,097**	**71,097**
Maternal and Child Health Service Block Grant	93.994	Shadyside Hospital Foundation	4100071256			66,397	66,397
Maternal and Child Health Services Block Grant to the States	93.994	COMMONWEALTH OF PENNSYLVANIA	4100065681			124,307	124,307
Infant Safe Sleep Initiative	93.994	COMMONWEALTH OF PENNSYLVANIA	4100074035			450,000	450,000
93.994 Total						**640,704**	**640,704**
HEALTH RESOURCES & SERVICES ADMINISTRATION (HRSA) Total					177,341	2,101,118	2,278,459
NATIONAL INSTITUTE OF MENTAL HEALTH/NIH/DHHS							
IPA (Intergovernmental Personnel Act)	93.U21		IPA AGREEMENT		61,207		61,207
93.U07 Total					**61,207**		**61,207**

University of Pennsylvania
Schedule of Expenditures
For the year ended June 30, 2018

Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
NATIONAL INSTITUTE OF MENTAL HEALTH/NIH/DHHS Total					61,207		61,207
OFFICE OF POPULAION AFFAIRS							
Family Planning Service	93.217	Family Health Council of Central PA	5 FPHPA03160-02-00			39,647	39,647
93.217 Total						**39,647**	**39,647**
OFFICE OF POPULAION AFFAIRS Total						39,647	39,647
OFFICE OF THE ASSISTANT SECRETARY FOR HEALTH/DHHS							
National Bioterrorism Hospital Preparedness Program	93.889	COMMONWEALTH OF PENNSYLVANIA	4100062641			3,123	3,123
National Bioterrorism Hospital Preparedness Program	93.889		4100062670			19,648	19,648
FY16-17 HPP Emer Prep Funds	93.889	COMMONWEALTH OF PENNSYLVANIA	4100062597			16,903	16,903
93.889 Total						**39,674**	**39,674**
Growing Together: University Assisted Community School Partnerships using Community Food Systems as a Context for Youth Empowerment.	93.910		YEPMP120066-01-00		70,839		70,839
93.910 Total					**70,839**		**70,839**
OFFICE OF THE ASSISTANT SECRETARY FOR HEALTH/DHHS Total					70,839	39,674	110,513
SUBSTANCE ABUSE & MENTAL HEALTH SERVICES ADMINISTRATION (SAMHSA)							
Philadelphia Integrated System of Care Expansion (PISCE)	93.104	COMMUNITY BEHAVIORAL HEALTH	SUB TO 1U79SM062463			188,512	188,512
93.104 Total						**188,512**	**188,512**
MH Base Unitary	93.243	CITY OF PHILADELPHIA	1720075			84,746	84,746
Philadelphia Alliance for Child Trauma Services (PACTS)	93.243	CITY OF PHILADELPHIA	1320657			112	112
Reaching the Most Vulnerable: PACTS II	93.243	CITY OF PHILADELPHIA	1720535			83,174	83,174
Recovery-Oriented Cognitive Therapy for Individuals with Severe and Persistent Mental Illness in Georgia	93.243	GEORGIA STATE UNIVERSITY	SP00011772-01			42,161	42,161
93.243 Total						**210,193**	**210,193**
Pennsylvania First Episode Psychosis Treatment Initiative: Program Evaluation Research	93.958	CITY OF PHILADELPHIA	1720597			129,328	129,328
PERC-SAMHSA Project	93.958	CITY OF PHILADELPHIA	1720597			71,944	71,944
SAMHSA-FEP: Pennsylvania First Episode Psychosis Treatment Initiative: Program Evaluation	93.958	ADAMS COUNTY, PENNSYLVANIA	Sub to SAMHSA FEP			239,366	239,366
SAMHSA-PERC	93.958	CITY OF PHILADELPHIA	1720597-01			199,631	199,631
93.958 Total						**640,269**	**640,269**
Evaluation of Cooperative Agreements to Benefit Homeless Individuals for States and Communities (CABHI-States and Communities)	93.U18	RESEARCH TRIANGLE INSTITUTE	Sub 29-312-0213405-52639L			29,358	29,358
93.U11 Total						**29,358**	**29,358**
SUBSTANCE ABUSE & MENTAL HEALTH SERVICES ADMINISTRATION (SAMHSA) Total						1,068,332	1,068,332
DEPARTMENT OF HEALTH AND HUMAN SERVICES Total				***272,890***	***1,214,445***	***3,448,687***	***4,663,132***
CORPORATION FOR NATIONAL AND COMMUNITY SERVICE							
CORPORATION FOR NATIONAL AND COMMUNITY SERVICE							
Next Steps AmeriCorps FY16/17	94.006	COMMONWEALTH OF PENNSYLVANIA	4100074210	17,734		48,288	48,288
VISTA Admin (2016/2017)	94.006		2685		6,794		6,794
Next Steps AmeriCorps	94.006	COMMONWEALTH OF PENNSYLVANIA	4100078376	5,064		94,246	94,246
94.006 Total				**22,798**	**6,794**	**142,534**	**149,328**
VISTA Admin (2017-2018)	94.013		AMEND 1 12VSAPA008		40,270		40,270
94.013 Total					**40,270**		**40,270**
CORPORATION FOR NATIONAL AND COMMUNITY SERVICE Total				22,798	47,064	142,534	189,598
CORPORATION FOR NATIONAL AND COMMUNITY SERVICE Total				***22,798***	***47,064***	***142,534***	***189,598***

University of Pennsylvania
Schedule of Expenditures
For the year ended June 30, 2018

Federal Grantor/Program or Cluster Title	CFDA Number	Pass-Through Grantor	Award/Pass-Through Entity Identification Number	Passed To Sub-Recipients	Direct	Pass-Through	Expenditure Total
DEPARTMENT OF HEALTH AND HUMAN SERVICES							
HEALTH RESOURCES & SERVICES ADMINISTRATION (HRSA)							
FY16-17 HPP Emer Prep Funds	93.889	COMMONWEALTH OF PENNSYLVANIA	133998-003			14,925	14,925
	93.889 Total					**14,925**	**14,925**
HEALTH RESOURCES & SERVICES ADMINISTRATION (HRSA) Total						14,925	14,925
DEPARTMENT OF HEALTH AND HUMAN SERVICES Total						***14,925***	***14,925***
Other Programs Total				***4,640,299***	***11,080,627***	***5,402,585***	***16,483,212***
Total Expenditures on Federal Awards				**87,866,587**	**898,480,849**	**91,135,970**	**989,616,819**

The accompanying notes are an integral part of this schedule

University of Pennsylvania
Notes to Schedule of Expenditures of Federal Awards
June 30, 2018

1. Basis of Presentation

The Schedule of Expenditures of Federal Awards (the "Schedule") has been prepared to present a summary of those activities of the University of Pennsylvania for the year ended June 30, 2018, which have been financed by the U.S. Government ("Federal awards") and is presented on the accrual basis of accounting. The information in this schedule is presented in accordance with the requirements of Title 2 U.S. *Code of Federal Relegations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance).

For purposes of the Schedule, Federal awards include all Federal assistance entered into directly between the University of Pennsylvania and the Federal government and sub-awards from non-Federal organizations made under federally sponsored agreements. Because the Schedule presents only a selected portion of the activities of the University of Pennsylvania, it is not intended to and does not present the financial position or the revenues, expenses or changes in net assets of the University of Pennsylvania.

The University applies its predetermined approved facilities and administrative rate when charging indirect costs to federal awards rather than the 10% de minimis cost rate as described in Section 200.414 of the Uniform Guidance.

Negative amounts on the schedule represent adjustments in the normal course of business to amounts reported in previous years. Catalog of Federal Domestic Assistance ("CFDA") and pass-through award numbers are present where available.

2. Federal Student Financial Assistance

The federal student loan programs included within the Student Financial Aid Cluster on the Schedule of Expenditures of Federal Awards above, with the exception of Federal Direct Loans, are administered directly by the University and balances and transactions relating to these programs are included in the University's consolidated financial statements. Loans outstanding at the beginning of the year and loans made during the year are included in the federal expenditures presented in the Schedule. Also included is the amount recovered for the year ended June 30, 2018, for administrative cost allowance from the Perkins Loan program of $381,101. The amounts of Federal Loans outstanding at June 30, 2018 are shown on below.

Federal Grantor/Program	CFDA Number	Outstanding Balance as of 6/30/2018
Department of Education		
Perkins Loan	84.038	46,396,577
Department of Health and Human Services		
Health Professions Student Loans - Dental	93.342	8,456,863
Health Professions Student Loans - Medical	93.342	196,835
Health Professions Student Loans - Vet	93.342	2,360,977
Loans for Disadvantaged Students - Dental	93.342	2,201
Loans for Disadvantaged Students - Medical	93.342	1,317,482
Nursing Student Loan - Graduate	93.364	392,977
Nurse Faculty Loan Program	93.264	1,522,515
Nursing Student Loan - Undergraduate	93.364	2,319,268

3. Other Matters

2 CFR Part 200.403 states that except where otherwise authorized by statute, costs must meet certain criteria in order to be allowable under Federal awards. Subsequent to year end, during the course of its review of certain expenditures, management of the University had concerns regarding potentially inappropriate grant expenditures and performed an investigation. As a result of the investigation, management identified a total of approximately $1.5 million of unsupportable charges across several NIH awards from fiscal year 2011 through fiscal year 2018. The charges were the result of a single laboratory's attempts to circumvent University policies and procedures. The direct awards impacted were HL-073021, HL-103723, HL-11532, HL-063954, HL-113216, and HL-115323 and the pass through awards impacted were UTA12-000569, UTA13-000980, FP21897_SUB01_01, and 3200920521. These awards were part of CFDA#'s 93.837, 93.846, 93.937, 93.286, and 93.387. The University has contacted NIH and the two pass through entities and plans to refund all unsupported charges identified. The accompanying Schedule of Federal Awards does not reflect that potential refund. These refunds are expected to be reflected in the period the amounts are finalized.

II. Internal Control and Compliance

Report of Independent Auditors on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*

To the Trustees of the University of Pennsylvania:

We have audited, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the consolidated financial statements of the University of Pennsylvania ("the University"), which comprise the consolidated statement of financial position as of June 30, 2018, and the related consolidated statements of activities and of cash flows for the year then ended, and the related notes to the consolidated financial statements, and have issued our report thereon dated September 27, 2018.

Internal Control Over Financial Reporting

In planning and performing our audit of the financial statements, we considered the University's internal control over financial reporting ("internal control") to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the University's internal control. Accordingly, we do not express an opinion on the effectiveness of the University's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the University's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit and, accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Philadelphia, Pennsylvania
September 27, 2018

Report of Independent Auditors on Compliance with Requirements That Could Have a Direct and Material Effect on Each Major Program and on Internal Control Over Compliance in Accordance with the Uniform Guidance

To the Trustees of the University of Pennsylvania:

Report on Compliance for Each Major Federal Program

We have audited the University of Pennsylvania's (the "University") compliance with the types of compliance requirements described in the *OMB Compliance Supplement* that could have a direct and material effect on each of the University's major federal programs for the year ended June 30, 2018. The University's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

Management's Responsibility

Management is responsible for compliance with federal statutes, regulations and the terms and conditions of its federal awards applicable to its federal programs.

Auditors' Responsibility

Our responsibility is to express an opinion on compliance for each of the University's major federal programs based on our audit of the types of compliance requirements referred to above. We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Those standards and the Uniform Guidance require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about the University's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion on compliance for each major federal program. However, our audit does not provide a legal determination of the University's compliance.

Opinion on Each Major Federal Program

In our opinion, the University complied, in all material respects, with the types of compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended June 30, 2018.

Other Matters

The results of our auditing procedures disclosed instances of noncompliance, which are required to be reported in accordance with the Uniform Guidance and which are described in the accompanying schedule

of findings and questioned costs as items 2018-001 through 2018-010. Our opinion on each major federal program is not modified with respect to these matters.

The University's response to the noncompliance findings identified in our audit is described in the accompanying Management's View and Corrective Action Plan. The University's response was not subjected to the auditing procedures applied in the audit of compliance and, accordingly, we express no opinion on the response.

Report on Internal Control over Compliance

Management of the University is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered the University's internal control over compliance with the types of requirements that could have a direct and material effect on each major federal program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance for each major federal program and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly we do not express an opinion on the effectiveness of the University's internal control over compliance.

A *deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. A *material weakness in internal control over compliance* is a deficiency, or combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. A *significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.

Philadelphia, Pennsylvania

January 29, 2019

III. Schedule of Findings and Questioned Costs

University of Pennsylvania
Schedule of Findings and Questioned Costs
June 30, 2018

Section I – Summary of Auditor's Results

Consolidated Financial Statements

(i)	Type of auditor's report issued:	Unmodified	
(ii)	Internal control over financial reporting:		
	Material weakness(es) identified?	___ yes	_X_ no
	Significant deficiency(ies) identified that are not considered to be material weaknesses?	___ yes	_X_ none reported
(iii)	Noncompliance material to financial statements noted?	___ yes	_X_ no

Federal Awards

(iv)	Internal control over major programs:		
	Material weakness(es) identified?	___ yes	_X_ no
	Significant deficiency(ies) identified that are not considered to be material weaknesses?	__ yes	_X_ none reported
(v)	Type of auditor's report issued on compliance for major programs:	Unmodified	
(vi)	Any audit findings disclosed that are required to be reported in accordance with 2 CFR 200.516(a)?	_X_ yes	__ no

(vii) Identification of major programs:

CFDA Number(s)	Name of Federal Program or Cluster
Various	Research and Development Cluster
Various	Student Financial Aid Cluster
93.914	AIDS Activities Coordinating Office (AACO)

(viii)	Dollar threshold used to distinguish between Type A and Type B programs:	$3,000,000
(ix)	Auditee qualified as low-risk auditee?	_X_ yes __ no

Section II – Financial Statement Findings

None noted.

Section III – Federal Awards Findings and Questioned Costs

Finding 2018-001 Cost Transfers

Grantor:	National Science Foundation Department of Health and Human Services, National Institute of Health
Program:	Research and Development Cluster
CFDA#:	47.049, 93.837
Title:	Center of Excellence for Materials Research and Innovation (CERMI) The role of CAP2 in sex-related myocardial function
Award Year:	07/2017 – 06/2018
Award Number:	DMR-1120901, 1-R01-HL-134923-01

Criteria
Section 200.333 of the Uniform Guidance states that "Financial records, supporting documents, statistical records, and all other non-Federal entity records pertinent to a Federal award must be retained for a period of three years from the date of submission of the final expenditure report or, for Federal awards that are renewed quarterly or annually, from the date of the submission of the quarterly or annual financial report, respectively, as reported to the Federal awarding agency or pass-through entity in the case of a subrecipient."

Section 200.403 of the Uniform Guidance states that "Except where otherwise authorized by statute, costs must meet the following general criteria in order to be allowable under Federal awards… (g) Be adequately documented."

University Policy 2113 Cost Transfers and Payroll Reallocations states:

"The Principal Investigator and his/her delegates, including business administrators, are responsible for ensuring the timeliness, accuracy and allowability of costs charged to sponsored projects and preparing and maintaining the associated supporting documentation. The primary control to ensure proper charging of costs to sponsored projects requires the journals for the costs initially charged to other accounts and or corrections be prepared by authorized administrators or delegates with the authority and ability to ensure the allowability of the costs.

Secondary controls to further ensure the accuracy and timeliness of journal entries charging costs to sponsored projects will be deployed as follows:

- Transactions less than $1000, within 90 Days
    - Allowability and accuracy confirmed by PI and his/her delegates during periodic reviews of effort and other costs charged to individual grants
- Transactions $1000 or greater, within 90 Days
    - Allowability and accuracy confirmed by PI and his/her delegates during periodic reviews of effort and other costs charged to individual grants
    - Categorized and tracked in "control reports" used by PI delegates to ensure additional documentation requirements have been met
- Transactions regardless of amount, over 90 Days
    - Allowability and accuracy verified by PI and his/her delegates during periodic reviews of effort and other costs charged to individual grants,
    - Categorized and tracked in "control reports" used by PI delegates to ensure additional documentation requirements have been met,
    - Subject to central review and approval by the Office of Research Services"

Condition
Through August 2017, the University processed cost transfers under a cost transfer documentation process which required the manual completion of a cost transfer justification form external to the general ledger system, including documentation at the time of transfer of Principal Investigator approval of the cost transfer, a descriptive explanation of the reason for the transfer, and a correlation of the charge to the project to which the transfer was made. For a sample of 10 cost transfers that occurred from July 1, 2017 through August 31, 2017, two cost transfers for amounts of $31,343 and $14,000 were noted in which the documentation of the direct benefit to the award being transferred to was not satisfactorily documented until six months and nine months, respectively, after the cost transfers were made.

In September 2017, the University implemented a cost transfer documentation process which requires the creator of the journal entry to categorize the cost transfer in one of three categories based on timeliness and dollar value threshold, which then determines the related documentation required to substantiate the cost transfer. This updated process requires the journal entry creator to document the determined required information within additional fields in the general ledger system simultaneously with the creation of the journal entry. For a sample of 50 cost transfers that occurred during the period September 1, 2017 through June 30, 2018, no exceptions were noted.

This is a repeat of finding 2017-001 in the prior year audit report.

Cause
In two instances, grant administrators were not diligent in adhering to the University's process on maintaining complete and adequate documentation for cost transfers at the time of occurrence.

Effect
For the cost transfers identified above, there was not a clearly documented audit trail at the time of the transfer to evidence various required components of the cost transfer process, thereby increasing the risk that costs could be transferred inappropriately to federal awards and remain undetected.

Questioned Costs
None as all cost transfers selected for testing were allowable.

Recommendation
The University should continue to enforce their updated control process, including a formally documented review control to ensure that cost transfers are submitted with all required documentation and explanation of the transfer. The review control documentation should include a manual or electronic signature from the reviewer and date of review, evidencing the review of the submitted cost transfer documentation as in compliance with University policy and compliance requirements.

Management's View and Corrective Action Plan
Following these findings are management's view and corrective action plan.

Finding 2018-002 Cash Management

Grantor: Department of Health and Human Services, National Institute of Health; National Science Foundation, Directorate for Engineering; Department of Energy, Office of Science
Program: Research and Development Cluster
CFDA#: 93.866; 93.350; 47.041; 93.397; 93.307; 81.049; 93.853
Title: Consortium for Alzheimers Sequence Analysis (CASA); Institutional Clinical and Translational Science Award; Science and Technology Center for Mechano-Biology; Coordinating Center for Genetics and Genomics of Alzheimer's Disease (CGAD); Abramson Cancer Center Support Grant; Reducing HIV vulnerability through a multilevel life skills intervention for adolescent men; High Energy Physics Research at the University of Pennsylvania; Mechanistic analysis of axonal transport defects in neurodegenerative disease
Award Year: 07/2017 – 06/2018
Award Number: 1-UF1-AG-047133-01; 1-UL1-TR-001878-01; CMMI-1548571; 1-U54-AG-052427-01; 2-P30-CA-016520-40; 1-U01-MD-011274-01; DE-SC0007901; 2-R01-NS-060698-06A1

Criteria
2 CFR 200.305 (b3): Reimbursement is the preferred method when the requirements in paragraph (b) cannot be met, when the Federal awarding agency sets a specific condition per §200.207 Specific conditions, or when the non-Federal entity requests payment by reimbursement.

Per the OMB Compliance Supplement, the non-Federal entity must disburse funds for program purposes before requesting payment from the Federal awarding agency or pass-through entity.

Condition
In testing conformity with the cash management reimbursement-method, 40 individual expenditures were tested to compare the date of University payment to the vendor to the date of Government reimbursement to the University. Eleven instances were noted in which the University paid the vendor after requesting and receiving reimbursement from the government, as shown in the chart below.

CFDA Number	Award Number	Expenditure Amount	Date of Payment to Vendor	Date of Government Reimbursement	Days Variance
93.866	1-UF1-AG-047133-01	$3,752	5/1/2018	4/9/2018	22
93.350	1-UL1-TR-001878-01	$7,180	3/15/2018	3/7/2018	8
93.350	1-UL1-TR-001878-01	$2,620	3/20/2018	2/27/2018	21
47.041	CMMI-1548571	$29,346	4/5/2018	3/8/2018	28
		$930	A		A
93.866	1-U54-AG-052427-01	$21,661	2/22/2018	1/31/2018	22
93.866	1-UF1-AG-047133-01	$26,931	5/2/2018	11/30/2017	153
93.397	2-P30-CA-016520-40	$190,128	3/12/2018	2/21/2018	19
47.041	CMMI-1548571	$114,081	7/25/2017	7/24/2017	1
93.307	1-U01-MD-011274-01	$6,331	9/8/2017	8/17/2017	22
81.049	DE-SC0007901	$1,268	3/2/2018	2/12/2018	18
93.853	2-R01-NS-060698-06A1	$425	3/28/2018	3/7/2018	21

A The charge of $930 was related to tax withholding for a contractor and the payment from Penn was made as part of the University's estimated tax payments, for which the date could not be clearly determined.

Additionally, a twelfth instance was noted, where the University received a vendor invoice dated 1/12/2018 for an amount of $41,400 and the expense was applied to Federal Award 2-P30-CA-016520-40 (CFDA #93.397) on 1/18/2018. This University drew down reimbursement on 1/24/2018 without the expense having been paid. Subsequently, on 1/25/2018 the University identified that this was a duplicate invoice sent by the vendor and promptly cancelled it, thereby removing the expense from the Federal award. On 1/31/18 the University effectively returned the draw by reducing the subsequent draw by the amount of the reversed expense.

This is a repeat of finding 2017-002 in the prior year audit report.

Cause
Management's current process to ensure that the reimbursement of expenditures occurs only after paying the vendor utilizes the assumption that vendors will be paid within 30 days, on average, of incurring the expense.

Effect
The University received Federal reimbursement prior to paying the vendors for the selected expenses. The reliance of the 30 day average time-frame allowed certain expenditures to be included in requests for reimbursement prior to being liquidated.

Questioned Costs
None.

Recommendation
The University should revisit existing internal control procedures to ensure expenditures are paid in compliance with the Federal reimbursement requirements. We also recommend management discuss current cash management requirements with the OMB and the University's cognizant agency to determine a solution that meets the needs of both parties.

Management's View and Corrective Action Plan
Following these findings are management's view and corrective action plan.

Finding 2018-003 Period of Performance

Grantor:	Department of Transportation, Federal Aviation Administration; Department of Health and Human Services, National Institute of Health, National Institute of Neurological Disorders and Stroke
Program:	Research and Development Cluster
CFDA#:	20.RD; 93.853
Title:	National sleep study technical support; Regulation of Neuronal Excitability by Extracellular Calcium
Award Year:	07/2017 – 06/2018
Award Number:	SRAS002489-1; 1-R01-NS-074257-01

Criteria
2 CFR section 200.309 – "A non-Federal entity may charge to the Federal award only allowable costs incurred during the period of performance and any costs incurred before the Federal awarding agency or pass-through entity made the Federal award that were authorized by the Federal awarding agency or pass-through entity."

Condition
Of 25 awards tested with a period of performance beginning within the fiscal year, one award was noted with an expense totaling $460 that was incurred for services provided before the start of the award. The Department of Transportation award SRAS002489-1 started on 12/11/17 and the related expenses were for the period July through September 2017.

Of 25 awards tested with a period of performance ending within the fiscal year, one award was noted with an expense totaling $1,268 for a maze to measure the behavior of the transgenic mice related to the grant. The order for the maze was made on 1/12/2018, but the invoice was dated 2/2/2018 due to the order being placed on backorder and shipment being delayed. Per review of the award agreement, the project period was 2/1/2011 - 1/31/18. This purchase was made in the last 20 days of a multiple year award, and was not received until after the expiration of the project period. The related Department of Health and Human Services award number is 1-R01-NS-074257-01.

This is a repeat of finding 2017-003 in the prior year audit report.

Cause
For the first exception, management's current monitoring process of reviewing expenditures as being within the period of performance was not performed at a level of precision to identify the error. For the second exception, management approved the expense to be charged to the Federal award at the time of purchase, which was within the period of the award, but a delay in shipment from the vendor caused the purchased item to be delivered at the close of the award.

Effect
The University incurred expenditures on the awards outside of the periods of performance.

Questioned Costs
Both instances of incurred expenditures resulted in questioned costs totaling $1,728

Recommendation
Management should enhance the back-end monitoring control of review of expenditures by the Principal Investigator or another individual with knowledge of the award to specifically consider whether each expenditure charged to the award towards the beginning or end of the period of performance is appropriately applied to the award and within the period of performance.

Management's View and Corrective Action Plan
Following these findings are management's view and corrective action plan.

Finding 2018-004 Return of Title IV Funds

Grantor:	Department of Education
Program:	Student Financial Assistance Cluster
CFDA#:	84.038
Title:	Federal Perkins Loan
Award Year:	7/2017 – 6/2018
Award Number:	Revolving Fund

Criteria
In accordance with 34 CFR 668.173(b), the University must return the amount of Title IV funds for which it is responsible no later than 45 days after the date of the institution's determination that the student withdrew.

Condition
Of the 25 refund calculations tested, one instance was noted in which the student left the University at the end of the summer session on 8/11/2017 and did not attend school during the fall session. The student had Perkins loans of $2,750 disbursed on their account on 7/31/2017 related to the fall session, and it was not removed until 1/9/2018.

This is a repeat of finding 2017-008 in the prior year audit report.

Cause
Management's standard control process did not identify the need for the return until the student's file was being reviewed upon returning to the University in Spring 2018.

Effect
The return was not made timely, per the criteria cited above.

Questioned Costs
None.

Recommendation
Management should further enhance their control process to ensure that all refunds are submitted to the government within the 45 day threshold. We recommend a bi-weekly review occur.

Management's View and Corrective Action Plan
Following these findings are management's view and corrective action plan.

Finding 2018-005 Verification

Grantor:	Department of Education
Program:	Student Financial Assistance Cluster
CFDA#:	84.063
Title:	Federal Pell Grant
Award Year:	7/2017 – 6/2018
Award Number:	P063P172158

Criteria
24 CFR 668.56(b): For each applicant whose FAFSA information is selected for verification by the Secretary, the Secretary specifies the specific information that the applicant must verify.

24 CFR 668.57: If an applicant is selected to verify any of the following information, an institution must obtain the specified documentation.

(a) Adjusted Gross Income (AGI), income earned from work, or U.S. income tax paid. (1) Except as provided in paragraphs (a)(2), (a)(3), and (a)(4) of this section, an institution must require an applicant selected for verification of AGI, income earned from work or U.S. income tax paid to submit to it a copy of the income tax return or an Internal Revenue Service (IRS) form that lists tax account information of the applicant, his or her spouse, or his or her parents, as applicable for the specified year.

Condition
Of 25 selections tested for verification procedures, one instance was noted in which the student's US Income Tax Paid per the ISIR did not agree to the amount included on the subsequently obtained tax return. In this instance, management did not update the information prior to awarding and disbursing Federal Aid to the student.

Cause
Management calculated aid eligibility based off of the ISIR data, which was submitted without use of the data retrieval tool. The student then submitted the tax document after completion of ISIR with a different tax paid, which was not caught timely by management in the standard verification procedures.

Effect
The calculation of the student's eligibility for Federal Aid was determined with partially incorrect data. The student received additional institutional aid in lieu of additional Federal aid.

Questioned Costs
None.

Recommendation
Management should enhance the monitoring control in place for review of verification procedures being completed timely. The enhanced control should include a second level of review to ensure that all students selected for verification procedures have been verified accurately and timely, as evidenced by reviewer signoff and date of review.

Management's View and Corrective Action Plan
Following these findings are management's view and corrective action plan.

Finding 2018-006 Reporting

Grantor:	Department of Education
Program:	Student Financial Assistance Cluster
CFDA#:	84.063, 84.268
Title:	Federal Pell Grant, Federal Direct Loans
Award Year:	7/2017 – 6/2018
Award Number:	P063P172158, P268K182158

Criteria
2018 Compliance Supplement – "Schools submit Pell origination records and disbursement records to the COD. Origination records can be sent well in advance of any disbursements, as early as the school chooses to submit them for any student the school reasonably believes will be eligible for a payment. A school follows up with a disbursement record for that student no earlier than (1) 7 calendar days prior to the disbursement date under the Advance or Heightened Cash Monitoring 1 payment methods, or (2) the date of the disbursement under the Reimbursement or Heightened Cash Monitoring 2 payment methods (see ED Notice, June 27, 2017, Federal Register (82 FR 29061). The disbursement record reports the actual disbursement date and the amount of the disbursement … Institutions must report student payment data within 15 calendar days after the school makes a payment, or becomes aware of the need to make an adjustment to previously reported student payment data or expected student payment data."

Per CFR § 685.301 (a) – "A school participating in the Direct Loan Program must ensure that any information it provides to the Secretary in connection with loan origination is complete and accurate … a school must provide to the Secretary borrower information that includes but is not limited to the borrower's eligibility for a loan, the student's loan amount; and the anticipated and actual disbursement date or dates and disbursement amounts of the loan proceeds".

2017-2018 COD Technical Reference, Volume II - the "disbursement date is defined as the date cash was credited to the student's account or paid to the student directly".

2017-2018 COD Technical Reference, Volume II – "Disbursement information must be submitted in compliance with the 15-day reporting regulation".

Condition
Of 25 students selected for testing the reported date and amount of disbursement for Direct Loans, 8 students had a different disbursement date in COD than in Penn's student file system, within a range of 1-2 days.

Of 25 students selected for testing the reported date and amount of disbursement for Pell awards, 22 students had a different disbursement date in COD than in Penn's student file system, within a range of 1 – 104 days.

Cause
The University's monitoring controls did not sufficiently identify and correct the disbursement dates to ensure compliance with the criteria cited above.

Effect
Disbursement dates reported to the government were not accurate.

Questioned Costs
None.

Recommendation

Management should enhance their monitoring controls via a more precise reconciliation process and review of disbursement dates reported to the government to ensure compliance with the criteria above.

Management's View and Corrective Action Plan

Following these findings are management's view and corrective action plan.

Finding 2018-007 Enrollment Reporting

Grantor:	Department of Education
Program:	Student Financial Assistance Cluster
CFDA#:	84.063, 84.268
Title:	Federal Pell Grant, Federal Direct Loans
Award Year:	7/2017 – 6/2018
Award Number:	P063P172158, P268K182158

Criteria
National Student Loan Data System (NSLDS) Enrollment Reporting Guide 1.5 – The collection of enrollment data is essential to the Department for many reasons:

- It protects the rights of borrowers by ensuring that loan interest subsidies are based on accurate enrollment data
- It ensures loan repayment dates are accurately based on the last date of attendance.

National Student Loan Data System (NSLDS) Enrollment Reporting Guide 1.5 – At a minimum, schools are required to certify enrollment for all students who are included on your roster file scheduled at least every two months and within 15 days of the date that NSLDS sends a roster file to the school or its third-party service provider.

34 CFR 685.309(b) - Unless it expects to submit its next updated enrollment report to the Secretary within the next 60 days, a school must notify the Secretary within 30 days after the date the school discovers that a loan under Title IV of the Act was made to or on behalf of a student who was enrolled or accepted for enrollment at the school, and the student has ceased to be enrolled on at least a half-time basis or failed to enroll on at least a half-time basis for the period for which the loan was intended.

National Student Loan Data System (NSLDS) Enrollment Reporting Guide 4.4.3 – For a student who has graduated, schools who initially report a withdrawn status must subsequently report the student as having graduated by certifying a 'G' status at the campus-level and/or program-level as appropriate. This is true even if the student or the student's applicable program no longer appears on the school's enrollment reporting roster because the school has certified the 'W' status twice. The graduated status may protect the interest subsidy on the student's current loans.

Condition
Of 25 students selected with changes in enrollment status, three changes in enrollment status were reported to the National Student Loan Data System (NSLDS) more than 60 days after the student had left the University, ranging between 70 and 302 days with an average of 154 days.

Additionally, seven of the 25 students selected had a change in status reported timely to NSLDS, but were reported with a withdrawn status and should have been reported with a graduated status.

Cause
The University's monitoring process over information reported to the third party service provider did not ensure the information was transferred timely to the National Student Loan Data System, as is required by the criteria cited above.

Additionally, for the seven students, the University had certified the graduated status to the third party service provider, but did not correct a processing error identified the third party service provider in a timely manner to ensure the status was certified to NSLDS timely.

Effect
The change in enrollment status was not reported correctly or timely to the NSDLS, as required by the criteria cited above.

Questioned Costs
None.

Recommendation
Management should enhance their monitoring controls over the third party service provider to ensure that enrollment information is processed correctly by the third party and is certified to the National Student Loan Data System in a timely fashion and with the correct effective date and effective enrollment status. These controls should include a periodic review of enrollment changes as compared to the certifications that occur within NSLDS.

Management's View and Corrective Action Plan
Following these findings are management's view and corrective action plan.

2018-008 Period of Performance

Grantor: Department of Health and Human Services, Pass-through City of Philadelphia, Aids Activity Coordinating Office (AACO)
Program: Ryan White HIV/AIDS
CFDA#: 93.914
Title: HIV Emergency Relief Project Grants
Award Year: 2017-2018; 2018-2019
Award Number: RS7668, RW8668

Criteria
Where a funding period is specified, a recipient may charge to the award only allowable costs resulting from obligations incurred during the funding period and any pre-award costs authorized by the HHS awarding agency pursuant to §74.25(d)(1).

Condition
The AACO Medical awards have a one year duration and begin on March 1st of each year. The RS7668 award ended on February 28, 2018 and the RW8668 award began on March 1, 2018. During the testing over the period of availability for direct costs, we noted that time sheets for one hourly employee related to hours worked in February 2018 were incorrectly charged to the RW8668 award which began in March 2018.

Cause
An error in the end of period accruals resulted in amounts incurred under the award period related to RS7668 being incorrectly charged to award RW8668.

Effect
Expenditures related to award RS7668 were underreported while expenditures related to award RW8668 were over reported.

Questioned Costs
$96

Recommendation
Award closeout procedures should be enhanced to ensure attribution of costs to the appropriate period. Additionally, management should request a transfer of costs to the award ending February 28, as the costs were considered allowable and were incorrectly accounted for, due to a bookkeeping error.

Management's View and Corrective Action Plan
Following these findings are management's view and corrective action plan.

2018-009 Program Income

Grantor: Department of Health and Human Services, Pass-through City of Philadelphia, Aids Activity Coordinating Office (AACO)
Program: Ryan White HIV/AIDS
CFDA#: 93.914
Title: HIV Emergency Relief Project Grants
Award Year: 2017-2018; 2018-2019
Award Number: R7968, RW8968, RS7944, RS8944, R7866, RW8866, R7731

Criteria
Per 42 USC 300ff-15, providers may impose charges for the provision of services to patients in accordance with the individual's income level not exceeding in aggregate specific thresholds based on the individual's income level. The term aggregate applies to the annual charges imposed for all charges without regard to whether they are characterized as enrollment fees, premiums, deductibles, cost sharing, co-payments, coinsurance, or other charges for services.

Condition
In cases which service providers charge individuals for services performed for Ryan White services, the Health Resources and Services Administration of the Department of Health and Human Services requires the service provider to ensure that the aggregate amount of charges for the year do not exceed the income level related thresholds within the criteria above.

PwC selected 60 payments for program income testing for the Medical awards. We were unable to determine whether the institution met the program income billing criteria stated above for four of 60 payments, totaling to $110 of program income.

PwC selected 25 payments for program income testing for the Dental awards and noted the institution billed $50 for a co-payment for one patient who had no personal income, and therefore should not have been billed.

This is a repeat of finding 2017-005 in the prior year audit report.

Cause
The process currently in place to ensure that each Ryan White designated patient is not charged more than the allowable amount, based on their income level, is not consistently adhered to, in order to obtain the individual's income information prior to billing.

Effect
Uninsured or underinsured patients may have been inappropriately billed for services provided.

Questioned Costs
None.

Recommendation
Management should continue to enforce that the AACO programs implement a process to ensure each patient's income verification is collected and retained. Additionally, management should continue to enforce that each clinic has a process in place to certify that each patient is not overcharged for services received throughout the year.

Management's View and Corrective Action Plan
Following these findings are management's view and corrective action plans for both the Dental and Medical programs.

Finding 2018-010 is an additional finding included in the report based upon the results of the audit of the University of Pennsylvania's City of Philadelphia Awards. As this program includes Federal funding, it has also been included within this report.

Finding 2018-010 Eligibility

Grantor: Department of Health and Human Services, Pass-through City of Philadelphia, Substance Abuse and Mental Health Services Administration (SAMHSA)
Program: Penn Psychosis Evaluation and Recovery Center (PERC)
CFDA#: 93.958
Title: Block Grants for Community Mental Health Services
Award Year: 2017-2018
Award Number: 1720597-01

Criteria
The Compliance Supplement states the eligibility compliance requirement to be not applicable for the 93.958 Federal Award.

Per the award agreement between the University of Pennsylvania and the City of Philadelphia, through the Office of Behavioral Health/Intellectual Disability Services, dated February 2, 2018, the University is to serve at least 35 new participants, ages 16-30 years, from Philadelphia County during 2018. Key inclusion criteria for eligibility in the program include participant age being 14-35 years, onset of psychosis less than 2 years and likelihood that clinical symptoms are not better explained by substance use disorder or medical illness.

Condition
Per review of the eligibility criteria in the award agreement, cited above, eligibility is a required compliance requirement for the SAMHSA program at the University of Pennsylvania during 2018. During testing of 5 patients, of a population of 35 patients, served through the SAMHSA program, management determined that the patient information was considered protected and could not be shared for the external audit.

Cause
Upon trying to test the eligibility compliance requirement, management determined that the patient information could not be examined for external audit review.

Effect
Verification of the satisfaction of eligibility criteria could not be obtained during the audit.

Questioned Costs
None.

Recommendation
In instances when Federal or City compliance requirements conflict with State limitations over protected information, management should discuss with the funding agency from the City of Philadelphia to determine a resolution to the matter.

Management's View and Corrective Action Plan
Following these findings are management's view and corrective action plan.

Section IV – Summary Schedule of Prior Audit Findings

Finding 2017-001 Cost Transfers, 2016-001 Cost Transfers, 2015-003 Cost Transfers, 2014-002 Cost Transfers, 2013-004 Cost Transfers

Grantor: Various
Program: Research and Development Cluster
CFDA#: Various
Title: Various
Award Year: 07/2016 – 06/2017
Award Number: Various

Summary
For 60 R&D cost transfer selections, PwC requested the original invoice, evidence of original invoice approval, journal entry detail, evidence of Principal Investigator approval of the cost transfer, copy of the original or amended grant budget with identification of the cost transfer budget category and documentation at the time of transfer of a descriptive explanation of the reason for the transfer and a correlation of the charge to the project to which the transfer was made. It was noted for 12 of the 60 selections, required components of the cost transfer documentation was documented after the transfer or in which the date of PI certification could not be determined based on the supporting documentation provided.

Status Update
In July 2017, the University revised its Cost Transfer policy, training and procedures in an effort to improve compliance with Federal Rules and Guidelines for FY18. In conjunction with the new policy, revised electronic procedures for manual journal entries on sponsored projects were implemented beginning September 2017 in order to improve the timeliness of cost transfer documentation, such that copies of Cost Transfer Justification Forms no longer need to be collected or emailed to a central repository. Lastly, a cost transfer controls review and monitoring process was implemented in conjunction with the Office of Research Services and each of the academic schools. These improvements have significantly increased compliance in the Cost Transfer area.

Finding 2017-002 Cash Management

Grantor: Department of Health and Human Services, National Institute of Health
Program: Research and Development Cluster
CFDA#: 93.847; 93.397; 93.866
Title: Continuation of the Chronic Renal Insufficiency Cohort (CRIC) Study**;**
Abramson Cancer Center Support Grant;
Alzheimer's Disease Genetics Consortium;
Consortium for Alzheimers Sequence Analysis (CASA)
Penn Integrated Human Pancreas Procurement and Analysis Program
Award Year: 07/2016 – 06/2017
Award Number: 2-U01-DK-060990-13; 2-P30-CA-016520-40; 5-U01-AG-032984-07; 1-UF1-AG-047133-01; 1-UC4-DK-112217-01

Summary
For 25 individual expenditures selected for testing whereby we compare the date of vendor payment from the University to the date of reimbursement from the government to the University, 8 instances were noted in which the University paid the vendor after requesting and receiving reimbursement from the government.

Status Update
The University continues to follow and believes it is in compliance with the cash management regulations as written in 2 CFR Part 200.305(b) which require the organization to minimize the time lapse between request for reimbursement from sponsoring agencies and vendor payment.

The University will continue to monitor the OMB interpretation of the Cash Management requirements until a resolution by OMB or change to the requirement in the Compliance Supplement has been reached.

Finding 2017-003 Period of Performance

Grantor: Department of Defense, Advanced Research Projects Agency;
Department of Agriculture
Program: Research and Development Cluster; SNAP Cluster
CFDA#: 12.910; 10.561
Title: Rapid Ab Isolation and Delivery by Recombinant AAV Technology (RAID-RAT)
PA Nutrition Education TRACKS Program
Award Year: 07/2016 – 06/2017
Award Number: W911NF-13-2-0036; 5315-TUP-COP-9151; 5541-TUP-COP-9151

Summary
For 25 individual Research and Development Cluster expenditures tested, 1 instance was noted in which the University paid the vendor after 90 days after award period end. For 5 individual SNAP Cluster expenditures tested, 1 instance was noted in which the University paid the vendor after 90 days after award period end.

Status Update
It continues to be the University's payables practice and internal control to ensure that vendors are only paid following the receipt of proper invoices.

Finding 2017-004 Procurement, 2016-004 Procurement

Grantor: Department of Health and Human Services, National Institutes of Health;
Department of Agriculture
Program: Research and Development Cluster; SNAP Cluster
CFDA#: 93.855; 10.561
Title: A Phase 2b/3 Double Blind Safety and Efficacy Study of Injectable Cabotegravir Compared to Daily Oral Tenofovir Disoproxil Fumarate/Emtricitabine (TDF/FTC), For Pre - Exposure Prophylaxis in HIV - Uninfected Cisgender Men and Transgender Women who have Sex with Men;
PA Nutrition Education TRACKS Program
Award Year: 06/2016 - 07/2017
Award Number: SUB TO UM1 AI068619; 5315-TUP-COP-9151; 5541-TUP-COP-9151

Summary
For 25 Research and Development (R&D) purchases and 3 Supplemental Nutrition Assistance Program (SNAP) purchases and noted two selections that did not have documentation of competitive bidding or a sole source justification prior to purchase. Refer to the table on the following page for further details.

Status Update
While no further action was needed following the FY17 procurement finding, we note that Purchasing Services systems and processes have continued to improve and contribute to increased compliance with controls.

Finding 2017-005 Eligibility, 2016-005 Eligibility, 2015-005 Eligibility, 2014-005 Eligibility, 2013-006 Eligibility

Grantor: Department of Health and Human Services, Pass-through City of Philadelphia, Aids Activity Coordinating Office (AACO)
Program: Ryan White HIV/AIDS
CFDA#: 93.914
Title: HIV Emergency Relief Project Grants
Award Year: 2016-2017; 2017-2018
Award Number: RM6757, R7868, RS6944, R7944, R6866, R7866, R6965, R7965, RW6731, and RW7731

Summary
For the AACO Medical awards, of the 60 patient files selected for eligibility testing, 7 patients did not have all the required eligibility documentation for the Ryan White program. For the AACO Dental awards, of the 40 patient files selected for testing, 1 patient did not have all the required eligibility documentation for the Ryan White program. This is a repeat of finding 2016-005 in the prior year audit report.

Additionally, 60 AACO Medical patient files were tested for program income testing, and 1 of these individuals had co-payments charged, totaling $50. For this one transaction, it was unable to be determined whether the institution met the program income billing criteria stated below. This is a repeat of finding 2016-005 in the prior year audit report.

Status Update
Over the past year, continued efforts to further improve and refine our process over Ryan White program patient eligibility have resulted in no exceptions in the FY18 audit report.

The current year finding related to Eligibility exists on a different program and is a result of scope limitations, not testing exceptions.

See the current year finding and associated Management View and Corrective Action Plan for further information on the current year finding related to Program Income.

Finding 2017-006 Matching

Grantor: Department of Education, Pass-through City of Philadelphia, School District of Philadelphia
Program: Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP)
CFDA#: 84.334
Title: GEAR UP College Readiness Collaborative Communities Project
Award Year: 2015-2016
Award Number: 005A/F16 (362/F16)

Summary
In the year the award closed, the required match as communicated by the School District of Philadelphia was not met.

Status Update
No return of funds was required as a result of the prior year finding, however the managing department improved communications with the pass through sponsor to obtain more timely clarifications on matching requirements when it was unclear.

Finding 2017-007 Cash Management

Grantor: Department of Education, Pass-through City of Philadelphia, School District of Philadelphia
Program: Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP)
CFDA#: 84.334
Title: GEAR UP College Readiness Collaborative Communities Project
Award Year: 2015-2016
Award Number: 005A/F16 (362/F16)

Summary
In the year the award closed, certain costs for which the University had been reimbursed were removed off of the award requiring a return of funds and updated invoice to be submitted to the School District of Philadelphia.

Status Update
The University of Pennsylvania issued the refund check to the School District of Philadelphia on November 14, 2017 in the amount of $7,495.96.

Finding 2017-008 Return of Title IV Funds, 2016-008 Return of Title IV Funds

Grantor: Department of Education
Program: Student Financial Assistance Cluster
CFDA#: 84.063, 84.268
Title: Federal Pell Grant, Federal Direct Loans
Award Year: 7/2016 – 6/2017
Award Number: P063P162158, P268K172158

Summary
For 20 refund calculations tested, there were 2 instances in which the return of funds to the government occurred untimely.

Status Update
In addition to all the updates from last year, we have also created a Registrar Working Group. This group meets monthly to discuss and review student enrollment status.

We are consistently following all of enhanced quality control policies.

Office of Research Services

Management View and Corrective Action Plan

Finding 2018-001 Cost Transfers

Grantor:	National Science Foundation Department of Health and Human Services, National Institute of Health
Program:	Research and Development Cluster
CFDA#:	47.049, 93.837
Title:	Center of Excellence for Materials Research and Innovation (CERMI) The role of CAP2 in sex-related myocardial function
Award Year:	07/2017 – 06/2018
Award Number:	DMR-1120901, 1-R01-HL-134923-01

As this has been a repeat audit finding for the University of Pennsylvania for the past 4 years, we are pleased to see that the results of the FY18 audit reflect the effectiveness of the cost transfer process improvements that have been implemented over the past several years, especially the enhanced journal entry controls implemented beginning September 2017. The noted exceptions were on cost transfers prior to the enhanced process. The Office of Research Services will continue to work with schools to monitor and review submitted cost transfers for compliance.

Finding 2018-002 Cash Management

Grantor:	Department of Health and Human Services, National Institute of Health; National Science Foundation, Directorate for Engineering; Department of Energy, Office of Science
Program:	Research and Development Cluster
CFDA#:	93.866; 93.350; 47.041; 93.397; 93.307; 81.049; 93.853
Title:	Consortium for Alzheimers Sequence Analysis (CASA); Institutional Clinical and Translational Science Award; Science and Technology Center for Mechano-Biology; Coordinating Center for Genetics and Genomics of Alzheimer's Disease (CGAD); Abramson Cancer Center Support Grant; Reducing HIV vulnerability through a multilevel life skills intervention for adolescent men; High Energy Physics Research at the University of Pennsylvania; Mechanistic analysis of axonal transport defects in neurodegenerative disease
Award Year:	07/2017 – 06/2018
Award Number:	1-UF1-AG-047133-01; 1-UL1-TR-001878-01; CMMA-1548571; 1-U54-AG-052427-01; 2-P30-CA-016520-40; 1-U01-MD-011274-01; DE-SC0007901; 2-R01-NS-060698-06A1

The University is currently following and believes it is in compliance with the cash management regulations as written in 2 CFR Part 200.305(b) which require the organization to minimize the time lapse between request for reimbursement from sponsoring agencies and vendor payment.

We understand that variations remain in the interpretation of the cash management compliance requirement. For example, on October 20, 2017, the Council On Governmental Relations (COGR) wrote a letter to the Office of Financial Management expressing concern that the cash management requirement language in the 2017 Compliance Supplement was not aligned with the

requirements for cash management as currently written in 2 CFR Part 200.305(b). COGR's position is that the Compliance Supplement should be revised to conform with the cash management requirements as written in 2 CFR 200.305(b). The University agrees with COGR's position and believes the language in the Compliance supplement leads to an unrealistic and unreasonable administrative burden for universities and possibly a reconfiguration of smoothly running electronic process or a complete replacement of electronic processes with an inefficient, manual one in efforts to ensure each vendor has been paid prior to requesting reimbursement from the sponsoring agency.

The University will continue to monitor the OMB interpretation of the Cash Management requirements. If there is no resolution by OMB or change to the requirement in the Compliance Supplement we will work with our cognizant agency to arrive at a solution that fits the interests of all parties.

Regarding the one noted invoice with a variance of 153 days between the date of government reimbursement and the date of payment to the vendor, we believe this to be an isolated incident where the accounts payable process was delayed until a discrepancy was resolved.

Finding 2018-003 Period of Performance

Grantor:	Department of Transportation, Federal Aviation Administration; Department of Health and Human Services, National Institute of Health, National Institute of Neurological Disorders and Stroke
Program:	Research and Development Cluster
CFDA#:	20.RD; 93.853
Title:	National sleep study technical support; Regulation of Neuronal Excitability by Extracellular Calcium
Award Year:	07/2017 – 06/2018
Award Number:	SRAS002489-1; 1-R01-NS-074257-01

For the exception noted for the testing of possible pre-award costs, another level of monitoring occurs at the time of award close-out. The close-out process includes a specific review for pre-award costs. As the award did not end during FY18, the close-out had not occurred by the time of this audit. The questioned cost of $460 was removed from the award on 6/27/18 and the amount was effectively refunded to the sponsor.

For the exception noted for the mouse maze received after the end date of the award, the department is seeking clarity from and resolution with the award sponsor.

Finding 2018-009 Program Income - Dental

Grantor:	Department of Health and Human Services, Pass-through City of Philadelphia, Aids Activity Coordinating Office (AACO)
Program:	Ryan White HIV/AIDS
CFDA#:	93.914
Title:	HIV Emergency Relief Project Grants
Award Year:	2017-2018
Award Number:	R7731

The importance of a more timely process for adjustments related to eligible patient charges was discussed with the Outreach Coordinator for the Ryan White clinical program in the School of Dental Medicine at the University of Pennsylvania prior to the issuance of this audit report. The contact person for this corrective action is Susie Won in the Office of Research Services.

Finding 2018-010 Eligibility

Grantor:	Department of Health and Human Services, Pass-through City of Philadelphia, Substance Abuse and Mental Health Services Administration (SAMHSA)
Program:	Penn Psychosis Evaluation and Recovery Center (PERC)
CFDA#:	93.958
Title:	Block Grants for Community Mental Health Services
Award Year:	2017-2018
Award Number:	1720597-01

After review of Pennsylvania's mental health law on the nonconsensual release of mental health records (https://www.pacode.com/secure/data/055/chapter5100/s5100.32.html), and the approved consent form for this project, the Office of Audit, Compliance and Privacy at the University of Pennsylvania determined that the patient consents did not permit the University to share with the auditors the sensitive and protected mental health information required to complete the patient eligibility testing.
The Office of Research Services communicated the issue to the City funding agency on October 29, 2018 and is awaiting a determination on the audit finding. The contact person for this corrective action is Susie Won.

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Penn
Student Registration
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Management View and Corrective Action Plan

Finding 2018-004 Return of Title IV Funds

Grantor:	Department of Education
Program:	Student Financial Aid Cluster
CFDA#:	84.038
Title:	Federal Perkins Loan
Award Year:	7/2017 – 6/2018
Award Number:	Revolving Fund

We acknowledge this is a repeat finding from 2017, but it is important to note the number of exceptions as compared to prior years continued to decrease. The one exception described in this year's report was an error discovered during an internal review of the student's file to determine eligibility for spring funds. The Perkins Loan should have been cancelled at the beginning of the fall term. Once the error was discovered, the fall Perkins loan was cancelled.

The Financial Aid Office will enhance its monitoring controls to ensure that all refunds related to the Return of Title IV funds are submitted to the government within the 45 day threshold. The enhanced controls will include a bi-weekly review of a report of return to title IV calculations completed. This review will confirm refunds from internal systems to COD system have been received with-in the 45 day requirement. The control will be put in place March 2019.

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Finding 2018-005 Verification

Grantor:	Department of Education
Program:	Student Financial Aid Cluster
CFDA#:	84.063
Title:	Federal Pell Grant
Award Year:	7/2017 – 6/2018
Award Number:	P063P172158

The Financial Aid Office will enhance its monitoring controls of verification processing.

Since the period of review, the Financial Aid Office began using a third party servicer to process verification for selected students. The Financial Aid Office will conduct a secondary review of the servicer's work by pulling a random sample of the completed files. Utilizing an internal check list, the financial aid staff will review the selected sampling of verified students. The secondary reviewer will compare primary reviewer's data by checking the Federal Central Processing System (FAA Access to CPS online) and our financial aid management system, SAM. If errors are discovered, the secondary reviewer will make appropriate data corrections in CPS to recalculate aid eligibility. The secondary reviewer will notate necessary corrections on the internal verification checklist, sign and date to document as confirmation of the review. This secondary review will be implemented in Spring 2019.

Finding 2018-006 Reporting

Grantor:	Department of Education
Program:	Student Financial Aid Cluster
CFDA#:	84.063, 84.268
Title:	Federal Pell Grant, Federal Direct Loans
Award Year:	7/2017 – 6/2018
Award Number:	P063P172158, P268K182158

Pell Disbursement Dates:

In the prior academic year the Financial Aid Office identified a timing issue with Pell disbursement dates related to the use of multiple legacy systems. In January 2018, we implemented a system change that moved the actual SAM disbursement batch job from Friday to 12 am Monday morning. This was done in an effort to address the timing issue in the actual disbursement date reported to COD. The Financial Aid Office began reviewing SAM/COD Pell Disbursement Date discrepancies for spring 2018 by requesting a COD Pell Grant Disbursement file. Our on-going QC process is to periodically request from COD the Pell Year to Date Disbursement Report and compare to a SAM Pell Grant Year to Date Disbursement report. For the remainder of 2018-19 and 2019- 20 aid years, the Financial Aid office will enhance their monitoring controls by conducting this review monthly.

Federal Direct Loan Disbursement Dates:

Federal Direct Loan disbursement dates are submitted to COD by file exchange from the Penn Loan System. As the scheduled disbursement date approaches, continued student eligibility is evaluated. If the student is eligible for the disbursement, Penn submits a file to COD prior to disbursement. COD sends a response file to Penn. If the response is positive Penn posts disbursement information (date and dollar amount) to the student's loan record. If the response file is received in advance of the scheduled disbursement date, the disbursement record is held and only posted to the Penn Loan System on the scheduled date. During the Penn Loan System's nightly sequence, the disbursement record is posted to Pennant AR, and credits the student account. However, if the sequence extends beyond midnight, the posting date in the student account system will be after the date in the Penn Loan System and COD. Additionally, within the sampled records, there were disbursements scheduled for the Martin Luther King holiday. No Penn Loan System sequence was scheduled for the holiday so posting occurred later than the scheduled date reflected in COD. There were also summer disbursements where COD did not submit a response file to Penn for 3 days after receiving our file, delaying confirmation and posting of the disbursement record.

The Federal Direct Loan disbursement process functions to keep Penn Loan System, Pennant AR and COD information in synch. However, extended nightly processing, holiday outages and delays in receiving file responses can impact disbursement posting. SRFS management and IT support continue to monitor file exchanges and document delays. We have adjusted the holiday processing schedule to include disbursements.

Ultimately, this finding will be remediated with the completion of NGSS project and the installation of the Banner financial aid system.

Finding 2018-007 Enrollment Reporting

Grantor:	Department of Education
Program:	Student Financial Aid Cluster
CFDA#:	84.063, 84.268
Title:	Federal Pell Grant, Federal Direct Loans
Award Year:	7/2017 – 6/2018
Award Number:	P063P172158, P268K182158

The Office of the University Registrar will enhance its monitoring controls over the third party service provider. The enhanced controls will include a monthly review of enrollment changes as compared to the certification that occur within NSLDS. The Office of the University Registrar will implement the enhanced controls by 02/28/2019.

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Penn Medicine

University *of* Pennsylvania Health System

Office of Corporate Finance

Thomas W. Cooper
Vice President of Corporate Finance

Management View and Corrective Action Plan

Finding 2018-008 Period of Performance

Grantor: Department of Health and Human Services, Pass-through City of Philadelphia, Aids Activity Coordinating Office (AACO)
Program: Ryan White HIV/AIDS
CFDA#: 93.914
Title: HIV Emergency Relief Project Grants
Award Year: 2017-2018; 2018-2019
Award Number: RS7668, RW8668

Due to the turnover of the financial administrator on the AACO program, some hourly timesheet pay earned at the end of February 2018 but paid out on March 9, 2018 was erroneously included in the March 2018 invoice.
The issue was discussed with the sponsor who requested that the amount be adjusted on the next outgoing invoice since it will be within the same award year, in lieu of issuing a cash refund to the sponsor. Edmund Scacchitti will completed this corrective action in November 2018.

Finding 2018-009 Program Income - Medical

Grantor: Department of Health and Human Services, Pass-through City of Philadelphia, Aids Activity Coordinating Office (AACO)
Program: Ryan White HIV/AIDS
CFDA#: 93.914
Title: HIV Emergency Relief Project Grants
Award Year: 2017-2018; 2018-2019
Award Number: R7968, RW8968, RS7944, RS8944, R7866, RW8866, R7731

While UPHS IT, billing, and practice management have been working hard on system and process changes to more easily identify and document the patients for whom the sliding fee schedule applies, it remains a work in progress. The requirements are only increasing in nature and complexity with the announcement of upcoming changes regarding program income requirements and charges to patients under the Ryan White awards. Management will use this new change as an opportunity to enforce the need for improvements in the processes to collect and retain income level documentation and to comply with the new requirements throughout the remainder of FY19. The contact person for this corrective action is Edmund Scacchitti.

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IV. Schedule of Expenditures of Federal Awards Supplementary Schedule

University of Pennsylvania
Schedule of Expenditures of Federal Awards Supplementary Schedule
June 30, 2018

Cfda (PROP)	Sponsor Description (PROP)	Sponsor Project Award No (PROP)	Project Title (PROP)	Institution No (PROP)	Orig Spon Desc (PROP)	Awarded Project Start (PROP)	Awarded Project End (PROP)	Awd Project Spon Costs (PROP)	FY Cash Received	Beg Deferred Rev	End Deferred Rev	FY Recognized Revenue
84.287	PENNSYLVANIA DEPARTMENT OF EDUCATION	4100068078	21st Century Learning Community Centers -- Cohort 7	10048374	DEPARTMENT OF EDUCATION	10/1/2014	3/31/2019	1,598,672	(407,743)	200,311		(444,462)
84.287	PENNSYLVANIA DEPARTMENT OF EDUCATION	FC #4100071658	21st Century Community Learning Center (21CCLC) Cohort 8	10053251	DEPARTMENT OF EDUCATION	1/6/2016	12/31/2018	1,200,000	(413,032)	(14,860)	(52,362)	(427,249)
84.287	PENNSYLVANIA DEPARTMENT OF EDUCATION	SUB TO S287C170038	21st Century Community Learning Center Cohort 9	10062735	DEPARTMENT OF EDUCATION	10/1/2017	3/31/2019	399,996	(150,124)			(246,732)
94.006	COMMONWEALTH OF PENNSYLVANIA	4100074210	Next Steps AmeriCorps FY16/17	10056618	CORPORATION FOR NATIONAL AND COMMUNITY SERVICE	8/20/2016	8/19/2017	162,426	(101,288)			(48,288)
94.006	COMMONWEALTH OF PENNSYLVANIA	4100078376	Next Steps AmeriCorps	10044961	CORPORATION FOR NATIONAL AND COMMUNITY SERVICE	8/20/2017	12/31/2018	150,906	(73,822)			(94,246)
93.889	COMMONWEALTH OF PENNSYLVANIA	133998-003	FY16-17 HPP Emer Prep Funds		NATIONAL INSTITUTES OF HEALTH	7/1/2016	6/30/2017	14,925	(14,925)	(10,800)	(25,725)	(14,925)
93.889	COMMONWEALTH OF PENNSYLVANIA	4100062597	FY16-17 HPP Emer Prep Funds		NATIONAL INSTITUTES OF HEALTH	7/1/2016	6/30/2017	16,903	(16,903)			(16,903)
93.889	COMMONWEALTH OF PENNSYLVANIA	4100062670	National Bioterrorism Hospital Preparedness Program		NATIONAL INSTITUTES OF HEALTH	7/1/2017	6/30/2018	19,648	(19,648)			(19,648)
93.994	COMMONWEALTH OF PENNSYLVANIA	4100074035	Infant Safe Sleep Initiative		Department of Health	7/1/2017	6/30/2018	450,000	(547,992)			(475,101)