



PERSONNEL AND
READINESS

UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

NOV 04 2020

The Honorable Richard C. Shelby
Chairman
Subcommittee on Defense
Committee on Appropriations
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

The Department's response to House Report 116-84, pages 312-313, accompanying H.R. 2968, the Department of Defense (DoD) Appropriations Act, 2020, on Collaboration with Minority Serving Health Institutions (MSIs), is enclosed.

This report addresses the Department's efforts to collaborate with MSIs in the health research field since July 2019, the date of its previous report to Congress. It summarizes the Department's numerous partnership and outreach accomplishments, as well as ongoing health research collaborations with MSIs. Over the last year, the DoD provided funding opportunities and created new or maintained existing programs to increase minority representation in the allied health, medicine, and life science fields of study. The Department remains committed to sustaining collaborations with MSIs that enhance its health research programs, and fostering new partnerships that increase opportunities for MSIs to participate in DoD health research programs.

Thank you for your continued strong support of our Service members, civilian workforce, and families. An identical letter is being sent to the Committee on Appropriations of the House of Representatives.

Sincerely,

//SIGNED//

Matthew P. Donovan

Enclosure:
As stated



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UNDER SECRETARY OF DEFENSE
4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

The Honorable Richard J. Durbin
Vice Chairman
Subcommittee on Defense
Committee on Appropriations
United States Senate
Washington, DC 20510

NOV 04 2020

Dear Senator Durbin:

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The Honorable Peter J. Visclosky
Chairman
Subcommittee on Defense
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

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4000 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-4000

NOV 04 2020

The Honorable Ken Calvert
Ranking Member
Subcommittee on Defense
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515

Dear Representative Calvert:

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Report to Congress



November 2020

In Response To: House Report 116–84, Pages 312–313, Accompanying H.R. 2968, the Department of Defense Appropriations Bill, 2020 on Collaboration with Minority Serving Health Institutions

The estimated cost of this report for the Department of Defense (DoD) is approximately \$17,000.00 for Fiscal Year 2020. This includes \$14,000.00 in expenses and \$3,000.00 in DoD labor.

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EXECUTIVE SUMMARY

This report is in response to House Report 116–84, pages 312–313, accompanying H.R. 2968, the Department of Defense (DoD) Appropriations Bill, 2020. The House Appropriations Committee encourages the Assistant Secretary of Defense for Health Affairs (ASD(HA)) to work collaboratively in the health research field with Hispanic Serving Institutions (HSIs), Historically Black Colleges and Universities (HBCUs), and other Minority Serving Institutions (MSIs). This report addresses the Department’s efforts to collaborate with these institutions in the health research field from July 2019, the date of the Department’s previous report to Congress, to the present.

This report provides information on initiatives undertaken by the Military Health System (MHS), to include the Defense Health Agency (DHA) Research and Development Directorate (J-9), medical departments of the Military Departments, and the Uniformed Services University of the Health Sciences (USUHS), to collaborate with MSIs in the health research field. Such efforts include partnership and outreach initiatives that engage MSIs in DoD health-related research, development, testing, and evaluation activities.

Over the last year, the Office of the ASD(HA) (OASD(HA)), DHA, Military Departments, and USUHS provided funding opportunities and created or maintained programs to increase minority representation in the allied health, medicine, and life science fields of study. This report summarizes the Department’s key partnerships and outreach accomplishments, and ongoing collaborative efforts with MSIs in the health research field.

BACKGROUND AND PURPOSE

House Report 116–84 encourages the DoD to work collaboratively in the health research field with HSIs, HBCUs, and other MSIs. The ASD(HA) and DHA acknowledge these partnerships as crucial to the National Security Strategy, National Defense Strategy, and the ability of the Department to maintain its competitive advantage in the science, technology, engineering, and math (STEM) workforce. The core mission driver for collaborations with HBCUs/MSIs is title 10, United States Code (U.S.C.) section 2362; however, it is title 10, U.S.C., section 2194 that gives statutory priority to these institutions when entering into Education Partnership Agreements (EPAs).

The purpose of this report is to provide an overview of the Department’s efforts to collaborate with MSIs in the health research field. The information below reflects input compiled from the OASD(HA), DHA, Military Departments, and USUHS on their key collaborative partnerships and outreach accomplishments, as well as current and future efforts to collaborate with MSIs on health research. These educational and outreach initiatives are intended to enhance and expand the research and educational capabilities of MSIs and increase the number of graduates from these institutions in the health sciences fields of study.

According to the Rutgers Center for Minority Serving Institutions, there are over 700 MSIs in the nation educating and creating a culturally diverse STEM health research workforce. These MSIs represent underutilized resources and untapped potential for the future health

research workforce. The Department's health research programs aim to further the intent of the National Academies of Sciences, Engineering, and Medicine (2019) Consensus Study on *Minority Serving Institutions: America's Underutilized Resource for Strengthening the STEM Workforce*, reflected in the following:

The impact of this underrepresentation is critical to understand, given the imminent transition toward a non-White majority in the United States. A clear takeaway from the projected demographic profile of the nation is that the educational outcomes and STEM readiness of students of color will have direct implications on America's economic growth, national security, and global prosperity. Accordingly, there is an urgent national need to develop strategies to substantially increase the postsecondary and STEM degree attainment rates of Hispanic, African American, American Indian, Alaska Native, and underrepresented Asian American students.

The OASD(HA), DHA, USUHS, and Military Departments continue to provide research opportunities for MSI undergraduates, graduates, and post-doctoral fellows through robust internship and fellowship programs. The MHS utilizes collaborative partnership agreements such as EPAs, Cooperative Research and Development Agreements (CRADAs), and Military Training Agreements (MTAs) to enter into strategic health research, education, and training collaborations with MSIs.

RESULTS

Partnerships and Outreach Accomplishments

The DoD Congressionally Directed Medical Research Programs (CDMRP) awarded Fiscal Year (FY) 2018 funding to 1,021 educational institutions, of which 134 were MSIs. These CDMRP awards amounted to an annual research funding amount exceeding \$1.0B, of which the CDMRP allocated \$127M in funding to MSIs. At the time of this report, the FY 2019 awards are on track to exceed the previous year's funding allocations for MSIs (0.79 percent). Table 1 (see Appendix A) summarizes three sources of partnerships and outreach accomplishments with MSIs, to include HSIs, HBCUs, Predominantly Black Institutions (PBIs), Asian American and Native American Pacific Islander Serving Institutions (AANAPISIs), and Native American-Serving Non-Tribal Institutions (NASNTIs):

- 1) At the time of this report, among the 516 CDMRP award recipients in FY 2019, 69 were MSIs. To date, the CDMRP awarded over \$74.6M to MSIs.
- 2) For DoD HBCU/MSI Science Program in the Research and Education Program (REP) Equipment Awards, the Department granted \$23.2M to 59 MSIs during FY 2019 to date, of which seven proposals (submitted by two HBCUs, two HSIs, and three other MSIs) support health, medicine, and life sciences research activities.

- 3) The DHA J-9 established and/or maintained EPA project agreements with Howard University and the University of Texas at San Antonio (as indicated in Appendix A, entries 78–79).

Current/Ongoing Collaborative Efforts

Table 2 (see Appendix B) summarizes ongoing collaborative efforts with MSIs. There are currently over 20 health research collaborations with over 14 unique MSI partners. Furthermore, several existing MHS research programs aim to enhance MSI research capabilities and strengthen their education curricula, as well as facilitate allied health, medicine, and life science research with MSI faculty and students. This also serves to diversify and increase the pool of allied health scientists, clinical professionals, and biomedical researchers trained to work on military-related health readiness, combat lethality, and battlefield deficiencies. These existing programs make use of grants, CRADAs, and MTAs to establish partnerships with MSIs. This report also addresses several recommendations for enhancing partnerships and outreach activities to augment the Department’s collaborative efforts with accredited federally recognized MSIs in the health research fields.

DHA J-9, as a Defense Laboratory, appointed an EPA Program Manager and established an EPA Program in October 2019 to strengthen the quality of mutually beneficial EPAs between J-9 and educational institutions and nonprofits dedicated to advancing STEM, in accordance with title 10 U.S.C., section 2194. J-9 has engaged in partnerships with educational institutions, including the establishment of umbrella EPAs with MSIs.

CONCLUSION

The Department remains dedicated to fostering and sustaining collaborations with MSIs that enhance its health research programs through funding opportunities and various collaborative partnerships and cooperative agreements. In the next year, the DHA will continue to prioritize outreach to MSIs ensuring the long-term stability of our national defense and security to maintain our global competitive advantage through efforts designed to attract a diverse STEM health research workforce.

APPENDIX A

Table 1: Partnerships and Outreach Accomplishments				
No.	DoD Office	Partner(s)	Type of MSI/EPA	Accomplishment Summary
1	DoD CDMRP	Georgia State University	AANAPISI and PBI	Discovery Award from the Peer Reviewed Medical Research Program (PRMRP) for the proposal, "A Novel Self-Adjuvanting cc Particle-Based Tuberculosis Vaccine." Award amount totaled \$310,000.
2		Johns Hopkins University	Other MSI 54 Percent Female Students	Therapeutic Development Award from the Therapeutically Relevant Marker Option of the Amyotrophic Lateral Sclerosis (ALS) Research Program for the proposal, "The Development of an Astrocyte Hemichannel Blocker to Delay Spatial and Temporal Progression in ALS." Award amount totaled \$1,556,989.
3				Idea Award with Special Focus from the Peer Reviewed Cancer Research Program (PRCRP) for the proposal, "Cntnap4 Signaling in Osteosarcoma Disease Progression." Award amount totaled \$655,000.
4				Translational Team Science Award from PRCRP for the proposal, "A Multi-Omics Approach to Overcome Resistance in Infant Leukemia by Identifying Immune Therapy Failure Mechanisms." Award amount totaled \$249,113.
5				Idea Development Award - New Investigator from the PCRCP for the proposal, "Development of 5D3 mAb and USPIO-Based Theranostics for Image-Guided Prostate Cancer Therapy." Award amount totaled \$971,022.
6				Idea Development Award - New Investigator from PCRCP for the proposal, "Polyploid Giant Cancer Cells Actuate Prostate Cancer Tumor Resistance and Lethal Phenotype." Award amount totaled \$889,926.
7				Idea Development Award - Established Investigator from PCRCP for the proposal, "The Effect of Androgen Metabolism by Gastrointestinal Microbiota on Resistance to Androgen Receptor Axis-Targeted Therapies in Metastatic Prostate Cancer." Award amount totaled \$1,222,466.
8				Early Investigator Research Award from PCRCP for the proposal, "The Role of Mitochondrial Metabolism in Prostate Cancer Progression and Susceptibility to Bipolar Androgen Therapy." Award amount totaled \$300,000.
9				Idea Development Award - Established Investigator from PCRCP for the proposal, "Role of AR-Derived Circular RNA in Prostate Cancer." Award amount totaled \$1,218,950.
10				Idea Development Award - Established Investigator from PCRCP for the proposal, "Evaluating Senescent Stromal Fibroblasts as a Promoter of Prostate Cancer Lethality to Inform a Paradigm Shift in Prognostic, Predictive, and Therapeutic Strategies." Award amount totaled \$1,225,212.

Table 1: Partnerships and Outreach Accomplishments (Continued)				
No.	DoD Office	Partner(s)	Type of MSI/EPA	Accomplishment Summary
11	DoD CDMRP	Johns Hopkins University	Other MSI 54 Percent Female Students	Health Disparity Research Award - Established Investigator from PCRP for the proposal, "Deciphering DDX3-Mitochondrial Axis in Prostate Cancer Ethnic Disparity." Award amount totaled \$1,225,804.
12				Clinical Trial Award from PCRP for the proposal, "Sequencing Testosterone and Enzalutamide to Prevent Unfavorable Progression (The STEP-UP Trial)." Award amount totaled \$2,520,000.
13				Clinical Trial Award from PRMRP for the proposal, "Large-Volume Soft Tissue Reconstruction Using Acellular Adipose Tissue." Award amount totaled \$2,573,725.
14				Discovery Award from PRMRP for the proposal, "Developing a Novel Glutamine Antagonist to Treat Pulmonary Fibrosis." Award amount totaled \$327,500.
15				Discovery Award from PRMRP for the proposal, "In Vivo Engineering of the Heart." Award amount totaled \$327,500.
16		Meharry Medical College	HBCU	Discovery Award from PRMRP for the proposal, "Developing a High Efficient Gene-Editing Tool to Edit the Human APOBEC3G Gene in HSC for Improving HIV-1 Treatment." Award amount totaled \$290,884.
17		Rutgers, The State University of New Jersey	AANAPISI and HSI	Medical Research Award from the Joint Warfighter Medical Research Program for the proposal, "Preclinical Development of a Novel Medical Device for Total Meniscus Reconstruction." Award amount totaled \$4,420,191.
18				Idea Development Award from the Military Burn Research Program for the proposal, "Hemoglobin, Heme, and Iron Scavenging for Improved Burn Injury Outcomes." Award amount totaled \$500,000.
19				Expansion Award - Funding Level 2 from PRMRP for the proposal, "Development of Novel Chemoprotective Agents Against Malaria." Award amount totaled \$1,878,667.
20				Discovery Award from PRMRP for the proposal, "Fusogen Nanomedicine for Peripheral Nerve Repair." Award amount totaled \$302,234.
21		St. John's University, New York	AANAPISI	Investigator-Initiated Research Award from PRMRP for the proposal, "Achilles Heel of Polycystic Kidney Disease: The Role of the Ion Channel Function and Regulation of the Polycystin-1/Polycystin-2 Complex." Award amount totaled \$1,135,200.
22		Texas A&M University	HSI	Investigator-Initiated Research Award from PRMRP for the proposal, "Targeted Nutritional Approach to Improve Muscle Function and Physical Activity by Restoring Metabolic Deregulations During Recovery from Sepsis." Award amount totaled \$1,770,586.

Table 1: Partnerships and Outreach Accomplishments (Continued)

No.	DoD Office	Partner(s)	Type of MSI/EPA	Accomplishment Summary
23	DoD CDMRP	Texas A&M University System Health Science Center, College Station	HSI	Expansion Award - Funding Level 1 from PRMRP for the proposal, "Inborn Errors of Innate Immunity and Impaired Antimicrobial Defenses in Primary Mitochondrial Diseases." Award amount totaled \$749,378.
24				Discovery Award from PRMRP for the proposal, "Inborn Errors of Innate Immunity and Impaired Antimicrobial Defenses in Primary Mitochondrial Diseases." Award amount totaled \$303,000.
25		University of Arizona, Tucson	HSI	Discovery Award from PRMRP for the proposal, "Transcranial Magnetic Stimulation of the Default Mode Network to Improve Sleep." Award amount totaled \$306,995.
26		University of California, Davis	AANAPISI and Emerging HSI	Translational Research Partnership Award - Clinical Trial from the Lung Cancer Research Program (LCRP) for the proposal, "Transcranial Magnetic Stimulation of the Default Mode Network to Improve Sleep." Award amount totaled \$554,584.
27				Translational Research Partnership Award - Clinical Trial from the LCRP for the proposal, "[18F]AlphaVBeta6-Binding Peptide Positron Emission Tomography for Staging, Response Assessment, and Patient Selection in Metastatic Non-Small Cell Lung Cancer." Award amount totaled \$831,417.
28				Focused Research Award - Funding Level 2 from the Hearing Restoration Research Program for the proposal, "Rapid, Multileveled Assessment of Hearing Dysfunction in Operational and Postdeployment Environments." Award amount totaled \$1,530,179.
29				University of California, Irvine
30		University of California, Santa Barbara	HSI	Discovery Award from PRMRP for the proposal, "Can Altered Bioenergetics Drive Antibiotic Persistence in Low-Oxygen Conditions?" Award amount totaled \$738,769.
31				Clinical Translational Research Award from the Autism Research Program for the proposal, "Clinicianless Training in Autism Treatment: An Adaptive Online Parent Education Program." Award amount totaled \$310,740.
32		University of Illinois at Chicago	AANAPISI and HSI	Breakthrough Award - Funding Level 2 from the Breast Cancer Research Program (BCRP) for the proposal, "Novel Breast Cancer Tumor Suppressor Pathways." Award amount totaled \$1,599,000.
33				Breakthrough Award - Funding Level 1 - Partnering Principal Investigator (PI) Option from BCRP for the proposal, "Role of Ceramide Kinase and Ceramide-1-Phosphate in Endocrine-Resistant Breast Cancer." Award amount totaled \$587,645.
34				Health Disparity Research Award - Established Investigator from PCRCP for the proposal, "High Intraprostatic Androgens in African American Men Primes for Aggressive Prostate Cancer." Award amount totaled \$1,199,250.

Table 1: Partnerships and Outreach Accomplishments (Continued)					
No.	DoD Office	Partner(s)	Type of MSI/EPA	Accomplishment Summary	
35	DoD CDMRP	University of Illinois at Chicago	AANAPISI and HSI	Idea Expansion Award from PCRP for the proposal, "HOXB13-Dependent Metastasis Suppression of Prostate Cancer by Proteoglycan Signaling." Award amount totaled \$599,625.	
36				Investigator-Initiated Research Award from PRMRP for the proposal, "Targeting Intravascular ERO1alpha to Treat Acute Lung Injury." Award amount totaled \$1,199,250.	
37				Discovery Award from PRMRP for the proposal, "Regulation of Energy Balance by a Gut-Brain Axis Mediated by SCFAs and FFA2/3 in the Brain." Award amount totaled \$319,798.	
38		University of Maryland, Baltimore	PBI	Breakthrough Award - Funding Level 2 - Partnering PI Option from BCRP for the proposal, "IL-6/GP130 Signaling as a Novel Chemoprevention Target for Triple-Negative Breast Cancer." Award amount totaled \$1,145,049.	
39				Multi-Domain Lifesaving Trauma Innovations Award from the Duchenne Muscular Dystrophy Research Program (DMDRP) for the proposal, "Novel Dried Cryoprecipitate-Based Intervention to Improve Outcomes from Trauma and Hemorrhagic Shock: Applicability for Multidomain Operations." Award amount totaled \$999,045.	
40			AANAPISI	Investigator-Initiated Research Award - Partnering PI Option from PRMRP for the proposal, "Achilles Heel of Polycystic Kidney Disease: The Role of the Ion Channel Function and Regulation of the Polycystin-1/Polycystin-2 Complex." Award amount totaled \$1,236,000.	
41				Clinical Trial Award from PRMRP for the proposal, "Cooling to Help Injured Lungs (CHILL) Phase 2B Randomized Control Trial of Therapeutic Hypothermia in Patients with ARDS." Award amount totaled \$12,899,246.	
42			University of Minnesota, Twin Cities	AANAPISI	Idea Award with Special Focus from PCRP for the proposal, "Development of Novel Chemokine Beacons to Drive Targeted Migration of Natural Killer Cells Toward Colorectal Cancer." Award amount totaled \$604,486.
43					Career Development Award from the Ovarian Cancer Research Program (OCRP) for the proposal, "Chromatin Accessibility and the Convergent Oncogenic Pathways of Angiosarcomas." Award amount totaled \$555,600.
44		Investigator-Initiated Research Award from OCRP for the proposal, "Manipulating the Ovarian Cancer Tumor Microenvironment to Enhance Natural Killer (NK) Cell Killing." Award amount totaled \$693,000.			
45		Early Investigator Research Award from PCRP for the proposal, "Unraveling the Dynamic Protein Expression Levels of Androgen Receptor Variants in Prostate Cancer." Award amount totaled \$308,000.			
46		Idea Development Award - Established Investigator from PCRP for the proposal, "Targeting the CPSF Complex to Prevent Expression of AR Variants in Prostate Cancer." Award amount totaled \$1,133,820.			

Table 1: Partnerships and Outreach Accomplishments (Continued)				
No.	DoD Office	Partner(s)	Type of MSI/EPA	Accomplishment Summary
47	DoD CDMRP	University of Puerto Rico, Medical Sciences Campus	HSI	Breakthrough Award - Funding Level 2 from BCRP for the proposal, "Rac and Cdc42 Inhibitors in Breast Cancer Metastasis Prevention." Award amount totaled \$1,466,138.
48		University of Texas Health Science Center at Houston	HSI	Breakthrough Award - Funding Level 1 from BCRP for the proposal, "Targeting the Tumor Microenvironment and Metastatic Niche in Breast Cancer." Award amount totaled \$699,000.
49				Horizon Award from PRCRP for the proposal, "Dissecting the Biology and Therapeutic Vulnerabilities of RB1-Mutant Osteosarcoma Using RB iPSCs." Award amount totaled \$234,000.
50		University of Texas Health Science Center at Tyler	HSI	Discovery Award from PRMRP for the proposal, "Role of p53 and PAI-1 in Tobacco Smoke-Induced Lung Injury." Award amount totaled \$294,000.
51		University of Texas, Austin	HSI	Career Development Award from PRCRP for the proposal, "Targeting Protein Phosphatase 2A (PP2A) to Overcome Macrophage-Mediated Immunosuppression in Glioblastoma." Award amount totaled \$554,481.
52				Career Development Award from PRCRP for the proposal, "Potentiating Immunotherapy in Microsatellite-Stable Colorectal Cancer." Award amount totaled \$563,007.
53				Clinical Research Award - Funding Level 1 from the Orthotics and Prosthetics Outcomes Research Program (OPORP) for the proposal, "Determination of Fall Risk for Lower Limb Amputees." Award amount totaled \$346,373.
54		University of Texas, Dallas	HSI	Discovery Award from PRMRP for the proposal, "Ultrasensitive and Rapid Diagnosis of Influenza by Digital Nanobubbles on a Microwell Array Platform." Award amount totaled \$321,950.
55		University of Texas, El Paso	HSI	Discovery Award from PRMRP for the proposal, "Pursuing the Therapeutic Potential of the SUMOylation System by Characterizing the Mechanisms That Regulate SUMO Levels in the Cell." Award amount totaled \$288,017.
56		University of Texas, MD Anderson Cancer Center	HSI	Breakthrough Award - Funding Level 2 - Partnering PI Option from BCRP for the proposal, "Development of a Novel Tumor-Targeting and Tumor-Penetrating Nanosystem for Breast Cancer Therapy." Award amount totaled \$344,559.
57				Investigator-Initiated Research Award - Funding Level 2 - Optional Qualified Collaborator from the Neurofibromatosis Research Program for the proposal, "PRC2-Dependent Enhancer Reprogramming Promotes MPNST Pathogenesis." Award amount totaled \$919,998.

Table 1: Partnerships and Outreach Accomplishments (Continued)				
No.	DoD Office	Partner(s)	Type of MSI/EPA	Accomplishment Summary
58	DoD CDMRP	University of Texas, MD Anderson Cancer Center	HSI	Investigator-Initiated Research Award from OCRP for the proposal, "Immunotherapy Targeting Stromal CD5L in Ovarian Cancer." Award amount totaled \$720,001.
59				Idea Development Award - Established Investigator from PCRP for the proposal, "Anti-Androgens Treatment Enhances Cytotoxicity of Oxidative-Phosphorylation Inhibitors against Castration-Resistant Prostate Cancer." Award amount totaled \$1,215,000.
60				Idea Expansion Award from PCRP for the proposal, "Exploiting RNA Epitranscriptomes for the Treatment of Lethal Neuroendocrine Prostate Cancer." Award amount totaled \$607,500.
61				Investigator-Initiated Research Award - Partnering PI Option from PRMRP for the proposal, "Neuro-Immuno Modulating Analgesic (NiMA) Nanomedicine Platform for Treatment of Diabetic Neuropathy." Award amount totaled \$799,792.
62		University of Washington	AANAPISI	Innovations in Care and Support Award - Funding Level 2 from the Peer Reviewed Alzheimer's Research Program for the proposal, "Transcranial Ultrasound Can Improve Alzheimer's Dementia After TBI In Vivo." Award amount totaled \$766,400.
63				Idea Development Award from DMDRP for the proposal, "Identifying Satellite Cell-Targeting Ligands for Novel Vectors." Award amount totaled \$617,750.
64				Investigator-Initiated Research Award from OCRP for the proposal, "CRISPR Excision and Long-Read Sequencing of BRCA1 and BRCA2 to Identify Previously Undetectable Classes of Mutations in Families with Ovarian Cancer." Award amount totaled \$699,750.
65				Clinical Research Award - Funding Level 2 from OPORP for the proposal, "Patient-Centered Measurement of Mobility Outcomes in Lower Limb Orthosis Users." Award amount totaled \$999,767.
66				Clinical Trial Award - Funding Level 2 from OPORP for the proposal, "Fall-Related Health Outcomes in Lower Limb Prosthesis Users: A Pragmatic Clinical Trial to Assess Effectiveness of Microprocessor-Controlled Prosthetic Knees." Award amount totaled \$1,999,931.
67				Idea Development Award - Established Investigator from PCRP for the proposal, "Boosting Complement Activity Suppresses Development of Castration Resistance." Award amount totaled \$1,199,009.
68				Early Investigator Research Award from PCRP for the proposal, "Investigating the Role of Stromal Wnt Signaling in Advanced Prostate Cancer." Award amount totaled \$352,998.
69				Translational Science Award from PCRP for the proposal, "BKI-1553: Transformational Therapy for Castrate-Resistant Prostate Cancer." Award amount totaled \$1,323,750.

Table 1: Partnerships and Outreach Accomplishments (Continued)				
No.	DoD Office	Partner(s)	Type of MSI/EPA	Accomplishment Summary
70	DoD REP Equipment Awards	Cameron University	NASNTI	Advancing Genetic and Genomic Research and Education in Southwest Oklahoma.
71		Delaware State University	HBCU	Building a Genomics Core Facility at Delaware State University.
72		San Francisco State University	AANAPISI and HSI	Acquisition of a Digital Droplet Polymerase Chain Reaction Platform for Pathogen Detection.
73		San Jose State University	AANAPISI and HSI	Acquisition of SeaHorse XFe96 Instrumentation for Metabolomics Research Efforts at San Jose State University.
74		University of California-Merced	HSI	High Dimensional Flow Cytometer for Microbiological Analysis and Education.
75				X-Ray Photoelectron Spectroscopy for Multi-Disciplinary Research and Training.
76		University of Central Florida	HSI	Building Laboratories Without Limits: Bringing Behavioral and Neurophysiological Measurement to Real and Virtual Environments.
77		Virginia State University	HBCU	Acquisition of X-Ray Computed Tomography Machine Clinicianless Training in Autism Treatment: An Adaptive Online Parent Education Program.
78	National Museum of Health and Medicine (NMHM), DHA J-9	Howard University	HBCU (EPA Project)	The objective of the "Enhancing Neuroscience Diversity through Undergraduate Research Experiences Project" collaboration was to increase awareness of MHS priorities related to neuroanatomical issues and trauma and exposure of minority students to the MHS system and neuroscience field.
79		University of Texas, San Antonio	HSI (EPA Project)	The objective of this collaboration was to research and analyze how military museums are supported by foundations for a legislative proposal seeking to create a foundation for NMHM (partnered with University of Texas Health San Antonio).

APPENDIX B

Table 2: Current and Ongoing Collaborative Efforts				
No.	DoD Office	Partner(s)	Type of MSI/EPA	Effort Summary
1	DoD Human Immunodeficiency Virus (HIV)/ Acquired Immune Deficiency Syndrome (AIDS) Prevention Program (DHAPP), DHA	Charles R. Drew University of Medicine and Science	HBCU	The DHAPP provides grants to nongovernmental organizations and universities to support HIV prevention, care, and treatment programs for foreign militaries around the world. Currently, the DHAPP has one active grant with the Charles R. Drew University of Medicine and Science.
2	HCE, DHA J-9	San Diego State University	HSI	This collaboration is focused on a controlled prospective cross-sectional study, "Jet Fuel and Noise Induced Central Nervous System Dysfunction," to determine whether combined exposure to jet fuel and noise result in central nervous system dysfunctions among high-risk military personnel. To accomplish this goal, air conduction pure tone audiometric thresholds, speech recognition thresholds, word recognition scores, tympanograms, noise exposure questionnaires, and modified Amsterdam Inventory for Auditory Disability Handicap responses are being obtained from active duty Service members.
3		University of Washington	AANAPISI	This collaboration is focused on the project, "Early Detection of Noise-Induced Hearing Loss," to identify ways to predict individuals with greater susceptibility to noise-induced hearing loss, using different parameters outside the standard battery of audiological tests and tracking participants over the course of two years. The project enrolls both Service members and college student participants. By identifying tests that detect sub-clinical/hidden hearing loss, the HCE aims to anticipate the hearing health needs of certain populations more effectively.
4		University of Texas Health Science Center at San Antonio	HSI	This collaboration is aligned under the DHA master EPA with the University of Texas System on a project, "Mental Health Clinical Research and Best Practices Development for the Characterization, Diagnosis, and Management of Auditory Disorders," to leverage the expertise of the University's clinical psychologist in researching the association of tinnitus and auditory disorders with the presence of posttraumatic stress disorder. Through this project, the clinical psychologist will assist the DHA and the Department of Veterans Affairs in addressing gaps in the management of the synergistic effects of mental health disorders in military and veteran populations with tinnitus and other auditory disorders. This project also will allow the clinical psychologist to receive training in auditory evaluation and management techniques, which will be critical in expanding the psychologist's research portfolio.

Table 2: Current and Ongoing Collaborative Efforts (Continued)

No.	DoD Office	Partner(s)	Type of MSI/EPA	Effort Summary
5	NMHM, DHA J-9	Howard University	HBCU	The NMHM has a master EPA with Howard University dedicated to enhancing neuroscience diversity through undergraduate research experiences. Effective September 1, 2019, through August 31, 2022, Howard University undergraduates are taking part in an ongoing project under the master EPA to increase awareness of MHS priorities related to neuroanatomical issues and trauma, and to increase the exposure of minority students to the MHS and the field of neuroscience.
6	Uniformed Services University (USU)	University of Maryland- Eastern Shore	HBCU	The USU Comprehensive Student Research Training Program is a STEM-focused program that facilitates DoD STEM training and research exchange opportunities for students from majority institutions, as well as from HBCUs and other MSIs to diversify and increase the pool of scientists, engineers, and researchers trained to work on military-relevant health concerns. The program provides students from underrepresented and underserved communities with the opportunity to learn in a military-focused research environment. The USU holds over 51 strategic research collaborations with MSIs. These collaborations focus on a wide range of subjects, from clinically relevant topics to public health challenges and emerging infectious diseases. In each instance, the intent is to forge productive scientific collaborations and mentorship with these MSIs. These strong research collaborations have generated over 100 technology-related agreements, such as MTAs and CRADAs, over the past two years.
7		University of North Carolina	NASNTI	
8		University of Washington	AANAPISI	
9		Texas Woman's University	HSI	
10	USAMEDCOM Clinical and Translational Research Program Office (CTRPO)	University of Hawaii	AANAPISI	Technology Transfer Program, CTRPO encourages and executes CRADAs related to medical and health research partnerships on behalf of Army medical treatment facilities and non-federal partners in the private, not-for-profit, or educational sectors.
11		University of the Incarnate Word (UIW)	HSI	
12		University of Texas Health Science Center at San Antonio	HSI	
13		University of Washington- Seattle	AANAPISI	

Table 2: Current and Ongoing Collaborative Efforts (Continued)

No.	DoD Office	Partner(s)	Type of MSI/EPA	Effort Summary
14	U.S. Army Medical Research and Development Command (USAMRDC)	Multiple Educational Institutions	Multiple HBCUs/ MSIs	<p>Through the DoD HBCU/MSI Summer Research Program, the following USAMRDC Subordinate Commands hosted HBCU/MSI students for the 10-week Summer 2020 internship period, beginning June 1, 2020:</p> <ul style="list-style-type: none"> • U.S. Army Medical Research Institute of Infectious Diseases, Fort Detrick, MD • Walter Reed Army Institute of Research, Silver Spring, MD • U.S. Army Medical Research Institute of Chemical Defense, Aberdeen Proving Ground, MD • U.S. Army Aeromedical Research Laboratory, Fort Rucker, AL • U.S. Army Research Institute of Environmental Medicine, Natick, MA • U.S. Army Institute of Surgical Research, Fort Sam Houston, TX
15	Air Force Research Laboratory (AFRL) 711th Human Performance Wing (711 HPW) and 59th Medical Wing (59 MDW)	University of Texas Health Science Center at San Antonio	HSI/ AANAPISI	The AFRL 711 HPW and 59 MDW have had recent and ongoing research collaborations with the University of Texas Health Science Center at San Antonio, UIW, and the University of Illinois at Chicago, on a variety of topics spanning health and human performance. Research topics include athletic training, substance abuse, stem cell treatments, sleep disorders, service life trajectories, unexplained physiological events, and individualized performance optimization to enhance health and operational performance of Air Force personnel.
16		UIW		
17		University of Illinois at Chicago		
18	Naval Medical Research and Development (NMR&D) Enterprise	Multiple Educational Institutions	Multiple HBCUs/ MSIs	The Naval Research Enterprise Internship Program (NREIP) provides an opportunity for college students to participate in research at a Department of the Navy (DoN) laboratory during the summer. The goals of NREIP are to encourage participating college students to pursue science and engineering careers; further education through mentorship by laboratory personnel and their participation in research; and to make them aware of DoN research and technology efforts, which can lead to employment within the DoN.
19				The Science and Engineering Apprenticeship Program (SEAP) provides an opportunity for high school students to participate in research at a DoN laboratory during the summer. The goals of SEAP are to encourage participating high school students to pursue science and engineering careers; further their education through mentorship by laboratory personnel and their participation in research; and to make them aware of DoN research and technology efforts, which can lead to employment within the DoN.

Table 2: Current and Ongoing Collaborative Efforts (Continued)				
No.	DoD Office	Partner(s)	Type of MSI/EPA	Effort Summary
20	NMR&D Enterprise	Multiple Educational Institutions	Multiple HBCUs/ MSIs	The Summer Faculty Research Program provides science and engineering faculty members from institutions of higher education, including MSIs, with the opportunity to participate in research of mutual interest to the faculty member and peers at U.S. Navy laboratories for a 10-week period. Program participants have an opportunity to establish continuing research relationships with the research and development personnel of the host laboratories, which may result in sponsorship of the participant's research at their home institutions.
21	Naval Medical Research Unit-6 (Peru)	University of California, Davis	AANAPISI/ Emerging HSI	An intergovernmental Personnel Act Mobility Program staff member from University of California, Davis is participating in the Joint Program Committee-2 (JPC-2)/Military Infectious Diseases Research Program with a focus on tropical diseases, including dengue, malaria, chikungunya, and emerging viral pathogens.
22		University of Texas, El Paso	HSI	This collaboration with JPC-2 focuses on tropical and emerging pathogens.