Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Defense Health Program											DATE: March 2013	
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*					R-1 ITEM NOMENCLATURE PE 0602115HP: *Applied Biomedical Technology*							
COST ($ in Millions)	**All Prior Years**	**FY 2012**	**FY 2013#**	**FY 2014 Base**	**FY 2014 OCO ##**	**FY 2014 Total**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**	**Cost To Complete**	**Total Cost**
Total Program Element	-	67.160	42.188	46.761	-	46.761	66.699	71.233	75.608	76.969	Continuing	Continuing
200A: *Congressional Special Interests*	-	34.750	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
306B: *Advanced Diagnostics & Therapeutics Research & Development (Air Force)*	-	3.377	3.566	3.637	-	3.637	3.710	3.840	3.905	3.975	Continuing	Continuing
372A: *GDF Applied Biomedical Technology*	-	29.033	38.622	34.148	-	34.148	54.020	58.430	62.579	63.705	Continuing	Continuing
447A: *Military HIV Research Program (Army)*	-	0.000	0.000	8.976	-	8.976	8.969	8.963	9.124	9.289	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

For the Guidance for Development of the Force - Applied Biomedical Technology: This applied research funding is to refine concepts and ideas into potential solutions to military health and performance problems, with a view towards evaluating technical feasibility. Included are studies and investigations leading to candidate solutions that may involve use of animal models for testing in preparation for initial human testing. Research in this program element is designed to address the following: areas of interest to the Secretary of Defense regarding Wounded Warriors, capabilities identified through the Joint Capabilities Integration and Development System, and the strategy and initiatives described in the Quadrennial Defense Review. Program development is peer-reviewed and fully coordinated with all Military Services, appropriate Defense Agencies or Activities, and other federal agencies, to include the Department of Veterans Affairs, the Department of Health and Human Services, and the Department of Homeland Security. This coordination occurs through the planning and execution activities of the Joint Program Committees, established for the Defense Health Program Research, Development, Test and Evaluation (RDT&E) funding. Research supported by this program element includes polytrauma and blast injury, rehabilitation, diagnosis and treatment of brain injury, operational health and performance, radiation countermeasures, and psychological health and well-being for military personnel and families.

For the Army Medical Command, beginning in FY14, the military HIV research program funding is transferred from the Army to the Defense Health Program. HIV causes acquired immunodeficiency syndrome (AIDS). Work in this area includes refining improved identification methods to determine genetic diversity of the virus, preclinical work in laboratory animals including non-human primates to identify candidates for future vaccine refinement, and evaluating and preparing overseas sites for future vaccine trials.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Defense Health Program	DATE: March 2013
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*	R-1 ITEM NOMENCLATURE PE 0602115HP: *Applied Biomedical Technology*

The Army Medical Command also received DHP Congressional Special Interest (CSI) research funding focused on Peer-Reviewed Traumatic Brain Injury and Psychological Health Research, and Peer-Reviewed Hemorrhage (bleeding) Control Research. Because of the CSI annual structure, out-year funding is not programmed.

For the Air Force, this PE funds applied research which seeks to promote 'omic'-informed personalized medicine with an emphasis on targeted prevention, diagnosis, and treatment. The delivery of pro-active, evidence-based, personalized medicine will improve health in Warfighters and beneficiaries by providing care that is specific to the situation and patient, to include preventing disease or injury, early and accurate diagnosis, and selection of appropriate and effective treatment. Personalized medicine will reduce morbidity, mortality, mission impact of illness/injury, and healthcare costs while increasing health and wellness of the AF population and efficiency of the healthcare system. This applied research supports multiple focus areas, each of which represents an identified barrier/gap which must be addressed for successful implementation of 'omic-informed personalized medicine. Focus areas for applied research include knowledge generation research; ethical legal and social issues/policy research; bioinformatics research; educational research; research for development of advanced genomic diagnostic system. For efforts supported by this program element, research will be pursued with the intent to support solutions that answer Air Force specific needs. During this process, the efforts of other government agencies in those areas will be assessed to avoid redundancy.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	66.841	42.188	37.785	-	37.785
Current President's Budget	67.160	42.188	46.761	-	46.761
Total Adjustments	0.319	0.000	8.976	-	8.976
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	0.319	-			
• Military HIV Research Program	-	-	8.976	-	8.976

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2012	FY 2013
Project: 200A: *Congressional Special Interests*		
Congressional Add: *426A – Traumatic Brain Injury and Psychological Health (TBI/PH) (Army)*	31.750	-
Congressional Add: *437A - Peer-Reviewed Hemorrhage Control Research*	3.000	-
Congressional Add Subtotals for Project: 200A	34.750	0.000
Congressional Add Totals for all Projects	34.750	0.000

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Defense Health Program	DATE: March 2013
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*	R-1 ITEM NOMENCLATURE PE 0602115HP: *Applied Biomedical Technology*

Change Summary Explanation

FY 2012: Restore FY 2013 President's Budget decrease to Congressional Special Interest from DHP RDT&E PE 0605502-Small Business Innovation Research (SBIR) Program (-$0.869 million) to DHP RDT&E, PE 0602115- Applied Biomedical Technology (+$0.869 million).

Realignment from DHP RDT&E, PE 0602115-Applied Biomedical Technology (-$0.550 million) to DHP RDT&E PE 0605502-Small Business Innovation Research (SBIR) Program (+$0.550 million).

FY 2013: No Change

FY 2014: Change Proposal increase to DHP RDT&E, PE 0602115-Applied Biomedical Technology (+$8.976 million) for the Military HIV Research Program (MHRP) from RDT&E, Army, appropriation.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Health Program			DATE: March 2013
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*	R-1 ITEM NOMENCLATURE PE 0602115HP: *Applied Biomedical Technology*	PROJECT 200A: *Congressional Special Interests*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
200A: *Congressional Special Interests*	-	34.750	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

For FY12, DHP Congressional Special Interests (CSI) directed funding to stimulate innovative research through a competitive, peer-reviewed research program focused on Peer-Reviewed Traumatic Brain Injury and Psychological Health Research, and Peer-Reviewed Hemorrhage Control Research. Because of the CSI annual structure, out-year funding is not programmed.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013
Congressional Add: 426A – Traumatic Brain Injury and Psychological Health (TBI/PH) (Army)	31.750	-
FY 2012 Accomplishments: The Traumatic Brain Injury and Psychological Health (TBI/PH) CSI project aims to prevent, mitigate, and treat the effects of combat-relevant traumatic stress and TBI on function, wellness, and overall quality of life, including interventions across the deployment lifecycle for warriors, Veterans, family members, caregivers, and communities. Project funding was divided into applied research, technology development and concept development efforts. A key priority of the TBI/PH Research Program is to complement ongoing DoD efforts to ensure the health and readiness of our military forces by promoting a better standard of care for Post Traumatic Stress Disorder (PTSD) and TBI in the areas of prevention, detection, diagnosis, treatment, and rehabilitation. Program announcements, programmatic reviews, Service requested nominations, and ongoing studies that would benefit from program acceleration have been incorporated to address these priorities and gather proposals. In the area of TBI, researchers performed investigations to find a universally-agreed upon concussion grading system; they continued experiments into the effects of penetrating injuries on the brain and experiments on the effects of blasts on the brain. Proposals were solicited in the areas of blast-induced hyper-acceleration upon the generation of TBI and the role of inflammation in spreading TBI damage. In addition, a new VA/DoD Neurotrauma consortium program announcement was released to form a five-year, multi-university consortium to discover mechanisms of treatment and the long-term effects of TBI and its relationship to Chronic Traumatic Encephalopathy (CTE), a degenerative brain disease diagnosed in patients with a history of multiple concussions.		
Congressional Add: 437A - Peer-Reviewed Hemorrhage Control Research	3.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Health Program		DATE: March 2013
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*	R-1 ITEM NOMENCLATURE PE 0602115HP: *Applied Biomedical Technology*	PROJECT 200A: *Congressional Special Interests*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013
FY 2012 Accomplishments: The CSI for Peer-Reviewed Hemorrhage Control Research is intended to seek solutions to uncontrolled bleeding without clotting resulting from severe trauma. Approximately 38% of severe combat trauma patients suffer unexplained heavy and prolonged bleeding after injury which makes hemorrhage control extremely difficult. Applied research efforts seek solutions to develop diagnostics or treatments for this life-threatening condition. Platelets are important in stopping bleeding. Currently, platelets must be administered within 5 days of collection because they must be kept at room temperature. Thus it is impossible to collect platelets in CONUS and ship them to the battlefield. Solutions are being sought to extend this timeline as long as possible, and yet make them quickly useable during a trauma scenario with a minimum of logistic support requirements.		
Congressional Adds Subtotals	34.750	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Health Program			DATE: March 2013
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*	R-1 ITEM NOMENCLATURE PE 0602115HP: *Applied Biomedical Technology*	PROJECT 306B: *Advanced Diagnostics & Therapeutics Research & Development (Air Force)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
306B: *Advanced Diagnostics & Therapeutics Research & Development (Air Force)*	-	3.377	3.566	3.637	-	3.637	3.710	3.840	3.905	3.975	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Advanced Diagnostics & Therapeutics Clinical Translational Applied Research (Air Force): This project provides applied research funding needed to increase efficiency and efficacy of care across the spectrum of Advanced Diagnostics and Therapeutics requirements in the defined Modernization Thrust Areas to improve and enhance clinical Diagnosis, Identification, Quantification and Mitigation (DIQM) methods, techniques protocols, guidelines and practices for all DoD wounded, ill and/or injured beneficiaries.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: Advanced Diagnostics & Therapeutics Research & Development (Air Force)	3.377	3.566	3.637

Description: Advanced Diagnostics & Therapeutics Clinical Translational Applied Research (Air Force): This project provides applied research funding needed to increase efficiency and efficacy of care across the spectrum of Advanced Diagnostics and Therapeutics requirements in the defined Modernization Thrust Areas to improve and enhance clinical Diagnosis, Identification, Quantification and Mitigation (DIQM) methods, techniques protocols, guidelines and practices for all DoD wounded, ill and/or injured beneficiaries.

FY 2012 Accomplishments:

Continued to support regenerative medicine program at Armed Forces Institute of Regenerative Medicine. Completed AF Surgeon General-directed deep-dive on Telecombat as it relates to the health impact on AF operators. Continued nanotechnology research projects at the Massachusetts Institute of Technology. Obtained Institutional Review Board approval for Personalized Medicine/Genomic Medicine project and initiated the associated clinical utility study. Established an advisory panel for personalized medicine/genomic medicine. Supported a continuing forum to educate leaders on futures based thinking; created a learning laboratory for mid-level leadership development, and initiated a strategic roadmap to chart health/healthcare direction. Initiated research on the development of a global events tool to filter, aggregate analyze information from public/Government sources. Analyzed outcomes of symposium on genomics ethical and social policy issues; submitted two associated papers for publication. Awarded intramural project to identify and characterize epigenetic biomarkers of stress caused by high altitude

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Health Program		DATE: March 2013
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*	R-1 ITEM NOMENCLATURE PE 0602115HP: *Applied Biomedical Technology*	PROJECT 306B: *Advanced Diagnostics & Therapeutics Research & Development (Air Force)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
conditions in a collaborative clinical translational research project in collaboration with the Uniformed Services University of the Healthcare Sciences (USUHS). ***FY 2013 Plans:*** Continue to support regenerative medicine program at Armed Forces Institute of Regenerative Medicine. Perform AF Surgeon General directed deep dive on Health as a National Strategic Imperative/Lifestyle Medicine. Assess initial results of nanotechnology research projects at the Massachusetts Institute of Technology as they relate to Enroute Care and Expeditionary Medicine missions. Transfer the leadership of the continuing forum to educate leaders on futures based thinking from AFMS/SG to OSD/HA. Continue research on the development of a global events tool. Sponsor symposium on translating genomic medicine through provider education. Continue the genomics clinical utility study. Implement a milestone approach for Personalized Medicine/Genomic Medicine. Continue to leverage joint diagnostic efforts to meet AF mission requirements. Transition findings / outcomes of intramural project to identify and characterize epigenetic biomarkers of stress caused by high altitude conditions in a collaborative clinical translational research project in collaboration with the Uniformed Services University of the Healthcare Sciences (USUHS) to clinical practice / practice guidelines. ***FY 2014 Plans:*** Continue to support regenerative medicine program at Armed Forces Institute of Regenerative Medicine. Perform AF Surgeon General directed deep-dive on topic to be determined; develop a database library of submissions and topics for further use within the AFMS community. Complete nanotechnology research projects at the Massachusetts Institute of Technology. Analyze outcomes of symposium. Complete genomics clinical utility study. Continue to mature the global events tool.			
Accomplishments/Planned Programs Subtotals	3.377	3.566	3.637

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Interagency Agreements and Interservice Support Agreements with the US Army, US Navy and the Department of Homeland Security are used to support ongoing scientific and technical efforts within this program -- these agreements are supplemented with Broad Area Announcement (BAA) and Intramural calls for proposal are used to award initiatives in this program and project following determinations of scientific and technical merit, validation of need, prioritization, selection and any necessary legal and/or regulatory approvals (IRB, etc)

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Health Program		DATE: March 2013
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*	R-1 ITEM NOMENCLATURE PE 0602115HP: *Applied Biomedical Technology*	PROJECT 306B: *Advanced Diagnostics & Therapeutics Research & Development (Air Force)*

E. Performance Metrics

Individual initiatives are measured through a quarterly annual project performance reporting system and program management review process -- performance is measured against standardized criteria for cost, schedule and performance (technical objectives) and key performance parameters. Variances, deviations and/or breaches in key areas are reviewed and a decision is rendered on any adjustments through a formalized process of S&T governance.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Health Program			DATE: March 2013
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*	R-1 ITEM NOMENCLATURE PE 0602115HP: *Applied Biomedical Technology*	PROJECT 372A: *GDF Applied Biomedical Technology*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
372A: *GDF Applied Biomedical Technology*	-	29.033	38.622	34.148	-	34.148	54.020	58.430	62.579	63.705	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

Guidance for Development of the Force - Applied Biomedical Technology: Applied Biomedical Technology Research will focus on refining concepts and ideas into potential solutions to military problems and conducting analyses of alternatives to select the best potential solution for further advanced technology development. Applied research will be conducted in the general categories of trauma, polytrauma and blast injury, rehabilitation, diagnosis and treatment of brain injury, radiation countermeasures, operational health and performance, and psychological health and well-being for military personnel and families. Applied research in traumatic brain injury (TBI) focuses on diagnosis and treatment, disentanglement of combat stress injuries, and TBI in evaluations, and clinical management. Trauma, polytrauma and blast injury applied research focuses on control of bleeding, tissue viability, diagnosis and life support, craniomaxillofacial (head, neck, face, and jaw) injury, evacuation applications and practices, forward surgical applications, blast injury models and performance standards for protection systems, blast induced brain injury models, diagnostics and metrics for hearing loss and protection, blast exposure and breaching, scar contracture (tightening of muscle, tendons, ligaments or skin that prevents normal movement), treatment of ocular and visual system traumatic injury, rapid screening of fresh whole blood, wound infection prevention and management, and antimicrobial (a substance that kills or inhibits the growth of microorganisms) countermeasures.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: GDF Applied Biomedical Technology	29.033	38.622	34.148
Description: Applied Biomedical Technology Research focuses on refining concepts and ideas into potential solutions to military problems and conducting analyses of alternatives to select the best potential solution for further advanced technology development.			
FY 2012 Accomplishments: Military infectious diseases research saw significant progress in two platforms for rapid screening of pre-transfused whole blood for pathogens (Task Area: Rapid Screening of Fresh Whole Blood). Down selection will occur in FY14, and if successful, subsequent RFP with 6.4 DHP funds will be announced in FY15. Supported multi-year studies initiated in FY10 and FY11 to transition the most appropriate efforts in development of antibacterial agents for biofilms (a thin layer of microorganisms adhering to the surface of a structure) and multidrug-resistant organisms (MDROs), detection of MDROs, and biomarker and diagnostic assay development to Medical Technology Development.			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Health Program		DATE: March 2013
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*	R-1 ITEM NOMENCLATURE PE 0602115HP: *Applied Biomedical Technology*	PROJECT 372A: *GDF Applied Biomedical Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Military operational medicine efforts evaluated models of blast exposure to allow for a better understanding of the underlying mechanisms of blast-induced trauma and allow for the development of optimal protective equipment. Research assessed the effectiveness of pharmacological interventions for treatment of tissue injury and cognitive dysfunction during heat stress progression and recovery; validated the interventions currently employed; investigated candidate biomarkers for lung disease following exposure to toxic substances; characterized abnormalities in lung tissue samples from deployed personnel compared to normal lungs and lung samples from non-deployed personnel; investigated what developmental trajectories emerge after exposure to adversity (e.g., resilience, recovery, growth, disorder) during the deployment cycle; evaluated the causal relationship between Service member deployment, diagnosis of mental illness in active duty Service members, and events of intra-family violence; and characterized a comprehensive set of PTSD-related variables to compare the intensity of the impact of sleep restriction and of juvenile stress as risk factors of PTSD. Combat casualty care continued to advance successful research, initiated in FY11, in hemorrhagic shock and trauma, TBI biomarkers and screening tools, and combination drug therapies, to higher categories of funding. A new program announcement was released and research was initiated in the areas of enroute care, therapies for and mechanisms of shock, and permanent pathology caused by mild and moderate TBI. Radiation health effects and countermeasure research studied the anti-ceramide antibody as both a protector and mitigator of gastrointestinal tract damage following high dose acute radiation exposure. Evaluated Alxn4100TPO, a thrombopoietin (protein in humans that regulates production of platelets by bone marrow) analogue (a similar protein) for treatment of acute radiation injury. Evaluated the use of Captopril with and without a multipotent progenitor (biological ancestor) cell to treat radiation exposure. Clinical and rehabilitative medicine performed studies, initiated in FY11, to define candidate strategies for preventing heterotopic ossification (HO) (growth of bone in abnormal places like soft tissue) including the development of an animal model of HO, treadmill-based training for neuromusculoskeletal rehabilitation, managing burn pain, and regenerating hair follicles in engineered skin.			
FY 2013 Plans: Military infectious diseases research is supporting multi-year studies, initiated in FY11 and FY12, in development of antibacterial agents for biofilms and multidrug-resistant organisms (MDROs), detection of MDROs, and biomarker and diagnostic assay development for down selection and transition of promising efforts to Medical Technology Development. Military operational medicine researchers are validating the predictive capacity of biomarkers of lung disease identified in pulmonary samples from deployed Warfighters exposed to potentially toxic particulate material; developing a scoring system for small airways disease to standardize interpretation of lung biopsies; conducting analysis of mineral, fiber, and particulate matter			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Health Program		DATE: March 2013
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*	R-1 ITEM NOMENCLATURE PE 0602115HP: *Applied Biomedical Technology*	PROJECT 372A: *GDF Applied Biomedical Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014

components in post-deployment lung tissue samples compared to controls; determining what psychological, interpersonal, and social factors and assets predict a resilient trajectory following exposure to adversity during the deployment cycle; evaluating nutrition and dietary supplement benefits to physiological health; evaluating specific factors that may modify the causal relationship between individual factors such as demographics, military occupational specialties and prior health, family factors and deployment factors on diagnosis of mental illness and intra-family violence; establishing recommendations to enhance the successful implementation of future interventions for mental illness and intra-family violence; and identifying specific targets with relevance for drug treatment development in PTSD that will lead to the development of a pharmacological treatment for PTSD.

Combat casualty care researchers are continuing studies, initiated in FY11 and 12, in hemorrhagic (bleeding) shock and trauma, TBI biomarkers and screening tools, enroute care, permanent pathology caused by mild and moderate TBI and combination drug therapies. Researchers will start applied technology research of new products that will be chosen by the Combat Casualty Care Joint Program Committee from a group of products currently in basic research and will issue a program announcement with topics that will be determined by the Combat Casualty Care Joint Program Committee.

Radiation health effects and countermeasure research is addressing advances in the development of small molecules, protein and cellular-based strategies for protection and mitigation of radiation-induced tissue injury due to high doses of radiation exposure. The studies are exploring advances in the development of bioinformatics and physics-based approaches to biodosimetry (calculating the absorbed dose) for triage and patient management.

Clinical and rehabilitative medicine is continuing studies in neuromusculoskeletal injury, pain management, regenerative medicine, and/or sensory system traumatic injury to identify and evaluate candidate approaches for incorporation into restoration and rehabilitation strategies and medical products. Specific focus areas include: neuromusculoskeletal injury rehabilitation strategies and devices, prosthetics, and the prevention of heterotopic ossification (growth of bone in abnormal places like soft tissue); novel therapeutics and devices for pain management; regenerative medicine-based approaches for limb and digit salvage, craniomaxillofacial (skull, face and jaw) reconstruction, scarless wound healing, burn repair, genitourinary restoration and addressing compartment syndrome (muscle and nerve damage due to swelling post-injury); and restoration and rehabilitation of sensory system injury, including vision, hearing and balance injury and dysfunction.

FY 2014 Plans:

Military infectious disease research will continue to support multi-year studies, initiated in FY12, in development of antibacterial agents for biofilms and multidrug-resistant organisms (MDROs), detection of MDROs, and biomarker and diagnostic assay development for down selection and transition of promising efforts to Medical Technology Development. Release of program announcement to solicit novel proposals in the areas of drug discovery and development for wound infection prevention and management, acute respiratory diseases, as well as further strengthening of our antimicrobial countermeasures program.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Health Program		DATE: March 2013
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*	R-1 ITEM NOMENCLATURE PE 0602115HP: *Applied Biomedical Technology*	PROJECT 372A: *GDF Applied Biomedical Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Military operational research will continue studies, initiated in FY12 and FY13, in nutrition and dietary supplements, warfighter performance and sustainment in extreme environments (such as extreme heat, cold, or altitude), will establish return to duty/ medical standards criteria, blast injury models and performance standards for protections systems, diagnostics and metrics for hearing loss and protection, alcohol and substance abuse, diagnosis of deployment-related psychological health problems, diagnosis of PTSD, military family and warfighter resilience, suicide prevention, pulmonary health in the deployed environment, and blast exposure during breaching. The Military Operational Medicine Joint Program will issue program announcements in the areas of physiological health, injury prevention and reduction, psychological health, and environmental health and protection. Combat casualty care research will continue studies, initiated in FY12 and 13, in hemorrhagic (bleeding) shock and trauma, TBI biomarkers and screening tools, enroute care, permanent pathology caused by mild and moderate TBI and combination drug therapies. Researchers will start applied technology research of new products that will be chosen by the Combat Casualty Care Joint Program Committee from a group of products currently in basic research and will issue a program announcement with topics that will be determined by the Combat Casualty Care Joint Program Committee. Radiation health effects and countermeasure research will continue in the development of small molecules, protein and cellular-based strategies for protection and mitigation of radiation-induced tissue injury due to high doses of radiation exposure. Research advances in the development of bioinformatics and physics based approaches to biodosimetry for triage and patient management will continue to be pursued in support of a comprehensive radiation countermeasures program. Clinical and rehabilitative medicine will continue studies in neuromusculoskeletal injury, pain management, regenerative medicine, and/or sensory (hearing and sight) system traumatic injury to identify and evaluate candidate approaches for incorporation into restoration and rehabilitation strategies and medical products. Specific focus areas include: neuromusculoskeletal injury rehabilitation strategies and devices, prosthetics & orthotics, neural interfaces (invasive and non-invasive methods of using the brain for device control), the prevention of heterotopic ossification (growth of bone in abnormal places like soft tissue), and treatment of training injuries to the musculoskeletal system; novel therapeutics and devices for pain management; regenerative medicine-based approaches for limb and digit salvage, craniomaxillofacial (skull, face and jaw) reconstruction, scarless wound healing, burn repair, genitourinary restoration and addressing compartment syndrome (muscle, nerve and vascular damage due to swelling post-injury); and restoration and rehabilitation of sensory system injury, including vision, hearing and balance injury and dysfunction. Clinical and rehabilitative medicine will continue studies started in FY13 focused on evaluating and down-selecting novel diagnostic and treatment strategies in the areas of pain management and sensory system (vision, hearing, and balance) restoration and rehabilitation.			
Accomplishments/Planned Programs Subtotals	29.033	38.622	34.148

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Health Program		DATE: March 2013
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*	R-1 ITEM NOMENCLATURE PE 0602115HP: *Applied Biomedical Technology*	PROJECT 372A: *GDF Applied Biomedical Technology*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Principal Investigators will participate in In-Progress Reviews, high-level DHP-sponsored review and analysis meetings, submit quarterly and annual status reports to include information on publications, intellectual property, additional funding support, and are subjected to Program Sponsor Representative progress reviews to ensure that milestones are being met and deliverables will be transitioned on schedule. The benchmark performance metric for transition of research conducted with applied research funding will be the attainment of a maturity level that is at least Technology Readiness Level (TRL) 4, and typically TRL 5, or the equivalent for knowledge products. Products nearing attainment of TRL 5 will be considered for transition.

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Health Program			DATE: March 2013
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*	R-1 ITEM NOMENCLATURE PE 0602115HP: *Applied Biomedical Technology*	PROJECT 447A: *Military HIV Research Program (Army)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
447A: *Military HIV Research Program (Army)*	-	0.000	0.000	8.976	-	8.976	8.969	8.963	9.124	9.289	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project conducts research on HIV, which causes AIDS. Work in this area includes refining improved identification methods to determine genetic diversity of the virus and evaluating and preparing overseas sites for future vaccine trials. Additional activities include refining candidate vaccines for preventing HIV and undertaking preclinical studies (studies required before testing in humans) to assess vaccine for potential to protect and/or manage the disease in infected individuals.

This project is jointly managed through an Interagency Agreement between USAMRMC and the National Institute of Allergy and Infectious Diseases of the National Institutes of Health. This project contains no duplication of effort within the Military Departments or other government organizations. The cited work is also consistent with the Assistant Secretary of Defense, Research and Engineering Science and Technology focus areas, and supports the principal area of Military Relevant Infectious Diseases to include HIV.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: Military HIV Research Program	0.000	0.000	8.976
Description: This project conducts research on HIV, which causes AIDS. Work in this area includes refining improved identification methods to determine genetic diversity of the virus and evaluating and preparing overseas sites for future vaccine trials. Additional activities include refining candidate vaccines for preventing HIV and undertaking preclinical studies (studies required before testing in humans) to assess vaccine for potential to protect and/or manage the disease in infected individuals. ***FY 2012 Accomplishments:*** No DHP funding programmed. ***FY 2013 Plans:*** No DHP funding programmed. ***FY 2014 Plans:*** Transition from the Army to DHP. Identify and characterize new populations who are at high risk of being infected with HIV for clinical evaluation of potential new vaccine candidates at overseas sites and for production of additional vaccines for various HIV subtypes and complete evaluation in non-human primates.			
Accomplishments/Planned Programs Subtotals	0.000	0.000	8.976

Exhibit R-2A, RDT&E Project Justification: PB 2014 Defense Health Program		DATE: March 2013
APPROPRIATION/BUDGET ACTIVITY 0130: *Defense Health Program* BA 2: *RDT&E*	**R-1 ITEM NOMENCLATURE** PE 0602115HP: *Applied Biomedical Technology*	**PROJECT** 447A: *Military HIV Research Program (Army)*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Performance of the HIV research program will be monitored and evaluated through an external peer review process, with periodic reviews by the HIV Program Steering Committee and the Military Infectious Diseases Research Program Integrating Integrated Project Team to include Health Affairs representation.