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Exhibit R-2, PB 2011 Army RDT&E Budget Item Justification									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research				R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	198.105	221.944	96.797	0.000	96.797	99.310	99.060	98.450	91.339	0	1,001.802
869: Warfighter Health Prot & Perf Stnds	3.069	35.098	34.718	0.000	34.718	35.135	34.500	31.986	31.667	Continuing	Continuing
870: DOD MED DEF AG INF DIS	15.464	17.100	13.914	0.000	13.914	14.485	15.208	15.875	16.963	Continuing	Continuing
873: HIV EXPLORATORY RSCH	11.054	9.199	9.243	0.000	9.243	9.392	9.582	9.638	9.586	Continuing	Continuing
874: CBT CASUALTY CARE TECH	12.828	17.719	16.782	0.000	16.782	17.517	18.898	19.907	21.916	Continuing	Continuing
878: HLTH HAZ MIL MATERIEL	11.956	0.000	0.078	0.000	0.078	0.110	0.115	0.118	0.120	Continuing	Continuing
879: MED FACT ENH SOLD EFF	10.199	0.000	0.106	0.000	0.106	0.151	0.157	0.161	0.165	Continuing	Continuing
968: SYNCH BASED HI ENERGY RADIATION BEAM CANCER DETECT	4.984	5.969	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
FH2: FORCE HEALTH PROTECTION - APPLIED RESEARCH	8.474	8.277	10.779	0.000	10.779	11.438	9.618	9.791	9.956	Continuing	Continuing
PA4: WOUND HEALING PROJECT (CA)	0.000	1.990	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
PA5: NANOFABRICATED BIOARTIFICIAL KIDNEY (CA)	2.491	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
UA8: PROTEIN HYDROGEL (CA)	0.000	0.796	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)	105.592	114.679	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
VB4: SYSTEM BIOLOGY AND NETWORK SCIENCE TECHNOLOGY	0.000	1.169	1.177	0.000	1.177	1.082	0.982	0.974	0.966	Continuing	Continuing

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APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE							
2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research				PE 0602787A: MEDICAL TECHNOLOGY							
VJ4: SUICIDE PREVENTION/ MITIGATION	10.000	9.948	10.000	0.000	10.000	10.000	10.000	10.000	0.000	Continuing	Continuing
X06: HIBERNATION GENOMICS	1.994	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) supports application of knowledge gained through basic research to develop drugs, vaccines, medical devices, diagnostics, doctrine, and other preventive measures essential to the protection and sustainment of Warfighter health. Research is conducted in five principal areas: Combat Casualty Care; Military Operational Medicine; Military Relevant Infectious Diseases, including Human Immunodeficiency Virus (HIV); Clinical and Rehabilitative Medicine; and Systems Biology/Network Sciences. Project (869) supports and matures knowledge and technologies, such as screening tools and preventive measures for Post Traumatic Stress Disorder and mild Traumatic Brain Injuries, physiological monitors to protect Soldiers from injuries due to exposure to hazardous environments and materials, and medically valid testing devices and predictive models used for the development of Soldier protective equipment. This project is being coordinated with the Defense Health Program. Project (870) supports designing and developing medical diagnosis, protection and treatment against naturally occurring diseases and wound infections of military importance, as identified by worldwide medical surveillance and military threat analysis. This project is being coordinated with the Defense Health Program. Project (873) supports research on the human immunodeficiency virus (HIV), which causes Acquired Immunodeficiency Syndrome (AIDS). Work in this area includes developing improved identification methods to determine genetic diversity of the virus, and evaluating and preparing overseas sites for future vaccine trials. This project is being coordinated with the Defense Health Program. Project (874) supports identification and evaluation of drugs, biologics (products derived from living organisms), medical devices, and diagnostics for resuscitation, life support and post evacuation restorative and rehabilitative care, as well as trauma care systems for use by field medics and surgeons. Research focus is on identifying more effective critical care technologies and protocols to treat severe bleeding, traumatic brain injury, and other blast related injuries, treatments for ocular injury and visual system dysfunction, as well as laboratory and animal studies of regenerating skin, muscle, nerves, and bone tissue for the care and treatment of battle-injured casualties. This project is being coordinated with the Defense Health Program. Project (878) supports the Medical and Survivability technology areas with a focus on providing Soldier protection from health hazards associated with materiel and operational environments. Emphasis is on identifying health hazards inherent to the engineering design and operational use of equipment, systems, and materiel used in Army combat operations and training. This project is being coordinated with the Defense Health Program. Project (879) supports applied research with a focus on sustaining and enhancing Soldier health and performance during military operations in the full spectrum of military environments. Emphasis is on identification of baseline physiological performance and assessment of degradations produced by operational stressors. This project is being coordinated with the Defense Health Program. Project (968) supports Congressional Interest Item funding for Cancer Detection applied research. Project (FH2) This project funds research to support applied research directed toward the sustainment of a healthy force of Warfighters from accession through retirement. Project (PA5) supports Congressional Interest Item funding for Nanofabricated Bioartificial Kidney applied research. Project (VB3) supports Congressional Interest Item funding for Medical Technology applied research. Project (VB4) supports applied research in systems biology to provide a highly effective mechanism to integrate iterative biological tests, computer simulations, and animal studies. Such developmental efforts using systems biology could ultimately reduce the time and effort invested in medical product development. This project is being coordinated with the Defense Health Program. Project (VJ4) supports project funds research over a planned five year period to examine the mental and behavioral health of Soldiers to counter suicidal behavior. This work will focus on advancing understanding of the multiple determinants of suicidal behavior, psychopathology (study of the causes and nature of abnormal behavior), psychological resilience, and role functioning. Work on this project is being performed by the National Institute of Mental Health through extramural cooperative research grants in collaboration with the Department of the Army. This project is being coordinated with the Defense Health Program. All medical applied research is conducted in compliance with US Food and Drug Administration

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2040: Research, Development, Test & Evaluation, Army		PE 0602787A: MEDICAL TECHNOLOGY			
BA 2: Applied Research					
(FDA) or Environmental Protection Agency (EPA) regulations. The FDA requires thorough testing in animals (referred to as preclinical testing) to assure safety and, where possible, effectiveness (i.e., efficacy) prior to approving controlled clinical trials where these early (previously unproven in humans) drugs, vaccines, and medical devices are tested in humans. These clinical trials are conducted in three phases (Phase 1, 2, and 3) to prove safety and effectiveness of the drug/vaccine/device for the targeted disease/condition. Each successive clinical trial includes more voluntary study subjects. This PE focuses on identifying candidate solutions on research and development of technologies such as product purification, formulation and assay development; and involves pre-clinical testing in animals and early human clinical testing (Phase 1 safety and Phase 2 expanded safety and efficacy). The EPA also requires thorough testing of products such as repellents and insecticides to ensure the environment is adequately protected before they can be licensed for use. Program development and execution is externally peer-reviewed and fully coordinated with all Services and other agencies through the Joint Technology Coordinating Groups of the Armed Services Biomedical Research, Evaluation & Management (ASBREM) Committee to prevent unnecessary duplication. Work in this PE is performed by the Walter Reed Army Institute of Research (WRAIR), Silver Spring, MD and its overseas laboratories; US Army Medical Research Institute of Infectious Diseases (USAMRIID), Fort Detrick, MD; US Army Research Institute of Environmental Medicine (USARIEM), Natick, MA; US Army Institute of Surgical Research (USAISR), Fort Sam Houston, TX; US Army Aeromedical Research Laboratory (USAARL), Fort Rucker, AL; the Naval Medical Research Center (NMRC), Silver Spring, MD; the US Army Dental Trauma Research Detachment, Great Lakes, IL, and the Armed Forces Institute of Regenerative Medicine (AFIRM), Fort Detrick, MD.					
B. Program Change Summary (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	188.210	99.027	88.133	0.000	88.133
Current President's Budget	198.105	221.944	96.797	0.000	96.797
Total Adjustments	9.895	122.917	8.664	0.000	8.664
• Congressional General Reductions		-1.163			
• Congressional Directed Reductions					
• Congressional Rescissions		0.000			
• Congressional Adds		124.080			
• Congressional Directed Transfers					
• Reprogrammings	14.168	0.000			
• SBIR/STTR Transfer	-4.273	0.000			
• Adjustments to Budget Years	0.000	0.000	8.664	0.000	8.664
Change Summary Explanation					
FY10 Congressionally directed increases.					

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
869: <i>Warfighter Health Prot & Perf Stnds</i>	3.069	35.098	34.718	0.000	34.718	35.135	34.500	31.986	31.667	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project funds research to prevent and protect Soldiers from training and operational injuries, the development of mechanisms for detection of physiological and psychological health problems, the evaluation of hazards to head, neck, spine, eyes, and ears, standards for return-to-duty, and the determination of new methods to sustain and enhance performance across the operational spectrum. This research provides medical information important to the design and operational use of military systems and forms the basis for behavioral, training, pharmacological (drug actions), and nutritional interventions. The four main thrust areas are (1) Physiological Health (2) Environmental Health and Protection, (3) Injury Prevention and Reduction, and (4) Psychological Health. (1) Physiological Health - develop and evaluate applied predictive modeling and simulation to support improvements in training doctrine and individual equipment; evaluate new methods of monitoring fluid consumption; demonstrate remote real-time prediction and management of thermal strain in physically active Soldiers; and evaluate methods for managing and controlling the effects of nutrition and fatigue on Soldier operational performance. (2) Environmental Health and Protection -- evaluate remote monitoring of Soldier physiological status and mitigating/eliminating the effects of heat, cold, altitude and other environmental stressors on Soldier performance. (3) Injury Prevention and Reduction - Musculoskeletal Injury Prevention: evaluate the effects of repetitive motion and military operations and training on the human body; analyze and model the effects of mechanical and operational stressors on Soldier performance, to include acoustic and impact trauma, vision, vibration and jolt to model the effects of these stressors on the brain, spine, eyes, and hearing. Evaluate standards and methods for the rapid return to duty of Soldiers following injury. (4) Psychological Health & Resilience - develop and evaluate methods to detect and treat concussion and identify and evaluate the effects of cognitive deficits in Soldiers during operations; assess psychological resilience factors and investigate methods of preventing or reducing the risk of psychological trauma in operational environments; investigate methods to treat Post-Traumatic Stress Disorder in a military population and identify causative and preventative factors in military suicides. Beginning in FY10, projects 878 and 879 will be consolidated into project 869. Promising efforts identified in this project are further matured under PE 0603002A, project MM3. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. Work in this project is performed by the Walter Reed Army Institute of Research (WRAIR), Silver Spring, MD; US Army Research Institute of Environmental Medicine (USARIEM), Natick, MA; and the US Army Aeromedical Research Laboratory (USAARL), Fort Rucker, AL.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1	3.069	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Physiological Health - Life Sign Monitoring: In FY09, demonstrated remote medical monitoring capability in mountain and swamp phases of Ranger training; evaluated models predicting thermal status and water requirements for missions in rugged terrain, swamps, and cold weather. In FY10 these efforts are funded in Environmental Health and Protection - Physiological Awareness Tools and Warrior Sustainment in Extreme Environments. In FY11, these efforts are funded in Physiological Health - Nutritional Sustainment and Fatigue, Physiological Status Monitoring Interventions. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Program #2 Environmental Health and Protection - Physiological Awareness Tools and Warrior Sustainment in Extreme Environments: In FY09, research efforts were funded in task Physiological Health - Life Sign Monitoring, in projects 878 and 879. In FY10, employ hydration sensor technologies to conduct early device evaluations; determine the efficacy of a 7 to 8 hour nighttime exposure to a normal altitude, low oxygen environment for high altitude pre-acclimatization; evaluate current heat strain decision aid capabilities for potential future enhancement. In FY11, will develop low oxygen training guidelines based on analysis of low oxygen-exposure studies; will perform biomedical modeling to define individual differences on heat regulation; and will develop methods and predictive models to predict core temperature using identified thermal parameters.	0.000	1.987	2.379	0.000	2.379

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #3 Physiological Health - Nutritional Sustainment and Fatigue Interventions: In FY09, research efforts were funded in project 879. In FY10, demonstrate efficacy of nutritional supplements for sustaining cognition during military operational stress; determine impact of nutritional supplements on enhancing post-exercise recovery; determine efficacy of zinc supplements for reducing the incidence of diarrhea; develop models to study the relationship of hormonal regulation and eating behavior; evaluate individualized alertness and performance prediction model software for the Sleep Management System. In FY11, will develop nutritional countermeasures for diminished bone health in response to operational stress; will define impact of micronutrient status on performance and immune function during military training; will demonstrate protective effects of probiotics (dietary supplements) for sustaining digestive and immune function during operational stress; will demonstrate efficacy of nutritional supplements for promoting fat loss in overweight Warriors; will conduct study to determine changes in sleep brain activity on Soldiers in theater; will conduct a study to determine extent to which sleep duration impacts resilience/sensitivity to combat experiences. FY 2009 Accomplishments: FY 2009		0.000	2.145	2.787	0.000	2.787

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #4 Injury Prevention and Reduction - Neurosensory Injury Prevention: In FY09, research efforts were funded in project 878. In FY10, characterize blunt impact protection capabilities of current and future helmet designs to develop biomedically valid criteria for US Army Test and Evaluation Command (ATEC) to use in materiel development to develop realistic visual headforms and to model eye injury vulnerabilities for candidate protection solutions; develop auditory test fixtures/headforms for model hearing protection solutions; conduct assessment of candidate drugs to prevent hearing loss. In FY11, will determine head injury thresholds in boxers and paratroopers for risk assessment and development of biomedically valid criteria for ATEC to use in materiel development; will complete eye injury dose-response modeling for vulnerability assessments using the instrumented headform system; will extend laser injury diagnostics to animal models; using improved headforms, will assess ear protection strategies with simulated battle sounds and conduct assessments of vulnerability models for specific jobs that will define job specific strategies and interventions; conduct comparative analysis of foam and preformed eartips for use with the Communications Earplug (CEP). FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010		0.000	10.263	8.926	0.000	8.926

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #5 Injury Prevention and Reduction - Musculoskeletal Injury Prevention: Evaluate and assess the effects of repetitive motion, military operations and training on the human body. In FY09, research efforts were funded in project 878. In FY10, characterize performance deficits from Warfighter injury and identify promising interventions for rapid return to duty following musculoskeletal injury; provide high resolution musculoskeletal injury data for use in the training and overuse injury prediction model; evaluate physical impact forces on the lower leg associated with prolonged running and fatigue; and evaluate musculoskeletal adaptations in response to military-relevant training and injuries to assess mechanisms of skeletal muscle repair, regeneration, and adaptation. In FY11, will develop recovery assessment tests to develop return-to-duty recommendations after musculoskeletal injury; refine and validate the training, overuse and injury prediction model to incorporate stress fracture data. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO		0.000	4.588	4.775	0.000	4.775

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #6 Injury Prevention and Reduction - Injury Return to Duty Standards: In FY09, research efforts were funded in project 879. In FY10, characterize specific performance deficits from Warfighter brain, eye, and hearing injury and develop promising interventions for rapid return to duty; develop Return to Duty Standards for mission-critical occupations following brain, eye, and hearing injury; and determine appropriate clinical and physical health assessment tools to enable early return to duty. In FY11, will develop measures of effectiveness for interventions with baseline criteria for Warriors with brain, eye, and hearing injury; and will develop preliminary techniques and technologies to accelerate and assist Wounded Warriors in rapid return to military duty. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	2.645	2.798	0.000	2.798
Program #7 Psychological Health - Psychological Resilience: In FY09, research efforts were funded in project 879. In FY10, develop initial Advanced Battlemind Training to reduce symptoms associated with Post-Traumatic Stress Disorder (PTSD), post concussive symptoms and other post-deployment problems; evaluate stigma related to seeking mental health care and barriers to care; complete study of behavioral health providers to determine current status of diagnostic decision-making, treatment trends, and standards of care. In FY11, will finalize assessments	0.000	5.050	5.219	0.000	5.219

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
of components of Advanced Battlemind; will determine lessons-learned from post-deployment health assessments and health care utilization to determine outcomes of psychological disorders. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO						
Program #8 Psychological Health & Resilience - Suicide Prevention and Treatment of PTSD: In FY10, initiate a new research effort that will evaluate PTSD risk factors, including co-occurring mild Traumatic Brain Injury (mTBI) and mental health problems, and other factors (i.e. deployment, combat, multiple deployments) to improve diagnostic capabilities; conduct a laboratory study to compare sensitivity of existing neurocognitive tests for PTSD; collect and evaluate all data on the suicide intervention programs. In FY11, will conduct a laboratory study to determine effects of PTSD on objectively measured sleep and neuro-cognitive performance; will conduct studies to assess effectiveness of suicide interventions on suicide behavior. FY 2009 Accomplishments: FY 2009		0.000	5.210	5.193	0.000	5.193

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #9 Psychological Health & Resilience - Concussion/Mild Traumatic Brain Injury (mTBI) Interventions: In FY09, research efforts were funded in project S15. In FY10, compare initial sensitivity and practicality of neuropsychological performance tests/batteries for diagnosis of concussion in Soldiers and civilians; conduct a study to determine susceptibility to concussion based upon baseline psychological and neurological functioning; determine short term effects of concussion on sleep patterns and neurocognitive performance. In FY11, will assess the utility of neuropsychological measures for tracking/monitoring recovery rate from concussion; will conduct a study to determine predictive value of a neuropsychological test for prediction of subsequent post concussive symptoms; will conduct study to determine changes in sleep parameters coincident with concussion and correlate with changes in neuropsychological performance. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base		0.000	2.257	2.641	0.000	2.641

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<u>B. Accomplishments/Planned Program (\$ in Millions)</u>					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
<i>OCO FY 2011 Plans:</i> FY 2011 OCO					
Program #10 Small Business Innovative Research/Small Business Technology Transfer Programs <i>FY 2009 Accomplishments:</i> FY 2009 <i>FY 2010 Plans:</i> FY 2010 <i>Base FY 2011 Plans:</i> FY 2011 Base <i>OCO FY 2011 Plans:</i> FY 2011 OCO	0.000	0.953	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	3.069	35.098	34.718	0.000	34.718
<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A					
<u>D. Acquisition Strategy</u> N/A					
<u>E. Performance Metrics</u> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.					

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
870: <i>DOD MED DEF AG INF DIS</i>	15.464	17.100	13.914	0.000	13.914	14.485	15.208	15.875	16.963	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project funds applied research for medical countermeasures to naturally occurring infectious diseases that pose a significant threat to the operational effectiveness of forces deployed outside the United States. Effective preventive countermeasures (protective/therapeutic drugs and vaccines, insect repellent and traps) protect the force from disease and sustain operations by avoiding the need for evacuations from the theater of operations. Diseases of military importance are malaria, bacterial diarrhea, and viral diseases (e.g., dengue fever and hantavirus). In addition to countermeasures, this project funds development of improved diagnostic tools to facilitate early identification of infectious threats in an operational environment-informing Commanders of the need to institute preventive actions and improved medical care. Major goals are to integrate genomics (DNA-based) and proteomics (protein-based) and other new biotechnologies into the development of new concepts for new vaccine, drug and diagnostics candidates. Research conducted in this project focuses on the following five areas: (1) Drugs to Prevent/Treat Parasitic (symbiotic relationship between two organisms) Diseases: Conduct assessments and improve candidate drugs coming from the DoD discovery program and from other collaborations for prevention and treatment of malaria to counter continuing spread of drug resistance to current drugs. Assess in animal models currently available drugs for use against cutaneous leishmaniasis (a skin-based disease transmitted by sand flies). This program selects the most effective and safe candidates for continued development and possible clinical testing. (2) Vaccines for Preventing Malaria: Conduct studies to investigate new candidate vaccines for preventing malaria, and select the best candidate(s) for continued development. A highly effective vaccine would reduce or eliminate the use of anti-malarial drugs and would minimize the progression and impact of drug resistance to current/future drugs. (3) Bacterial Threats: Conduct studies to develop antibacterial countermeasures including vaccine candidates to prevent diarrhea (a common disease in deployed troops), meningitis (a threat to trainee and deployed troops and military families), wound infection, and scrub typhus (a debilitating mite-borne disease that is developing resistance to currently available antibiotics). (4) Diagnostics and Disease Transmission Control: Design and prototype new medical diagnostic and surveillance tools for the field, focusing on bedside and field-deployable diagnostic systems. Develop interventions that protect Warfighters from biting insects such as sand flies responsible for transmitting leishmaniasis, and mosquitoes which transmit a variety of diseases including dengue fever, Japanese encephalitis, and malaria. (5) Viral threats: Design and laboratory test new vaccine candidates against dengue and other hemorrhagic fever viruses such as hantaviruses (cause of Korean hemorrhagic fever) and other lethal viruses (i.e., Lassa fever and Crimean-Congo hemorrhagic fever), and assess other non-vaccine technologies to protect against such lethal viral diseases. For the development of drugs and biological products, studies in the laboratory and in animal models provide a proof of concept for these candidate products including safety, toxicity, and effectiveness, and are necessary to provide evidence to the US Food and Drug Administration (FDA) to justify approval for a product to enter into future human subject testing. Additional non-clinical studies are often needed in Applied Research even after candidate products enter into human testing during Advanced Technology Development, usually at the direction of the FDA, to assess potential safety issues. Drug and vaccine development bears high technical risk. Of those candidates identified as promising in initial screens, the vast majority are eliminated after additional safety, toxicity, and/or effectiveness testing. Similarly, vaccine candidates have a high failure rate, as animal testing may not be a good predictor of human response, and therefore candidate technologies/products are often eliminated after going into human trials. Because of this high failure rate, a continuing effort to identify other potential candidates to sustain a working pipeline of countermeasures is critical for replacing those products that fail in testing. Work is managed by the US Army Medical Research and Materiel Command in coordination with the Naval Medical Research Center. The Army is responsible for programming and funding all DoD naturally occurring infectious disease research requirements, thereby precluding

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duplication of effort within the Military Departments. Promising medical countermeasures identified in this project are further matured under PE 0603002A, project 810. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. Work in this project is performed by the Walter Reed Army Institute of Research (WRAIR), Silver Spring, MD, and its overseas laboratories; the US Army Medical Research Institute of Infectious Diseases (USAMRIID), Fort Detrick, MD; and the Naval Medical Research Center (NMRC), Silver Spring, MD, and its overseas laboratories.					
B. Accomplishments/Planned Program (\$ in Millions)					

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #2 Vaccines for Prevention of Malaria: In FY09, manufactured pilot lots of candidate vaccines (both DNA - and protein-based) against a severe form of malaria (Plasmodium falciparum) to maintain a pipeline of new technologies and to mitigate risk if lead technologies fail. Tested protein-based candidate vaccines in small animals for proof-of-concept for eventual down selection. In FY10, manufacture and test in animal models a DNA based P. falciparum vaccine candidates to support a new vaccine application with the FDA. File the application for approval to test these candidates in humans. Evaluate the safety and effectiveness in animals of DNA-based candidate P. falciparum vaccines. In FY11, will down-select among the vaccine candidates, based on results from safety and effectiveness studies in animals, select promising candidates, and prepare for vaccine testing in locations where the disease occurs naturally. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	3.174	4.323	2.798	0.000	2.798
Program #3	2.589	3.614	2.800	0.000	2.800

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Bacterial Threats: In FY09, examined potential bacterial proteins as new vaccine candidates against major strains of diarrheal disease (E. coli, Campylobacter and Shigella). Manufactured E. coli candidate vaccine and prepare for human testing. Selected best Campylobacter vaccine candidate. Prepared for initial human testing of Shigella vaccine. Modified the meningitis bacteria to manufacture and test a multicomponent (to broaden protection) Group B vaccine in preparation for testing in humans. Tested new scrub typhus (a debilitating mite-borne disease that is developing resistance to currently available antibiotics) proteins as potential vaccine candidate against multiple strains. In FY10, complete evaluation of E. coli subunit vaccine in monkeys. Evaluate alternative Shigella constituents, as potential vaccine candidates in animals. Manufacture lead candidate Campylobacter vaccine. Transition a multicomponent Group B meningococcal vaccine to next phase of development. Evaluate scrub typhus for drug resistance, identify new proteins as candidate vaccine components, and evaluate vaccine delivery methods in animals. Evaluate new therapeutic approaches to accelerate wound healing such as vacuum-assisted closure of wounds using binding agents to kill bacteria. In FY11, will prepare an alternative E coli vaccine, in preparation for testing in humans. Will evaluate alternative Shigella constituents as potential vaccine candidates in animals. Will test lead candidate Campylobacter vaccine in animals; Will continue to evaluate scrub typhus for drug resistance, will identify new proteins as candidate vaccine components, and will evaluate vaccine delivery methods in animals.						
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #4 Diagnostics and Disease Transmission Control: In FY09, tested new intervention methods that prevent or reduce biting by disease-transmitting insects, including use of an improved bed net, and prepared for insect repellent testing to replace (Diethylmetatoluamide or DEET (current ingredient in military insect repellent). Designed and evaluated five new medical diagnostic tests and surveillance tools for disease-carrying insects (sand flies, mosquitoes) to improve the medical responses in the field. Developed field deployable point-of-care and hospital-based diagnostic devices for infectious diseases. In FY10, develop passive insect repellent systems that do not require application of chemicals to skin or clothing; evaluate new tests for detecting infectious organisms within insects that transmit diseases; validate field deployable point-of-care diagnostic devices to prepare for FDA review; and develop a repository of standardized critical reagents for producing consistent reproducible results in both laboratory and field-based diagnostic devices. In FY11, will develop super-attractant traps that remove biting insects from localized areas, and conduct proof-of-concept testing of passive insect repellent systems; will optimize hospital-based diagnostic devices for selected infectious disease agents to be transitioned to the Joint Biological Agent Identification System (JBAIDS) platform, and will increase repositories of clinical samples and reagents needed to develop and validate multiple new disease-specific diagnostic devices. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	2.700	2.100	2.070	0.000	2.070
Program #5	2.411	2.484	2.861	0.000	2.861

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Viral Threats Research: In FY09, assessed and evaluated new antiviral vaccines in animals and support the hantaviral vaccine development effort. Examined new vaccine delivery approaches in animals to enhance effectiveness of DNA-based vaccine in humans. Prepared field site for human testing of candidate dengue vaccine. Manufactured proof-of-concept candidate vaccines (Inactivated, molecular and attenuated) to protect against dengue. In FY10, develop reagents, assays, and animal models to test medical countermeasures for hantaviruses; develop molecular vaccines and antibody-based countermeasures for flaviviruses (Dengue); and explore the feasibility of combining inactivated, molecular and attenuated vaccines into a single vaccine that is effective against four dengue strains. In FY11, will develop proof-of-concept molecular vaccines for viruses of military importance and support vaccine candidate development by providing necessary laboratory and animal tests; and will provide laboratory support for dengue vaccine testing in humans. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	15.464	17.100	13.914	0.000	13.914

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<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A		
<u>D. Acquisition Strategy</u> N/A		
<u>E. Performance Metrics</u> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.		

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
873: <i>HIV EXPLORATORY RSCH</i>	11.054	9.199	9.243	0.000	9.243	9.392	9.582	9.638	9.586	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project funds research on the human immunodeficiency virus (HIV), which causes Acquired Immunodeficiency Syndrome (AIDS). Work in this area includes developing improved identification methods to determine genetic diversity of the virus, and evaluating and preparing overseas sites for future vaccine trials. Additional activities include developing candidate vaccines for preventing HIV, 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 program is jointly managed through an Interagency Agreement between the US Army Medical Research and Materiel Command 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. Work is related to and fully coordinated with work funded in PE 0603105A, project H29. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. Work in this project is performed by the Walter Reed Army Institute of Research (WRAIR) and the Naval Medical Research Center (NMRC), Silver Spring, MD, and their overseas laboratories. The Henry M. Jackson Foundation (HMJF), located in Rockville, MD provides support for FDA testing and other research under a cooperative agreement.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1 HIV Research Program: Conduct projects assessing new HIV vaccine candidates, vaccine test site development worldwide, HIV disease outbreaks, and genetic attributes of HIV threat. In FY09, continued long-term efforts to find solutions to the HIV threat to DoD personnel with ongoing studies directed at assessing HIV vaccine candidates, assessed vaccine test sites in Africa and Asia, and identified changes in global risk and genetic makeup of HIV threat to US forces to help direct future research and intervention programs. In FY10, define the potential threat posed by HIV to the US military by continuing to identify and characterize different subtypes involved with the global epidemic of HIV-infected populations; develop new human study test sites in Uganda to expand testing facilities, including production of new vaccine candidates against selected HIV subtypes found in East Africa; and control production quality of new vaccine candidates to be used in humans. In FY11, will test the new East African subtype-based candidate vaccine in animals; will identify and characterize new HIV	11.054	8.965	9.243	0.000	9.243

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
infections, will develop new field sites in Tanzania and Nigeria for future testing of vaccine candidates in humans, and will identify manufacturing processes with multiple combinations of vaccine candidates. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Program #2 Small Business Innovative Research/Small Business Technology Transfer Programs FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	0.234	0.000	0.000	0.000

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<u>B. Accomplishments/Planned Program (\$ in Millions)</u>								
				FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Accomplishments/Planned Programs Subtotals				11.054	9.199	9.243	0.000	9.243
<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A								
<u>D. Acquisition Strategy</u> N/A								
<u>E. Performance Metrics</u> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.								

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
874: <i>CBT CASUALTY CARE TECH</i>	12.828	17.719	16.782	0.000	16.782	17.517	18.898	19.907	21.916	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project funds the development and assessment of concepts, techniques, and materiel that improve survivability and ensure better medical treatment outcomes for Warfighters wounded in combat and other military operations. Combat casualty care research addresses: control of severe bleeding, revival and stabilization, prognostics and diagnostics for life support systems (predictive indicators and decision aids), tissue repair including transplant technologies, and treatment of burns, Traumatic Brain Injury (TBI), eye injuries and face trauma. Research involves extensive collaboration with multiple academic institutions to develop treatments for combat wounds through the Armed Forces Institute of Regenerative Medicine. Research conducted in this project focuses on the following seven areas:(1) Hemorrhage (bleeding) Control, Blood, and Resuscitative Fluids: Includes materials and systems for minimizing the effects of traumatic blood loss, preserving blood and blood products, and resuscitation following trauma: Beginning in FY10, funding shifts to the Damage Control Resuscitation area.(2) Damage Control Resuscitation: Includes knowledge products, materials and systems for control of internal bleeding, minimizing the effects of traumatic blood loss, preserving blood, blood products, and resuscitation following trauma; the research area starts in FY10.(3) Combat Trauma Therapies: Includes identification and development of candidate drugs and medical procedures to minimize the effects of combat injuries. (4) Far-Forward Medical Systems: Includes diagnostic and therapeutic medical devices and associated algorithms, software, and data-processing systems for resuscitation, stabilization, life support, surgical support, and dental care treatments that can be applied in a pre-hospital, operational field setting. Beginning in FY10, dental efforts move to oral/facial surgery under Combat Trauma Therapies and the remaining efforts shift to the Combat Critical Care Engineering area. (5) Combat Casualty Bioinformatics and Simulation: Focuses on a data management system to capture and analyze data (such as heart and respiration rates) over time and the development of casualty simulations and durable, realistic simulators for initial and reinforcement training of medical care providers. Beginning FY10, will discontinue in-house simulation research and leverage Program Executive Office, Simulation, Training, and Instrumentation (PEO-STRI) medical simulation research. Bioinformatics research will be funded with the Combat Critical Care Engineering research area in FY10.(6) Combat Critical Care Engineering: Includes development of diagnostic and therapeutic medical devices and associated algorithms, software, and data-processing systems for resuscitation, stabilization, life support, and surgical support that can be applied across the pre-hospital, operational field setting and initial definitive care facilities; this research area starts in FY10.(7) Clinical and Rehabilitative Medicine: Includes laboratory and animal studies of regenerating skin, muscle, and bone tissue for the care and treatment of battle-injured casualties, as well as studies regarding ocular and visual system traumatic injury; this research area starts in FY10.All drugs, biological products, and medical devices, are developed in accordance with US Food and Drug Administration regulations, which governs testing in animals to assess safety, toxicity, and effectiveness prior to conducting human subject clinical trials. Promising efforts identified in this project are further matured under PE 0603002A, project 840.The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan.Work on this project is performed by the US Army Institute of Surgical Research (ISR), Fort Sam Houston, TX; and the Walter Reed Army Institute of Research (WRAIR), Silver Spring, MD; and the Armed Forces Institute of Regenerative Medicine (AFIRM), Fort Detrick, MD.

B. Accomplishments/Planned Program (\$ in Millions)

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1 Hemorrhage Control, Blood, and Resuscitative Fluids: In FY09, identified candidate diagnostic and therapeutic interventions for abnormal blood clotting; using a small animal model, continued investigation into use of resuscitative fluids to improve outcomes for combined blast-trauma-hemorrhage on brain and lung. Evaluated freeze-dried fibrinogen (a blood component), for improving blood clotting. In FY10 and FY11, this work will be funded under the Damage Control Resuscitation area. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	1.930	0.000	0.000	0.000	0.000
Program #2 Damage Control Resuscitation: In FY09, funds were within the Hemorrhage Control, Blood, and Resuscitation Fluids program area. In FY10, continue animal studies of freeze dried plasma; develop and evaluate performance of candidate blood substitutes and expanders (e.g. frozen and freeze dried platelets); test treatment interventions to stop internal bleeding in an animal model; characterize the body's blood clotting mechanism associated with head injury bleeding and other trauma to identify ways to better control clotting and determine effects on resuscitation; continue evaluation using animal models of various combinations of plasma, clotting factors, and Complement Inhibitors (CI's) as therapies to stop severe bleeding and treat trauma. In FY11, will complete identification and characterization of frozen and freeze-dried blood substitutes and expanders; will complete testing of interventions	0.000	7.747	7.405	0.000	7.405

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
to stop internal bleeding and transition most promising candidates to safety and effectiveness testing in human subjects; will continue to identify and assess potential ways to control blood clotting; will begin investigation of treatment interventions to mitigate effects of head injury on resuscitation; will begin to evaluate products to treat intracavitary or junctional (non-compressible) hemorrhage and complete animal study of blood components and CI's. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Program #3 Combat Trauma Therapies: In FY09, focused AFIRM tissue regeneration activities on most promising clinical treatments for blood vessel grafts, muscle regeneration, regeneration of bones in the head and face, and assessment of long-bone regeneration using an animal model; continued to refine selective brain cooling and neuroregeneration for early intervention and treatment of brain injury; conducted drug combination studies for treatment of acute brain trauma; and expanded biomarker clinical feasibility trial to include diagnosis of mild Traumatic Brain Injury. In FY10, begin several injury studies of Penetrating Ballistic-type Brain Injury (PBBi) in large animals; conduct animal study of oral surgical dressing; and begin studies into the nature of eye injuries and evaluate promising repair methods in laboratory and animal models. In FY11, will continue poly-trauma studies	7.725	3.364	3.168	0.000	3.168

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
(multiple injuries) of PBBi in large animals; will complete oral surgical dressing study; continue to develop therapeutic strategies(drugs, stem cells and brain cooling) to manage TBI. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Program #4 Far-Forward Medical Systems: In FY09, began laboratory-based evaluation of fluid resuscitation algorithms in an integrated hardware platform (either the Army's integrated litter or the Navy's lightweight trauma module) for casualty transport; and transitioned oral protective, antiplaque compound to commercial partner. In FY10 and FY11, dental efforts move to oral/facial surgery under Combat Trauma Therapies and the remaining efforts shift to the Combat Critical Care Engineering area. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010	1.828	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #5 Combat Critical Care Engineering: In FY10, conduct large animal studies evaluating change in electrical signals in the brain as non-invasive resuscitative end-points in shock from blood loss. In FY11, will test algorithm(s) under conditions of varying rates and levels of respiration; and for ability to track resuscitation in real-time; will continue testing devices for ICU use. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	1.529	1.409	0.000	1.409
Program #6 Combat Casualty Bioinformatics and Simulation: In FY09, supported testing and evaluation of trauma simulation component for training assessments developed jointly with the Research, Development and Engineering	1.345	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Command. Bioinformatics research merged into the Combat Critical Care Engineering research area in FY10 and FY11. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Program #7 Clinical and Rehabilitative Medicine: In FY10, conduct studies of compounds to reduce cellular damage during compartment syndrome (nerve or tendon constriction in an enclosed space) in laboratory and animal models; test a tissue-engineered functional human facial expression muscle; evaluate a biodegradable tissue-lined stent; test reconstruction of a facial defect in the skull by using synthetic bone scaffold material; and test a dressing that mimics the fetal skin structure to prevent wound scarring. In FY11, will conduct studies using relevant animals to evaluate the most promising treatments for repairing traumatic eye injuries; and AFIRM will continue regenerative medicine studies addressing ways to construct a nerve conduit scaffold to provide a guide for nerve regeneration; and will test engineered cartilage and methods to reduce post-burn injury progression by use of inhibitors of inflammation and agents to prevent cell death; and will explore the use of stem cells to repair soft and hard tissue defects.	0.000	4.789	4.800	0.000	4.800

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APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT 874: CBT CASUALTY CARE TECH			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #8 Small Business Innovative Research/Small Business Technology Transfer Programs	0.000	0.290	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Accomplishments/Planned Programs Subtotals	12.828	17.719	16.782	0.000	16.782

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APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 2: <i>Applied Research</i>	R-1 ITEM NOMENCLATURE PE 0602787A: <i>MEDICAL TECHNOLOGY</i>	PROJECT 874: <i>CBT CASUALTY CARE TECH</i>
<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A		
<u>D. Acquisition Strategy</u> N/A		
<u>E. Performance Metrics</u> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.		

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 2: <i>Applied Research</i>				R-1 ITEM NOMENCLATURE PE 0602787A: <i>MEDICAL TECHNOLOGY</i>				PROJECT 878: <i>HLTH HAZ MIL MATERIEL</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
878: <i>HLTH HAZ MIL MATERIEL</i>	11.956	0.000	0.078	0.000	0.078	0.110	0.115	0.118	0.120	Continuing	Continuing

A. Mission Description and Budget Item Justification

The objective of this project is to support the Medical and Survivability technology areas with a focus on providing Soldier protection from health hazards associated with materiel and operational environments. Emphasis is on identifying health hazards inherent to the engineering design and operational use of equipment, systems, and materiel used in Army combat operations and training. Areas of emphasis include battlefield lasers, ballistic, and mechanical injury (e.g., models of protection by soft body armor), health hazards of operations in environmental extremes, and toxic environments. Hazards addressed include blast overpressure generated by weapons systems, toxic chemical hazards associated with deployment into environments contaminated with industrial and agricultural chemicals (effort complements ongoing Defense Threat Reduction Agency initiatives for chemical/biological threat agent detection), directed energy sources (laser), and environmental stressors (heat, cold, and high altitude). Specific research tasks include characterizing the extent of exposure to potential hazards; delineating exposure thresholds for illness, injury, and performance degradation; establishing biomedical databases to support protection criteria; and developing and validating models for hazard assessment, injury prediction, and health and performance protection. In FY10, project 878 will be consolidated into project 869. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Mater Plan. Work in this project is performed by the Walter Reed Army Institute of Research (WRAIR), Silver Spring, MD; the US Army Research Institute of Environmental Medicine (USARIEM), Natick, MA; the US Army Center for Environmental Health Research, Fort Detrick, MD; and the US Army Aeromedical Research Laboratory, Fort Rucker, AL.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1 Laser Protection Research: In FY09, utilized animal testing to assess laser eye injury hazards from advanced military systems. Evaluated a combination of drugs for treatment of laser-induced eye injury. In FY10 and FY11, this effort realigned to Injury Return to Duty Standards (project 869). <i>FY 2009 Accomplishments:</i> FY 2009	2.406	0.000	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT 878: HLTH HAZ MIL MATERIEL			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #2 Injury Protection (face/eye): In FY09, designed an impact test methodology for assessing face shield performance. In FY10 and FY11, this effort realigned to Neurosensory Injury Protection (project 869). FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	2.838	0.000	0.000	0.000	0.000
Program #3 Pulmonary Hazards and Risk Assessment Models: In FY09, used new and existing animal injury and performance data to validate the integrated blast overpressure/blunt trauma lung injury and performance model.	3.377	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Used large-animal performance data to validate the Toxic Gas Assessment Software - Performance Evaluator (TGAS-PE) model for performance impacts from exposure to inhaled toxic fire gases and release TGAS-PE1 (performance) to survivability assessors for live-fire vehicle testing. In FY10 and FY11, this effort realigned to Neurosensory Injury Protection (project 869). Physiological response and blast and blunt trauma models of thoracic and pulmonary injury realigned to project FH2. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Program #4 Biomonitor System and Dehydration Research: In FY09, assessed technologies for rapidly identifying chemical contamination by toxic industrial chemicals and that are appropriate for use with field water production equipment. Conducted field test to evaluate on-the-move enhanced fluid and nutrient delivery systems to enhance fluid and electrolyte delivery to Soldiers. Demonstrated efficacy of inducing acquired thermal tolerance (cellular protection) coincident with heat acclimatization in Soldiers. In FY10 and FY11, this effort realigned to Physiological Health (TICs and Thermal Tolerance initiatives) and to Environmental Health and Protection (Nutrient Delivery System) (project 869).	2.135	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009						
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #5 Systems Biology and Network Science: In FY09, conducted applied research to investigate whether protein-protein network models, developed for a particular pathogen, are portable to a different pathogen sharing a common set of proteins. Developed mathematical models to predict host-pathogen protein-protein interaction networks, and metabolic network models to predict phenotypical (genetically and environmentally determined physical appearance of an organism) responses induced by external stimuli. In FY10, this effort is moved to the new project VB4. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base		1.200	0.000	0.078	0.000	0.078

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<u>B. Accomplishments/Planned Program (\$ in Millions)</u>					
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011
<i>OCO FY 2011 Plans:</i> FY 2011 OCO					
Accomplishments/Planned Programs Subtotals		11.956	0.000	0.078	0.000
<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A					
<u>D. Acquisition Strategy</u> N/A					
<u>E. Performance Metrics</u> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.					

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APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 2: <i>Applied Research</i>				R-1 ITEM NOMENCLATURE PE 0602787A: <i>MEDICAL TECHNOLOGY</i>				PROJECT 879: <i>MED FACT ENH SOLD EFF</i>			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
879: <i>MED FACT ENH SOLD EFF</i>	10.199	0.000	0.106	0.000	0.106	0.151	0.157	0.161	0.165	Continuing	Continuing

A. Mission Description and Budget Item Justification

The objective of this project is to support applied research with a focus on sustaining and enhancing Soldier health and performance during military operations in the full spectrum of military environments. Emphasis is on identification of baseline physiological performance and assessment of degradations produced by operational stressors. The resulting databases and collection of rules and algorithms for performance degradation in multi-stressor environments form the basis for the development of behavioral, training, pharmacological, and nutritional interventions, including psychological debriefing to prevent degradation in Soldier health and sustain Soldier performance. Key stressors include psychological stress from isolation; new operational roles; frequent deployments; inadequate restorative sleep; prolonged physical effort; and inadequate hydration in extreme environments. Will also assess the adverse effect of shifting biological rhythms during deployments across multiple time zones (extreme jet lag), night operations, and thermal and altitude stress. In FY10, project 879 will be consolidated into project 869. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. Work in this project is performed by the Walter Reed Army Institute of Research (WRAIR), Silver Spring, MD; the US Army Research Institute of Environmental Medicine, Natick, MD; and the US Army Aeromedical Research Laboratory, Fort Rucker, AL.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1 High Altitude Research: In FY09, examined use of Food and Drug Administration (FDA) approved drug (erythropoietin) to prevent neuropsychological deficits and acute mountain sickness. Provided critical information to the Army Medical Department Combat Developer for the development of new Army doctrine related to high altitude deployments. In FY10 and FY11, this effort realigned to Environmental Health and Protection (project 869). <i>FY 2009 Accomplishments:</i> FY 2009	2.634	0.000	0.106	0.000	0.106

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APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT 879: MED FACT ENH SOLD EFF				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010						
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #2 Fatigue/Sleep Research: In FY09, further integrated components of the next-generation Fatigue Intervention and Recovery Model/Sleep Activity, Fatigue, and Task Effectiveness (FIRM/SAFTE) which included enhanced capability for prediction of the effects of stimulants, into the Sleep History and Readiness Predictor (SHARP). SHARP is a program that facilitates interpretation and usefulness of the FIRM/SAFTE model by providing summary information on the relative predicted efficacy of each individual Soldier within a unit. In FY10 and FY11, this effort realigned to Nutritional Sustainment and Fatigue Interventions (project 869). FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO		1.658	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #3 Mental Health Research: In FY09, developed unit-level intervention tools for military-wide implementation to improve Warfighter resiliency, health, and performance. In FY10 and FY11, this effort realigned to Psychological Resilience (project 869). FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	3.548	0.000	0.000	0.000	0.000
Program #4 Vision and Auditory Research: In FY09, conducted comparative analysis of six eye damage risk criteria identified by NATO countries and provided recommendations of optimum health risk assessment criteria; transitioned a noise immune electronic stethoscope into advanced development with the United States Army Medical Research and Material Command Developmental Activity; conducted assessments of integrated solar protection device eye protection systems. In FY10 and FY11, this effort realigned to Injury Prevention and Reduction - Return to Duty Standards (project 869). FY 2009 Accomplishments: FY 2009	2.359	0.000	0.000	0.000	0.000

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<u>B. Accomplishments/Planned Program (\$ in Millions)</u>								
				FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
<i>FY 2010 Plans:</i> FY 2010 <i>Base FY 2011 Plans:</i> FY 2011 Base <i>OCO FY 2011 Plans:</i> FY 2011 OCO								
Accomplishments/Planned Programs Subtotals				10.199	0.000	0.106	0.000	0.106
<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A								
<u>D. Acquisition Strategy</u> N/A								
<u>E. Performance Metrics</u> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.								

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT			
2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research				PE 0602787A: MEDICAL TECHNOLOGY				968: SYNCH BASED HI ENERGY RADIATION BEAM CANCER DETECT			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
968: SYNCH BASED HI ENERGY RADIATION BEAM CANCER DETECT	4.984	5.969	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
<u>A. Mission Description and Budget Item Justification</u> Congressional Interest Item funding for Cancer Detection applied research.											
<u>B. Accomplishments/Planned Program (\$ in Millions)</u>											
							FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1 This congressionally directed project conducts research into Synchrotron-Based Scanning Research with the Neuroscience and Proton Institute. <i>FY 2009 Accomplishments:</i> FY 2009 <i>FY 2010 Plans:</i> FY 2010 <i>Base FY 2011 Plans:</i> FY 2011 Base <i>OCO FY 2011 Plans:</i> FY 2011 OCO							4.984	5.969	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals							4.984	5.969	0.000	0.000	0.000

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<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A		
<u>D. Acquisition Strategy</u> N/A		
<u>E. Performance Metrics</u> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.		

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
FH2: <i>FORCE HEALTH PROTECTION - APPLIED RESEARCH</i>	8.474	8.277	10.779	0.000	10.779	11.438	9.618	9.791	9.956	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project funds research to support applied research directed toward the sustainment of a healthy force of Warfighters from accession through retirement. The program has the following three major thrust areas: (1) Physiological Response and Blast and Blunt Trauma Models of Thoracic (chest) and Pulmonary (lung) Injuries; (2) Millennium Cohort Research; and (3) Biomarkers of Exposure and Environmental Biomonitoring. This research focuses on enhanced protection of Soldiers against health threats in military operations and training. Stressors that adversely affect individual Soldier health readiness are identified and studied to develop interventions that will protect Soldiers and improve their health and performance in stressful environments. This is follow-on research that extends and applies findings from over a decade of research on Gulf War Illnesses and other chronic multi-symptom illnesses that have suspected nerve and behavioral alterations due to environmental contaminants and deployment stressors. Key databases include the Millennium Cohort Study and the Total Army Injury and Health Outcomes Database. These databases allow us to evaluate interactions of psychological stress and other deployment and occupational stressors that affect Warfighter health behaviors. Force Health Protection applied research is conducted in close coordination with the Department of Veterans Affairs. This project contains no duplication with any effort within the Military Departments and includes direct participation by other Services working on Army projects. Promising efforts identified in this project are further matured under PE 0603002A, project FH4. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. Work in this project is performed by the US Army Center for Environmental Health Research, Fort Detrick, MD; the Naval Health Research Center (NHRC), San Diego, CA; and the US Army Research Institute of Environmental Medicine (USARIEM), Natick, MA.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1 Nerve-based Disease Research: In FY09, completed analyses of the association between jet fuel exposure and nervous system health outcomes. Completed studies of head trauma (i.e., head impact due to poor parachute landings and boxing as models) and neuropsychological adverse effects (mood and cognitive function). Integrated Environmental Sentinel Biomonitor (ESB) components and conduct bench testing of the composite system. In FY10, programmatically realigned to Biomarkers of Exposure and Environmental Biomonitoring.	4.391	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #2 Health Behavior/Weight Control: In FY09, evaluated associations between weight and chronic medical conditions (e.g. diabetes, cardiovascular disease, metabolic syndrome), tested feasibility and efficacy of new approaches to enhance nutrition in military dining facilities, evaluated community-based environmental intervention programs for weight management by reserve personnel, evaluated associations between Service member weight/weight changes with number and location of deployments and presence of Post Traumatic Stress Disorder, characterized successful and unsuccessful weight management techniques by establishment of a military weight registry database. In FY10 programmatically realign to Millennium Cohort Research. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010	4.083	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base						
OCO FY 2011 Plans: FY 2011 OCO						
Program #3 Millennium Cohort Research: A long-term study of Soldiers that includes psychological, physical, and spiritual impacts of military service throughout their lifetime. In FY09, this task was conducted under the Health Behavior/Weight Control program area. In FY10, perform analyses of newly reported Post-Traumatic Stress Disorder (PTSD), depression, and anxiety symptoms among Millennium Cohort participants in conjunction with increased mental and physical health problems; link Millennium Cohort data with DoD and Veteran Administration health risk databases; conduct long term studies to investigate the use of tobacco and alcohol among Service members to provide policy recommendations that enhance the long-term health of deploying forces. In FY11, will conduct analyses to determine resilience factors for PTSD symptoms over time; will conduct analysis to determine factors that influence resistance to depression symptoms over time and enhance mental resilience in deploying forces; will conduct death analysis with specific interest in modifying factors for post-combat suicide. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base		0.000	3.314	4.212	0.000	4.212

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #4 Biomarkers of Exposure and Environmental Biomonitoring: Development and evaluation of methods to detect environmental contamination and toxic exposure during military operations. In FY09, this task was conducted under the Nerve-based Disease Research program area. In FY10, review available sensor technology and conduct down-selection of sensors best suited to meet user performance requirements; evaluate biomarkers of exposure to selected Militarily Relevant Chemicals (MRCs) and relevant toxicity pathways to develop a method to detect toxic exposure in Soldiers. In FY11, will evaluate biomarkers of exposure to additional MRCs, and evaluate and accelerate discovery methods for new biomarkers; will optimize individual toxicity sensor performance and minimize system components to comply with logistical deployment requirements for use in the final increment of the Environmental Sentinel Biomonitor. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	2.546	2.936	0.000	2.936
Program #5	0.000	2.185	3.631	0.000	3.631

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Physiological Response and Blast and Blunt Trauma Models of Thoracic (Chest) and Pulmonary (Lung) Injury: Modeling and assessment of the combined effects of blast, impact, and ballistic trauma on the chest and lung system. In FY09, this task was conducted under the Pulmonary Hazards and Risk Assessment Models program area in Project 878. In FY10, conduct modeling of lung function disruption due to blunt force trauma to the chest; combine thoracic (chest) blunt trauma model with performance decrement models and compare with large animal exercise data for the development of advanced survivability assessment and health hazard analysis tools. In FY11, will refine combined thoracic (chest) blunt trauma/physiology models against combined thoracic blunt trauma and inhalation large animal exposure tests; and will combine thoracic blast trauma model with performance decrement models to develop an integrated tool for survivability assessment and health hazard analysis. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Program #6 Small Business Innovative Research/Small Business Technology Transfer Programs FY 2009 Accomplishments: FY 2009	0.000	0.232	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification				DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 2: <i>Applied Research</i>		R-1 ITEM NOMENCLATURE PE 0602787A: <i>MEDICAL TECHNOLOGY</i>		PROJECT FH2: <i>FORCE HEALTH PROTECTION - APPLIED RESEARCH</i>		
<u>B. Accomplishments/Planned Program (\$ in Millions)</u>						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
<i>FY 2010 Plans:</i> FY 2010 <i>Base FY 2011 Plans:</i> FY 2011 Base <i>OCO FY 2011 Plans:</i> FY 2011 OCO						
Accomplishments/Planned Programs Subtotals		8.474	8.277	10.779	0.000	10.779
<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A						
<u>D. Acquisition Strategy</u> N/A						
<u>E. Performance Metrics</u> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.						

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research				R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY				PROJECT PA4: WOUND HEALING PROJECT (CA)			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
PA4: WOUND HEALING PROJECT (CA)	0.000	1.990	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
<u>A. Mission Description and Budget Item Justification</u> Congressional Interest Item funding for Wound Healing applied research.											
<u>B. Accomplishments/Planned Program (\$ in Millions)</u>											
							FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1 Rapid Wound Healing Technology Development. This is a Congressional Interest Item. <i>FY 2009 Accomplishments:</i> FY 2009 <i>FY 2010 Plans:</i> FY 2010 <i>Base FY 2011 Plans:</i> FY 2011 Base <i>OCO FY 2011 Plans:</i> FY 2011 OCO							0.000	1.990	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals							0.000	1.990	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 2: <i>Applied Research</i>	R-1 ITEM NOMENCLATURE PE 0602787A: <i>MEDICAL TECHNOLOGY</i>	PROJECT PA4: <i>WOUND HEALING PROJECT (CA)</i>
<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A		
<u>D. Acquisition Strategy</u> N/A		
<u>E. Performance Metrics</u> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.		

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research				R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY				PROJECT PA5: NANOFABRICATED BIOARTIFICIAL KIDNEY (CA)			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
PA5: NANOFABRICATED BIOARTIFICIAL KIDNEY (CA)	2.491	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
<u>A. Mission Description and Budget Item Justification</u> Congressional Interest Item funding for Nanofabricated Bioartificial Kidney applied research.											
<u>B. Accomplishments/Planned Program (\$ in Millions)</u>											
							FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1 This congressionally directed project conducts research into Nanofabricated Bioartificial Kidney and Bioterrorism. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO							2.491	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals							2.491	0.000	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 2: <i>Applied Research</i>	R-1 ITEM NOMENCLATURE PE 0602787A: <i>MEDICAL TECHNOLOGY</i>	PROJECT PA5: <i>NANOFABRICATED BIOARTIFICIAL KIDNEY (CA)</i>
<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A		
<u>D. Acquisition Strategy</u> N/A		
<u>E. Performance Metrics</u> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.		

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT			
2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research				PE 0602787A: MEDICAL TECHNOLOGY				UA8: PROTEIN HYDROGEL (CA)			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
UA8: PROTEIN HYDROGEL (CA)	0.000	0.796	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
<u>A. Mission Description and Budget Item Justification</u> Congressional Interest Item funding for Protein Hydrogel applied research.											
<u>B. Accomplishments/Planned Program (\$ in Millions)</u>											
							FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1 BioFoam Protein Hydrogel for Battlefield Trauma. This is a Congressional Interest Item. <i>FY 2009 Accomplishments:</i> FY 2009 <i>FY 2010 Plans:</i> FY 2010 <i>Base FY 2011 Plans:</i> FY 2011 Base <i>OCO FY 2011 Plans:</i> FY 2011 OCO							0.000	0.796	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals							0.000	0.796	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 2: <i>Applied Research</i>	R-1 ITEM NOMENCLATURE PE 0602787A: <i>MEDICAL TECHNOLOGY</i>	PROJECT UA8: <i>PROTEIN HYDROGEL (CA)</i>
<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A		
<u>D. Acquisition Strategy</u> N/A		
<u>E. Performance Metrics</u> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.		

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research				R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY				PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)	105.592	114.679	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
<u>A. Mission Description and Budget Item Justification</u> Congressional Interest Item funding for Medical Technology applied research.											
<u>B. Accomplishments/Planned Program (\$ in Millions)</u>											
							FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1 Cancer Prevention Through Remote Biological Sensing. This is a Congressional Interest Item. <i>FY 2009 Accomplishments:</i> FY 2009 <i>FY 2010 Plans:</i> FY 2010 <i>Base FY 2011 Plans:</i> FY 2011 Base <i>OCO FY 2011 Plans:</i> FY 2011 OCO							1.595	1.592	0.000	0.000	0.000
Program #2 Center for Injury Biomechanics. This is a Congressional Interest Item.							3.189	3.979	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #3 Center for Ophthalmic Innovation. This is a Congressional Interest Item.	2.392	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #4	1.744	0.000	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Disposable Unit Dose Drug Pumps for Anesthesia and Antibiotics. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Program #5 Impact of Intensive Lifestyle Modification on Chronic Medical Conditions. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	1.744	1.492	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #6 Neuroscience Research Consortium to Study Spinal Cord Injury. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.797	1.194	0.000	0.000	0.000
Program #7 Plant-based Vaccine Research. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	1.993	0.000	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #8 Rapid Vaccine Discovery Technology. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	1.595	0.000	0.000	0.000	0.000
Program #9 Wound Infection Treatment Program. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	2.392	0.000	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #10 Cold Spring Harbor Laboratory Womens Cancer Genomics Center. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	2.791	2.387	0.000	0.000	0.000
Program #11 New Vaccines to Fight Respiratory Infection. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	3.987	4.775	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #12 Copper Air Quality Program. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	1.994	0.000	0.000	0.000	0.000
Program #13 Medical Resources Conservation Technology Pilot Energy Cost Control Evaluation (PECCE). This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base	2.392	0.000	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #14 Complementary and Alternative Medicine Research (MIL-CAM). This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	4.984	5.173	0.000	0.000	0.000
Program #15 Orthopaedic Extremity Trauma Research Program. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010	4.984	0.000	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #16 Respiratory Biodefense Initiative. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	1.595	0.000	0.000	0.000	0.000
Program #17 Carbon Nanotube Production. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009	1.196	0.000	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Program #18 Lehman Injury Research Center-Ryder Trauma Center. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	5.981	3.183	0.000	0.000	0.000
Program #19 Military Interoperable Digital Hospital Testbed. This is a Congressional Interest Item.	9.966	0.000	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #20 Neutron/Hadron Particle Therapy. This is a Congressional Interest Item.	1.196	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #21	0.797	0.000	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Biological and Immunological Infectious Agent and Cancer Vaccine Research. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Program #22 Combat Stress Intervention Program (CSIP). This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	2.392	0.000	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)				
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #23 Advanced Functional Nanomaterials for Biological Processes. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO		1.993	2.387	0.000	0.000	0.000
Program #24 Minimizing Health Effects of Air Toxics on Military Personnel. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO		1.595	0.000	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #25 Plasma Technology Laboratory. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.797	0.000	0.000	0.000	0.000
Program #26 Military Photomedicine Program. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	2.791	0.000	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #27 Freeze Dried Blood Technology Clinical Research. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	1.994	0.000	0.000	0.000	0.000
Program #28 Battlefield Research Accelerating Virtual Environments for Mil Indiv Neuro Disorders (BRAVEMIND). This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base	0.797	0.995	0.000	0.000	0.000

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APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #29 Battlefield Treatment of Hemorrhagic Shock. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.797	0.000	0.000	0.000	0.000
Program #30 Control of Vector-Borne Diseases. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010	1.197	2.387	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #31 Extended Duration Silver Wound Dressing-Clinical Trials. This is a Congressional Interest Item.	1.595	0.796	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #32 Nano-Imaging Agents for Early Disease Detection. This is a Congressional Interest Item.	1.595	0.796	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					

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APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #33 Neuroimaging of Brain Disorders. This is a Congressional Interest Item.	0.797	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #34 Self-Powered Prosthetic Limb Technology. This is a Congressional Interest Item.	2.392	1.592	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #35 Use of Drugs to Reduce Hearing Loss from Acute Acoustic Trauma.	1.276	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #36	3.189	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Vision Integrating Strategies in Opthamology and Neurochemistry (VISION). This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Program #37 Center for Aerospace Human Factors Research and Innovation. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.797	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #38 Development of Drugs for Malaria and Leishmaniasis in US Military and Civilian Personnel. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	3.389	3.104	0.000	0.000	0.000
Program #39 Engineering Replacement Tissues. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base	1.595	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #40 Expansion and Development, Upper and Lower Bionic Limbs. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	1.994	1.990	0.000	0.000	0.000
Program #41 Facilitating Use of Advanced Prosthetic Limb Technology. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010	1.595	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #42 Mosquito Borne Disease Prevention: Malaria & Dengue Fever.	0.797	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #43 Optical Neural Techniques for Combat/Post-Trauma Healthcare. This is a Congressional Interest Item.	1.595	3.482	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #44 Soldier Survival in Extreme Environments. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	2.951	0.000	0.000	0.000	0.000
Program #45 Behavior and Neuroscience, Functional Magnetic Resonance Imaging Research Project. This is a Congressional Interest Item.	0.797	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #46 Plug-In Architecture for DoD Medical Imaging. This is a Congressional Interest Item.	0.797	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #47	0.797	2.387	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
National Eye Eval & Research Network (NEER)-Clinical Trials of Orphan Retinal Degenerative Diseases. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Program #48 Neural Controlled Prosthetic Device for Amputees. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	1.595	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #49 Prevention of Compartment Syndrome, Ultrafiltration Catheter. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	1.595	0.000	0.000	0.000	0.000
Program #50 Consortium for Bone and Tissue Repair and Regeneration. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.797	0.000	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #51 New York Medical College Bioterrorism Research. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	0.131	0.000	0.000	0.000
Program #52 Center for Engineered Biomedical Devices. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	0.286	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #53 Lightweight, Battery Driven and Battlefield Deployment Ready NG Feeding Tube Cleaner. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO		0.000	0.496	0.000	0.000	0.000
Program #54 Eye Trauma and Visual Restoration. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base		0.000	0.795	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #55 Carbide-Derived Carbon for Treatment of Combat Related Sepsis. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	0.796	0.000	0.000	0.000
Program #56 Clinical Trial to Investigate Efficacy of Human Skin Substitute. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010	0.000	0.796	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #57 Cleveland Clinic Rehabilitation Research. This is a Congressional Interest Item.	0.000	0.796	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #58 Military Family Empowerment Initiative. This is a Congressional Interest Item.	0.000	0.796	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #59 Myositis Association-Exposure to Environmental Toxins. This is a Congressional Interest Item.	0.000	0.995	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #60 Nanofiber Based Synthetic Bone Repair Devices for Limb Salvage. This is a Congressional Interest Item.	0.000	0.995	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #61 Regenerative Medicine for Battlefield Injuries. This is a Congressional Interest Item.	0.000	0.995	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #62	0.000	1.194	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Center for Bone Repair and Military Readiness. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Program #63 Flu Vaccine Technology Program. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	1.194	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #64 Non-Leaching Antimicrobial Surface for Orthopedic Devices. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO		0.000	1.194	0.000	0.000	0.000
Program #65 Technology Solutions for Brain Cancer Detection and Treatment. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO		0.000	1.194	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #66 Westchester County Medical Center Health Imaging Upgrades. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO		0.000	1.194	0.000	0.000	0.000
Program #67 Stabilized Hemoglobin Wound Healing Development. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO		0.000	1.194	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #68 Human Organ and Tissue Preservation Technology. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	1.592	0.000	0.000	0.000
Program #69 Alginate Oligomers to Treat Infectious Microbial Biofilms. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	1.592	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #70 Diabetes Care in the Military. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	1.592	0.000	0.000	0.000
Program #71 Evaluation of Integrative Approaches to Resilience. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	1.592	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #72 Neuro-Performance Research. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	1.592	0.000	0.000	0.000
Program #73 Portable Low-Volume Therapy for Severe Blood Loss. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	1.592	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #74 Regenerative Medicine Research. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	1.592	0.000	0.000	0.000
Program #75 Research to Develop Strategies to Improve Prognosis of Soldiers Suffering Abdominal Trauma. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base	0.000	1.592	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
OCO FY 2011 Plans: FY 2011 OCO					
Program #76 Research to Treat Cancerous Brain Tumors using Neural Stem Cells. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	1.592	0.000	0.000	0.000
Program #77 Lightweight Medical Devices. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010	0.000	1.592	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #78 Epigenetic Disease Research. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	1.592	0.000	0.000	0.000
Program #79 Neuroprosthetics and BioMEMS Development Project. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009	0.000	1.592	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #80 Minimizing Shock in Battlefield Injuries. This is a Congressional Interest Item.	0.000	1.890	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #81 Jackson Health System Military Trauma Training Enhancement Initiative. This is a Congressional Interest Item.	0.000	1.989	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #82 Operating Room of the Future. This is a Congressional Interest Item.	0.000	1.990	0.000	0.000	0.000
FY 2009 Accomplishments: FY 2009					
FY 2010 Plans: FY 2010					
Base FY 2011 Plans: FY 2011 Base					
OCO FY 2011 Plans: FY 2011 OCO					
Program #83	0.000	1.990	0.000	0.000	0.000

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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
School of Nursing Advancement. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO					
Program #84 Identification of New Drug Targets in Multi-Drug Resistant Bacterial Infections. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	1.990	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #85 Long-term Pain and Infection Management for Combat Casualt Care. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	2.308	0.000	0.000	0.000
Program #86 Florida Trauma Rehabilitation Institute for Returning Military Personnel. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	2.386	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #87 Framework for Electronic Health Record-Linked Predictive Models. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	2.386	0.000	0.000	0.000
Program #88 Understanding Blast-Induced Brain Injury. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	2.387	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #89 SupportNet for Frontline Providers. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	2.387	0.000	0.000	0.000
Program #90 Center for Respiratory Biodefense. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	2.387	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research	R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY	PROJECT VB3: MEDICAL TECHNOLOGY INITIATIVES (CA)			
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #91 Advanced Bioengineering for Enhancement of Solider Survivability. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	2.487	0.000	0.000	0.000
Program #92 Online Health Services Optimization. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	3.104	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification			DATE: February 2010		
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B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #93 Imp Soldier Recovery from Catastrophic Bone Injury. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	3.183	0.000	0.000	0.000
Program #94 Center for Advanced Emergency Response. This is a Congressional Interest Item. FY 2009 Accomplishments: FY 2009 FY 2010 Plans: FY 2010 Base FY 2011 Plans: FY 2011 Base OCO FY 2011 Plans: FY 2011 OCO	0.000	3.979	0.000	0.000	0.000

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification				DATE: February 2010				
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<u>B. Accomplishments/Planned Program (\$ in Millions)</u>								
				FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Accomplishments/Planned Programs Subtotals				105.592	114.679	0.000	0.000	0.000
<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A								
<u>D. Acquisition Strategy</u> N/A								
<u>E. Performance Metrics</u> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.								

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research				R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY				PROJECT VB4: SYSTEM BIOLOGY AND NETWORK SCIENCE TECHNOLOGY			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
VB4: SYSTEM BIOLOGY AND NETWORK SCIENCE TECHNOLOGY	0.000	1.169	1.177	0.000	1.177	1.082	0.982	0.974	0.966	Continuing	Continuing
A. Mission Description and Budget Item Justification											
This project supports applied research in systems biology to provide a highly effective mechanism to integrate iterative biological tests, computer simulations, and animal studies. Such developmental efforts using systems biology could ultimately reduce the time and effort invested in medical product development. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. Work in this project is performed by the US Army Medical Research and Materiel Command, Fort Detrick, MD											
B. Accomplishments/Planned Program (\$ in Millions)											
							FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1							0.000	1.136	1.177	0.000	1.177
Systems Biology: In FY09, this research is funded in project 878 under the Systems Biology and Network Science task. Conducted research to refine the new mathematical and computational methods that have identified gaps in network linkages (such as protein to protein networks). Explored whether protein-protein network models developed for a particular pathogen are portable to a different pathogen sharing a common set of proteins. In FY10, apply validated models to the identification of therapeutic candidates against common targets identified. In FY11, will establish lead candidate studies in appropriate model systems in preparation for candidate development.											
FY 2009 Accomplishments: FY 2009											
FY 2010 Plans: FY 2010											

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification				DATE: February 2010	
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<u>B. Accomplishments/Planned Program (\$ in Millions)</u>					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
<i>Base FY 2011 Plans:</i> FY 2011 Base <i>OCO FY 2011 Plans:</i> FY 2011 OCO					
Program #2 Small Business Innovative Research/Small Business Technology Transfer Programs <i>FY 2009 Accomplishments:</i> FY 2009 <i>FY 2010 Plans:</i> FY 2010 <i>Base FY 2011 Plans:</i> FY 2011 Base <i>OCO FY 2011 Plans:</i> FY 2011 OCO	0.000	0.033	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.000	1.169	1.177	0.000	1.177
<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A					
<u>D. Acquisition Strategy</u> N/A					

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 2: <i>Applied Research</i>	R-1 ITEM NOMENCLATURE PE 0602787A: <i>MEDICAL TECHNOLOGY</i>	PROJECT VB4: <i>SYSTEM BIOLOGY AND NETWORK SCIENCE TECHNOLOGY</i>

E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification								DATE: February 2010			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research				R-1 ITEM NOMENCLATURE PE 0602787A: MEDICAL TECHNOLOGY				PROJECT VJ4: SUICIDE PREVENTION/MITIGATION			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
VJ4: SUICIDE PREVENTION/MITIGATION	10.000	9.948	10.000	0.000	10.000	10.000	10.000	10.000	0.000	Continuing	Continuing
A. Mission Description and Budget Item Justification											
This project funds research over a planned five (5) year period to examine the mental and behavioral health of Soldiers to counter suicidal behavior. This work will focus on advancing understanding of the multiple determinants of suicidal behavior, psychopathology (study of the causes and nature of abnormal behavior), psychological resilience, and role functioning. A significant thrust area will focus on the development of better methods for preventing and mitigating suicidal behavior and to improve the overall mental health and behavioral function of Army personnel during and after their Army service. The cited work is consistent with the Director, Defense Research and Engineering Strategic Plan, the Army Modernization Strategy, and the Army Science and Technology Master Plan. Work on this project is performed by The National Institute of Mental Health (NIMH) through extramural cooperative research grants in collaboration with the Department of the Army.											
B. Accomplishments/Planned Program (\$ in Millions)											
							FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1							10.000	9.669	10.000	0.000	10.000
In FY10 through FY11, conduct research to better understand the apparent increase in suicide deaths and nonfatal attempts among Active Duty Soldiers. Initiate epidemiological (population-based) studies to identify determinants of suicidal behaviors and potential modifiable risk factors. Begin the process to develop better methods for preventing suicidal behaviors based on data driven recommendations to mitigate or prevent suicidal behaviors.											
FY 2009 Accomplishments: FY 2009											
FY 2010 Plans: FY 2010											

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification				DATE: February 2010	
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<u>B. Accomplishments/Planned Program (\$ in Millions)</u>					
	FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
<i>Base FY 2011 Plans:</i> FY 2011 Base <i>OCO FY 2011 Plans:</i> FY 2011 OCO					
Program #2 SBIR/STTR <i>FY 2009 Accomplishments:</i> FY 2009 <i>FY 2010 Plans:</i> FY 2010 <i>Base FY 2011 Plans:</i> FY 2011 Base <i>OCO FY 2011 Plans:</i> FY 2011 OCO	0.000	0.279	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	10.000	9.948	10.000	0.000	10.000
<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A					
<u>D. Acquisition Strategy</u> N/A					

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E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

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Exhibit R-2A, PB 2011 Army RDT&E Project Justification									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY				R-1 ITEM NOMENCLATURE				PROJECT			
2040: Research, Development, Test & Evaluation, Army BA 2: Applied Research				PE 0602787A: MEDICAL TECHNOLOGY				X06: HIBERNATION GENOMICS			
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	Base FY 2011 Estimate	OCO FY 2011 Estimate	Total FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
X06: HIBERNATION GENOMICS	1.994	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
<u>A. Mission Description and Budget Item Justification</u> These are Congressional Interest Items											
<u>B. Accomplishments/Planned Program (\$ in Millions)</u>											
							FY 2009	FY 2010	Base FY 2011	OCO FY 2011	Total FY 2011
Program #1 Hibernation Genomics. This is a Congressional Interest Item. <i>FY 2009 Accomplishments:</i> FY 2009 <i>FY 2010 Plans:</i> FY 2010 <i>Base FY 2011 Plans:</i> FY 2011 Base <i>OCO FY 2011 Plans:</i> FY 2011 OCO							1.994	0.000	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals							1.994	0.000	0.000	0.000	0.000

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<u>C. Other Program Funding Summary (\$ in Millions)</u> N/A		
<u>D. Acquisition Strategy</u> N/A		
<u>E. Performance Metrics</u> Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.		

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