Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Army

APPROPRIATION/BUDGET ACTIVITY

2040: Research, Development, Test & Evaluation, Army

BA 3: Advanced Technology Development (ATD)

R-1 ITEM NOMENCLATURE

PE 0603002A: MEDICAL ADVANCED TECHNOLOGY

DATE: February 2011

COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	336.741	71.510	68.171	-	68.171	65.647	69.795	72.971	72.302	Continuing	Continuing
810: IND BASE ID VACC&DRUG	19.748	18.185	18.646	-	18.646	18.820	20.674	19.910	18.342	Continuing	Continuing
840: COMBAT INJURY MGMT	42.272	44.004	38.659	-	38.659	34.079	35.463	36.729	37.141	Continuing	Continuing
945: BREAST CANCER STAMP PROCEEDS	1.005	-	-	-	-	-	-	-	-	Continuing	Continuing
97B: BLOOD SAFETY	2.388	-	-	-	-	-	-	-	-	Continuing	Continuing
97D: CENTER FOR AGING EYE	2.387	-	-	-	-	-	-	-	-	Continuing	Continuing
FH4: FORCE HEALTH PROTECTION - ADV TECH DEV	1.885	1.974	1.542	-	1.542	1.672	1.761	1.776	1.806	Continuing	Continuing
MB1: ADV DIAGNOSTICS & THERAPEUTIC DIG TECH	1.593	-	-	-	-	-	-	-	-	Continuing	Continuing
MB3: CENTER FOR INTEGRATION OF MEDICINE & INNOV TECH	8.953	-	-	-	-	-	-	-	-	Continuing	Continuing
MG5: NATIONAL FUNCTIONAL GENOMICS CENTER (CA)	5.968	-	-	-	-	-	-	-	-	Continuing	Continuing
MI4: ALLIANCE FOR NANOHEALTH (CA)	3.979	-	-	-	-	-	-	-	-	Continuing	Continuing
MJ2: FIBRINOGEN BANDAGES FOR BATTLEFIELD WOUNDS (CA)	2.388	-	-	-	-	-	-	-	-	Continuing	Continuing
MK8: PLASMA STERILIZER (CA)	2.387	-	-	-	-	-	-	-	-	Continuing	Continuing
ML3: SOLDIER-MOUNTED EYE- TRACKING & CONTROL SYSTEM (CA)	3.482	-	-	-	-	-	-	-	-	Continuing	Continuing
MM2: MEDICAL ADVANCE TECHNOLOGY INITIATIVES (CA)	231.980	-	-	-	-	-	-	-	-	Continuing	Continuing

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Army								DATE: Feb	ruary 2011		
APPROPRIATION/BUDGET ACTIV 2040: Research, Development, Test BA 3: Advanced Technology Develop	& Evaluation	•		R-1 ITEM N PE 0603002		TURE L ADVANCE	ED TECHNO	LOGY			
MM3: WARFIGHTER MEDICAL PROTECTION & PERFORMANCE STDS	6.326	7.347	9.324	-	9.324	11.076	11.897	14.556	15.013	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element (PE) supports maturation and demonstration of advanced medical technologies including drugs, vaccines, medical devices, and diagnostics and developing medical practices and procedures to effectively protect and improve the survivability of US Forces across the entire spectrum of military operations. Tri-Service coordination and cooperative efforts are focused in four principal medical areas: Combat Casualty Care, Military Operational Medicine, Militarily Relevant Infectious Diseases, and Clinical and Rehabilitative Medicine.

Promising medical technologies are refined and validated through extensive testing, which is closely monitored by the US Food and Drug Administration (FDA) and Environmental Protection Agency (EPA), as part of their processes for licensing new medical products. The FDA requires medical products to undergo extensive preclinical testing in animals and/or other models to obtain preliminary efficacy and toxicity information, before they can be tested in humans (clinical trials). Clinical trials are conducted in three phases, starting with Phase 1, to prove the safety of a drug, vaccine, or device for the targeted disease or medical condition in a small number of healthy volunteers. Each successive phase includes larger numbers of human subjects and requires FDA cognizance prior to proceeding. Work conducted in this PE primarily focuses on late stages of technology maturation activities required to conduct Phase 2 human expanded safety and efficacy clinical trials. Some high risk technologies may require additional maturation with FDA guidance prior to initiating these clinical trials. Such things as proof of product stability and purity are necessary to meet FDA standards before entering later stages of testing and prior to transitioning into a formal acquisition program and conducting Phase 3 pivotal trials for licensure. Activities in the PE may include completion of preclinical animal studies and Phase 2 clinical studies involving human volunteers according to the FDA and EPA requirements.

Blast research efforts in this PE are fully coordinated with the United States Army Natick Soldier Research, Development and Engineering Center. This coordination enables improved body armor design and rations for Soldiers. Additionally, the activities funded in this PE are externally peer reviewed and fully coordinated with all Services as well as other agencies through the Joint Technology Coordinating Groups of the Armed Services Biomedical Research Evaluation and Management (ASBREM) Committee. The ASBREM Committee serves to facilitate coordination and prevent unnecessary duplication of effort within DoD?s biomedical research and development community, as well as their associated enabling research areas.

Work funded in this project PE is fully coordinated with efforts undertaken in PE 0602787A.

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 PE is performed by Walter Reed Army Institute of Research, Silver Spring, MD; US Army Medical Research Institute of Infectious Diseases, Fort Detrick, MD; US Army Research Institute of Environmental Medicine, Natick, MA; US Army Institute of Surgical Research, Fort Sam Houston, TX; US Army Aeromedical

Army Page 2 of 48 R-1 Line Item #30

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Army **DATE:** February 2011

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE

2040: Research, Development, Test & Evaluation, Army

PE 0603002A: MEDICAL ADVANCED TECHNOLOGY

BA 3: Advanced Technology Development (ATD)

Research Laboratory, Fort Rucker, AL; the Naval Medical Research Center, Silver Spring, MD; US Army Dental Trauma Research Detachment, Fort Sam Houston, TX; US Army Center for Environmental Health Research and the Armed Forces Institute of Regenerative Medicine, Fort Detrick, MD.

B. Program Change Summary (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	
Previous President's Budget	339.752	71.510	63.808	-	63.808	
Current President's Budget	336.741	71.510	68.171	-	68.171	
Total Adjustments	-3.011	-	4.363	-	4.363	
 Congressional General Reductions 		-				
 Congressional Directed Reductions 		-				
 Congressional Rescissions 	-	-				
 Congressional Adds 		-				
 Congressional Directed Transfers 		-				
 Reprogrammings 	-0.685	-				
SBIR/STTR Transfer	-2.326	-				
 Adjustments to Budget Years 	-	-	4.363	-	4.363	

Army Page 3 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Just	ification: PE	3 2012 Army							DATE: Febi	ruary 2011		
APPROPRIATION/BUDGET ACTIV	PROPRIATION/BUDGET ACTIVITY							PROJECT				
2040: Research, Development, Test	& Evaluation	n, Army		PE 0603002A: MEDICAL ADVANCED				ADVANCED 810: IND BASE ID VACC&DRUG				
BA 3: Advanced Technology Develo	pment (ATD))		TECHNOLOGY								
COST (\$ in Millions)			FY 2012	FY 2012	FY 2012					Cost To		
COST (\$ in Millions)	FY 2010	FY 2011	Base	oco	Total	FY 2013	FY 2014	FY 2015	FY 2016	Complete	Total Cost	
810: IND BASE ID VACC&DRUG	19.748	18.185	18.646	-	18.646	18.820	20.674	19.910	18.342	Continuing	Continuing	

A. Mission Description and Budget Item Justification

This project matures and demonstrates US Food and Drug Administration (FDA) regulated medical countermeasures such as drugs, vaccines, and diagnostic systems to naturally occurring infectious diseases that are threats to US military deployed forces. The focus of the program is on prevention, diagnosis, and treatment of diseases that can adversely impact military mobilization, deployment, and operational effectiveness. Prior to licensure of a new drug or vaccine to treat or prevent disease, the FDA requires testing in human subjects. Studies are conducted stepwise: first to prove the product is safe in humans, second to demonstrate the desired effectiveness and optimal dosage in a small study, and third to demonstrate effectiveness in large, diverse human populations. All test results are submitted to the FDA for evaluation to ultimately obtain approval (licensure) for medical use. This project supports studies for safety and effectiveness testing on small study groups after which they transition to the next phase of development for completion of studies in larger populations. The project also supports testing of personal protective measures that can reduce disease transmission from biting insects and other vectors to include products such as repellents and insecticides which are regulated by the U. S. Environmental Protection Agency (EPA).

Research conducted in this project focuses on the following five areas:

- (1) Drugs to Prevent/Treat Parasitic (symbiotic relationship between two organisms) Diseases
- (2) Vaccines for Preventing Malaria
- (3) Bacterial Threats
- (4) Viral Threats
- (5) Diagnostics and Disease Transmission Control

Research is conducted in compliance with FDA regulations for medical products for human use and EPA-regulations for insect control products that impact humans or the environment (e.g., repellents and insecticides).

Work is managed by the Walter Reed Institute of Research (WRAIR), US Army Medical Institute of Infectious Disease (USAMRIID), and coordinated with Naval Medical Research Center (NMRC). The Army is responsible for programming and funding all DoD naturally occurring infectious disease research requirements, thereby precluding duplication of effort within the Military Departments.

Promising medical countermeasures identified in this project are further matured under PE 0603807A, project 808.

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.

Army Page 4 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: Fel	oruary 2011		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	810: <i>IND</i>	PROJECT 810: IND BASE ID VACC&DRUG			
Work in this project is performed by the Walter Reed Army Institute Institute of Infectious Diseases, Fort Detrick, MD; and the Naval M				Medical Res	earch	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2010	FY 2011	FY 2012	
Title: Drugs to Prevent/Treat Parasitic Diseases			3.872	3.089	2.335	
Description: This effort selects promising malaria and leishmaniasi testing in human subjects, and prepares data packages required for Studies have shown that the malaria parasite can become resistant research new and more effective treatments.	FDA approval of testing in humans and conduct te	sting.				
FY 2010 Accomplishments: Expanded Malarone testing in an increased number of humans with tinidazole combination drug for prevention of malaria.	positive results, and continued studies with a Chlo	roquine-				
FY 2011 Plans: Based on selection of promising candidates in previous year, expan leishmaniasis. Work with commercial manufacturer to change the detreatment indications.						
FY 2012 Plans: Will initiate safety and effectiveness studies in human volunteers on studies.	the most promising candidate identified from precl	nical				
Title: Vaccines for Prevention of Malaria			3.823	3.824	4.905	
Description: This effort selects candidate vaccines for various type falciparum) and the less severe but relapsing form (Plasmodium viviapproval of testing in humans. Conduct testing of promising malaria would minimize the progression and impact of drug resistance and pdrugs.	ax) and prepares technical data packages required vaccine candidates in human subjects. A malaria v	for FDA accine				
FY 2010 Accomplishments: Partnered with industry to conduct initial safety and small-scale effermalaria vaccine candidate; forwarded promising candidate vaccines naturally, such as Africa; initiated Plasmodium vivax malaria candidate.	for further testing in larger populations where mala	ria occurs				
FY 2011 Plans:						

UNCLASSIFIED

Army Page 5 of 48 R-1 Line Item #30

	ONOLAGOII ILD				
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: Feb	oruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJEC 810: IND	T BASE ID VAC	CC&DRUG	
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2010	FY 2011	FY 2012
Conduct studies to determine optimal dosing schedule of new Plas safety and effectiveness tests in larger populations in endemic area further development; will assess effectiveness of Plasmodium vivas	as; down-select best and most effective vaccine ca				
FY 2012 Plans: Will formulate new candidate vaccines against Plasmodium falcipal uninfected adults for safety, immunogenicity (ability to produce an i promising vaccine candidates in adults and children in larger test p candidate to the advanced development program.	mmune response), and effectiveness; will further to	est the most			
Title: Bacterial Threats			6.375	5.122	7.623
Description: This effort selects promising candidate vaccines agai Campylobacter and Shigella; a significant threat during initial deplo trainees, deployed troops and military families) for testing in human and conduct testing in human subjects.	yments) and meningococcal vaccine candidates (a	threat to			
FY 2010 Accomplishments: Conducted testing of a Shigella component (Invaplex) candidate va effectiveness trial of a live attenuated Shigella vaccine; began E. cohumans; prepared the meningococcal Group B multicomponent vac	oli vaccine candidate safety and effectiveness testi	ng in			
FY 2011 Plans: Continue safety and effectiveness trials of Invaplex and live attenuate to establish most promising E. coli vaccine; undertake a safety studyaccine.					
FY 2012 Plans: Will conduct human trials of live attenuated Shigella vaccine and E. transfer of meningococcal vaccine technology to commercial partners.		complete			
Title: Viral Threats Research			3.492	3.086	1.825
Description: This effort selects most promising vaccine candidates severe debilitating disease caused by a virus and transmitted by a internal bleeding and is contracted from close contact with rodents)	mosquito) and hantavirus (severe viral infection that	nt causes			

UNCLASSIFIED

Army Page 6 of 48 R-1 Line Item #30

	UNCLASSIFIED					
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: Fe	bruary 2011		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY		PROJECT 810: IND BASE ID VACC&DRUG			
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2010	FY 2011	FY 2012	
testing (laboratory-based) in animals, prepare FDA investigations of candidate vaccines in humans.	al new drug technical data packages and conduct clin	ical testing				
FY 2010 Accomplishments: Conducted testing in humans of the hantavirus vaccine on an ex dengue vaccine candidate based on expanded population studie	•	ctive				
FY 2011 Plans: Further develop the hantavirus vaccine with support of a comme effectiveness of the final dengue vaccine candidate.	rcial partner; conduct testing in humans for safety and	I				
FY 2012 Plans: Will further develop the hantavirus vaccine with support of a com to improve effectiveness and safety; will transition to advanced d	•	ery methods				
Title: Diagnostics and Disease Transmission Control			2.186	3.064	1.958	
Description: This effort conducts human subject testing of FDA-measures to control insect-borne pathogens and diseases such disease (carried by ticks, fleas, and lice) and other pathogens trasegmented bodies and jointed limbs, such as a scorpion, crab, o	as Q Fever (sand fly fever), Japanese encephalitis, Ri ansmitted by arthropods (animals without a backbone	ckettsial				
FY 2010 Accomplishments: Tested a new repellent and began evaluation of field-deployable Q-fever and dengue fever. For diagnostics, validated results of tedevices. Modified the leishmaniasis infection hospital-based diagnostic System (JBAIDS) platform.	esting for leishmaniasis, dengue fever and Rickettsial	disease				
FY 2011 Plans: Transition new repellent to advanced development; evaluate a fiewith commercial partner; assist commercial partners in fielding or leishmaniasis.	·	•				
FY 2012 Plans: Will complete the evaluation of repellent products; Will assist the diagnostics (point-of-care tests) for Q-fever; will evaluate a field of						

UNCLASSIFIED

Army Page 7 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT	
2040: Research, Development, Test & Evaluation, Army	PE 0603002A: MEDICAL ADVANCED	810: <i>IND B</i>	ASE ID VACC&DRUG
BA 3: Advanced Technology Development (ATD)	TECHNOLOGY		

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
pathogens transmitted by arthropods (animals without a backbone with segmented bodies and jointed limbs, such as a scorpion, crab, or centipede) in collaboration with commercial partner.			
Accomplishments/Planned Programs Subtotals	19.748	18.185	18.646

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

Army Page 8 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Just	ification: PE	3 2012 Army					DATE: February 2011						
APPROPRIATION/BUDGET ACTIV	R-1 ITEM NOMENCLATURE				PROJECT								
2040: Research, Development, Test	2040: Research, Development, Test & Evaluation, Army				PE 0603002A: MEDICAL ADVANCED				840: COMBAT INJURY MGMT				
BA 3: Advanced Technology Develo	pment (ATD))		TECHNOLOGY									
COST (f in Millions)			FY 2012	FY 2012	FY 2012					Cost To			
COST (\$ in Millions)	FY 2010	FY 2011	Base	oco	Total	FY 2013	FY 2014	FY 2015	FY 2016	Complete	Total Cost		
840: COMBAT INJURY MGMT	42.272	44.004	38.659	-	38.659	34.079	35.463	36.729	37.141	Continuing	Continuing		

A. Mission Description and Budget Item Justification

This project matures, demonstrates, and validates promising medical technologies and methods to include control of severe bleeding, treatment for traumatic brain injury (TBI), revival and stabilization of trauma patients, and prognostics and diagnostics for life support systems. Post-evacuation medical research focuses on continued care and rehabilitative medicine for extremity (arms and legs), facial/maxillary (jaw bone), and ocular (eye) trauma and leveraging recent innovations in regenerative medicine and tissue engineering techniques.

Research conducted in this project focuses on the following five areas:

- (1) Damage Control Resuscitation
- (2) Combat Trauma Therapies
- (3) Combat Critical Care Engineering
- (4) Clinical and Rehabilitative Medicine
- (5) Traumatic Brain Injury

All research is conducted in compliance with US Food and Drug Administration (FDA) requirements for licensure of medical products for human use.

Promising efforts identified through applied research conducted under PE 0602787A, project 874, are further matured under this project. Promising results identified under this project 840 are further matured under PE 0603807A, project 836.

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 Institute of Surgical Research (USAISR), Fort Sam Houston, TX; 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 Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
Title: Damage Control Resuscitation	13.089	14.776	11.527
Description: This effort supports work required to validate safety and effectiveness of drugs and medical procedures to maintain metabolism and minimize harmful inflammation after major trauma. Efforts focus on blocking complement activation (a series of			

Army

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: Fe	bruary 2011			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJEC 840: COI	40: COMBAT INJURY MGMT				
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2010	FY 2011	FY 2012		
disease fighting proteins and their reactions in the body) from dar secondary organ failure (including brain and spinal cord injury).	maging healthy cells of the body and preventing or m	inimizing					
FY 2010 Accomplishments: Began safety and effectiveness evaluation in humans of freeze-d conducted additional studies in larger animals to identify optimal and complement inhibitors (CIs) (normal physiological responses	timing, dose and mechanisms of action of plasma, cl	•					
FY 2011 Plans: Begin human evaluation of blood substitutes and noninvasive into use of plasma, clotting factors and CIs using a representative, lar guidelines.							
FY 2012 Plans: Will initiate limited clinical studies of coagulation factor and platel coagulopathy (clotting or bleeding disorder) of traumatic shock; w (pig) model.	·						
Title: Combat Trauma Therapies			12.592	16.750	3.558		
Description: This effort focuses on work required to validate safe living organisms), and medical procedures intended to minimize i effort includes neuroprotective research - funding in this area is to	immediate and long-term effects from battlefield injur						
FY 2010 Accomplishments: Completed initial FDA safety studies in humans of a candidate ne refocused dental disease research to facial restorative surgery; b for improvement and evaluated new alternatives as they were ideand effectiveness testing on newly identified treatments and there	egan research in eye trauma to evaluate current repentified; expanded existing in-house capability for hur	air treatment					
FY 2011 Plans: Begin the next study of the candidate neuroprotective drug for FE seizure mixture of multiple drugs in combination and studies of si mandibular (jaw) defect model; continue evaluation of pain mana	lent brain seizures after traumatic brain injury (TBI);	develop a					

UNCLASSIFIED

Army Page 10 of 48 R-1 Line Item #30

	ONOLAGGII ILD					
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: Fel	oruary 2011		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	ent, Test & Evaluation, Army PE 0603002A: MEDICAL ADVANCED 840: Co					
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2010	FY 2011	FY 2012	
animal model to down-select therapeutics for blast-induced TBI; c and therapies for battlefield trauma.	ontinue in-house human clinical trials of promising t	reatments				
FY 2012 Plans: Will continue studies in wound healing, as well as skin, muscle, ar relevant animal models and continue in-house human trials. Begir Traumatic Brain Injury.						
Title: Traumatic Brain Injury			-	-	4.27	
Description: This effort supports work required to validate safety living organisms), and medical procedures intended to minimize in This research area starts in FY12.						
FY 2012 Plans: Will complete the FDA effectiveness study of the candidate neurol trial for a bench-top assay for use in hospitals using candidate bio development; Will continue development of a smaller, deployable version; will evaluate progesterone (steroid hormone) and nitrite a	markers for the detection of TBI; will transition to addiagnostic device for brain trauma as well as a hand	vanced				
Title: Combat Critical Care Engineering			5.807	3.287	3.05	
Description: This effort supports diagnostic and therapeutic medifor resuscitation, stabilization, and life support; this research area		ing systems				
FY 2010 Accomplishments: Completed FDA safety study of fluid resuscitation algorithms; substantomated fluid resuscitation system; collaborated with manufactus stroke volume algorithm to advanced development for integration for development of a model (algorithm) for early indication of circumstantials.	urers to integrate oxygen and ventilation systems; tra with new monitors for triage decision support; condi-	ansitioned				
FY 2011 Plans: Complete evidence-based decision support development for early intervention, and closed-loop care during casualty transport. Contilive tissues in training.						
ive deduced in training.						

UNCLASSIFIED

Army Page 11 of 48 R-1 Line Item #30

		DATE: Feb	oruary 2011			
B. Accomplishments/Planned Programs (\$ in Millions)						
stems and novel remote triage devices (both wear-and-						
		10.784	9.191	10.92		
tissue in battle-injured casualties. Areas of interest for mpartment syndrome (muscle and nerve damage follow						
apy to manage burn scarring, implantation of engineere						
ical and initial clinical studies of strategies for maxillofacing/regeneration techniques, to restore facial features; values; will finish preclinical research on engineered im	cial will nplants;					
		-	-	5.32		
ody blast (UBB) threats, with a primary emphasis on as and testing of improved occupant protection systems. es that are more violent and that act in directions not	sessing					
	signs monitors) in burn and trauma patients with blood stems and novel remote triage devices (both wear-and-training). Ular and visual system traumatic injury, as well as restored tissue in battle-injured casualties. Areas of interest for impartment syndrome (muscle and nerve damage follow construction. Idemonstrate stable engraftment and restoration of sensions apy to manage burn scarring, implantation of engineered educe wound scarring. Foromising treatments for repairing traumatic eye injuries impartment engineered and transplanted back into the partical and initial clinical studies of strategies for maxillofacting/regeneration techniques, to restore facial features; was amage; will finish preclinical research on engineered implement engineered implementation (LFT&E) community to conduct real ody blast (UBB) threats, with a primary emphasis on as and testing of improved occupant protection systems, es that are more violent and that act in directions not	PE 0603002A: MEDICAL ADVANCED TECHNOLOGY signs monitors) in burn and trauma patients with blood loss to stems and novel remote triage devices (both wear-and-forget in the state of interest for intere	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY FY 2010 signs monitors) in burn and trauma patients with blood loss to stems and novel remote triage devices (both wear-and-forget in the stems and novel remote triage devices (both wear-and-forget in the stems and novel remote triage devices (both wear-and-forget in the stems and novel remote triage devices (both wear-and-forget in the stems and novel remote triage devices (both wear-and-forget in the stems and novel remote triage devices (both wear-and-forget in the stems and novel remote triage devices (both wear-and-forget in the stems and novel remote triage devices (both wear-and-forget in the stems and novel remote and reasons of interest for interest f	PE 0603002A: MEDICAL ADVANCED TECHNOLOGY Sugns monitors In burn and trauma patients with blood loss to stems and novel remote triage devices (both wear-and-forget 10.784 9.191		

UNCLASSIFIED

Army Page 12 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
2040: Research, Development, Test & Evaluation, Army	PE 0603002A: MEDICAL ADVANCED	840: COMBAT INJURY MGMT
BA 3: Advanced Technology Development (ATD)	TECHNOLOGY	

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
automobile crashes are not adequate for assessing occupant survivability in ground-combat vehicles exposed to UBB threats. Accurately predicting the spectrum of injuries caused by UBB forces in live-fire tests of ground-combat vehicles presents a unique challenge for the DoD. An UBB medical research program is being initiated to understand the human tolerance limits and injury mechanisms needed to accurately predict injuries to ground-combat vehicle occupants caused by UBB events.			
FY 2012 Plans: Will initiate research to develop biomedically-valid UBB human tolerance limits and injury prediction tools for supporting the development of DoD blast injury prevention standards for survivability assessments and protection systems development; will accelerate development and integration of human tolerance limits and injury prediction tools to enhance the LFT&E community?s ability to accurately assess ground-combat vehicle occupant survivability in UBB events.			
Accomplishments/Planned Programs Subtotals	42.272	44.004	38.659

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

Army Page 13 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army								DATE: February 2011			
2040: Research, Development, Tes	PROPRIATION/BUDGET ACTIVITY O: Research, Development, Test & Evaluation, Army 3: Advanced Technology Development (ATD) R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY				ΞD	PROJECT 945: BREA	ST CANCER	R STAMP PR	ROCEEDS		
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
945: BREAST CANCER STAMP PROCEEDS	1.005	-	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project receives funds as proceeds from the sale of Breast Cancer Stamps.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012	
Title: Breast Cancer Stamp Proceeds	1.005	-	-	
Description: This is a Congressional Interest Item.				
FY 2010 Accomplishments: Breast Cancer Stamp Proceeds				
Accomplishments/Planned Programs Subtotals	1.005	-	_	

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

Army Page 14 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army							DATE: February 2011				
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD) R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY				ED.	PROJECT 97B: <i>BLOO</i>	D SAFETY					
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
97B: BLOOD SAFETY	2.388	-	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for Blood Safety advanced technology development.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
Title: Blood Safety and Decontamination Technology	2.388	-	-
Description: This is a Congressional Interest Item.			
FY 2010 Accomplishments: Blood Safety and Decontamination Technology			
Accomplishments/Planned Programs Subtotals	2.388	-	-

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

Army Page 15 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Just	ification: PE	3 2012 Army							DATE: Feb	ruary 2011	
APPROPRIATION/BUDGET ACTIV 2040: Research, Development, Test BA 3: Advanced Technology Develop	& Evaluation							PROJECT 97D: CENTER FOR AGING EYE			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
97D: CENTER FOR AGING EYE	2.387	-	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for Low Vision research.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
Title: Military Low Vision Research	2.387	-	-
Description: This is a Congressional Interest Item.			
FY 2010 Accomplishments: Military Low Vision Research			
Accomplishments/Planned Programs Subtotals	2.387	-	-

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

R-1 Line Item #30 Army Page 16 of 48

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army								DATE: February 2011			
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)				R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY				PROJECT FH4: FORCE HEALTH PROTECTION - ADV TECH DEV			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
FH4: FORCE HEALTH PROTECTION - ADV TECH DEV	1.885	1.974	1.542	-	1.542	1.672	1.761	1.776	1.806	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project matures, demonstrates, and supports enhanced Force Health Protection of Soldiers against threats in military operations and training. Health-monitoring tools are matured to rapidly identify deployment stressors that affect the health of Joint Forces. These databases and systems enhance the Department of Defense's (DoD's) ability to monitor and protect against adverse changes in health, especially mental health effects caused by changes in brain function. Force Health Protection work is conducted in close coordination with the Department of Veterans Affairs. The program is maturing the development of global health monitoring (e.g., development of neuropsychological evaluation methodologies), validating clinical signs and symptoms correlating to medical records, diagnosed diseases, and mortality rates. The key databases supporting this program are the Millennium Cohort Study and the Total Army Injury and Health Outcomes Database. These databases allow for the examination of interactions of psychological stress and other deployment and occupational stressors that affect Warfighter health behaviors.

This project contains no duplication with any effort within the Military Departments and includes direct participation by other Services.

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 (USACEHR), Fort Detrick, MD, the US Army Research Institute of Environmental Medicine (USARIEM), Natick, MA, and the Naval Health Research Center (NHRC), San Diego, CA.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
Title: Health Research	1.885	1.974	1.542
Description: This effort supports validation of interventions developed from the Millennium Cohort study (a prospective health project in military service members designed to evaluate the long-term health effects of military service, including deployments), validation of biomarkers of exposure, methods to detect environmental contamination and toxic exposure, and validation of thoracic injury prediction models of blast exposure.			
FY 2010 Accomplishments: Validated thoracic blunt trauma and performance decrement models by comparing with data obtained from large animal exercise studies; conducted data analysis to correlate relationships in Post-Traumatic Stress Disorder (PTSD), depression, and anxiety symptoms among Millennium Cohort participants in conjunction with increased mental and physical health problems; validated			

Army Page 17 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
2040: Research, Development, Test & Evaluation, Army	PE 0603002A: MEDICAL ADVANCED	FH4: FORCE HEALTH PROTECTION - ADV
BA 3: Advanced Technology Development (ATD)	TECHNOLOGY	TECH DEV
	·	

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
prototype Environmental Sentinel Biomonitor (ESB) system for use with field drinking water production systems and transitioned to advanced development.			
FY 2011 Plans: Transition thoracic blast injury models and an integrated software version for combined blunt trauma and toxic gas inhalation to Army Research Laboratory Survivability, Lethality Assessment Division (Soldier Survivability Assessment Program) and to the Public Health Command (Health Hazard Assessment Program); conduct a systematic validation of prospective data to correlate relationships in PTSD and depression with suicide.			
FY 2012 Plans: Will validate potential intervention strategies for reduction of mental health symptoms and factors associated with suicide, with a goal to reduce the suicide rate; will validate sensor components to include whole-body acceleration (tertiary blast injury) and headform acceleration (traumatic brain injury).			
Accomplishments/Planned Programs Subtotals	1.885	1.974	1.542

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

Army Page 18 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army								DATE: February 2011				
	APPROPRIATION/BUDGET ACTIVITY						-0	PROJECT	DIAGNOSTI	100 % TUED	ADELITIC	
•	040: Research, Development, Test & Evaluation, Army A 3: Advanced Technology Development (ATD)									B1: ADV DIAGNOSTICS & THERAPEUTIC IG TECH		
COST (\$ in Millions)			FY 2012	FY 2012	FY 2012					Cost To		
COST (\$ III MIIIIOTIS)	FY 2010	FY 2011	Base	oco	Total	FY 2013	FY 2014	FY 2015	FY 2016	Complete	Total Cost	
MB1: ADV DIAGNOSTICS &	1.593	-	-	_	_	_	_	_	_	Continuing	Continuing	
THERAPEUTIC DIG TECH												

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for Advanced Diagnostic and Therapeutic Digital Technologies development.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
Title: Advanced Diagnostic and Therapeutic Digital Technologies	1.593	-	-
Description: This is a Congressional Interest Item.			
FY 2010 Accomplishments: Advanced Diagnostic and Therapeutic Digital Technologies			
Accomplishments/Planned Programs Subtotals	1.593	-	-

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

Army Page 19 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Jus	tification: PE	3 2012 Army	/						DATE: Feb	ruary 2011	
APPROPRIATION/BUDGET ACTIV 2040: Research, Development, Tes BA 3: Advanced Technology Develo			TURE AL ADVANCE	ĒD		MB3: CENTER FOR INTEGRATION OF MEDICINE & INNOV TECH					
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MB3: CENTER FOR INTEGRATION OF MEDICINE & INNOV TECH	8.953	-	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for the Center for the Integration of Medicine and Innovative Technology.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
Title: Center for the Integration of Medicine and Innovative Technology (CIMIT) research	8.953	-	-
Description: This is a Congressional Interest item.			
FY 2010 Accomplishments: Center for the Integration of Medicine and Innovative Technology (CIMIT) research			
Accomplishments/Planned Programs Subtotals	8.953	-	-

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

Army Page 20 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Justi	hibit R-2A, RDT&E Project Justification: PB 2012 Army								DATE: February 2011		
APPROPRIATION/BUDGET ACTIVI 2040: Research, Development, Test BA 3: Advanced Technology Develop	R-1 ITEM N PE 0603002 TECHNOLO	2A: <i>MEDICA</i>		ĒD		PROJECT MG5: NATIONAL FUNCTIONAL GENOMICS CENTER (CA)					
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MG5: NATIONAL FUNCTIONAL GENOMICS CENTER (CA)	5.968	-	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for Functional Genomics.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012	
Title: National Functional Genomics Center	5.968	-	-	
Description: This is a Congressional Interest Item.				
FY 2010 Accomplishments: National Functional Genomics Center				
Accomplishments/Planned Programs Subtotals	5.968	-	_	

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

Army Page 21 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Jus	tification: PE	3 2012 Army	,						DATE: February 2011		
APPROPRIATION/BUDGET ACTIV 2040: Research, Development, Tes BA 3: Advanced Technology Develo	PE 0603000 TECHNOLO	2A: MEDICA	TURE AL ADVANCE	ĒD	PROJECT MI4: ALLIA	PROJECT MI4: ALLIANCE FOR NANOHEALTH (CA)					
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MI4: ALLIANCE FOR NANOHEALTH (CA)	3.979	-	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for the Alliance for NanoHealth.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
Title: Alliance for NanoHealth	3.979	-	-
Description: This is a Congressional Interest Item.			
FY 2010 Accomplishments: Alliance for NanoHealth			
Accomplishments/Planned Programs Subtotals	3.979	-	_

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

Army Page 22 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Just	tification: PE	3 2012 Army	•						DATE : Feb	ruary 2011	
APPROPRIATION/BUDGET ACTIV 2040: Research, Development, Test BA 3: Advanced Technology Develo			TURE AL ADVANCE	ĒD	PROJECT MJ2: FIBRINOGEN BANDAGES FOR BATTLEFIELD WOUNDS (CA))R			
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MJ2: FIBRINOGEN BANDAGES FOR BATTLEFIELD WOUNDS (CA)	2.388	-	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for Fibrin Adhesive Stat (FAST) Dressing technology development.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
Title: Fibrin Adhesive Stat (FAST) Dressing	2.388	-	-
Description: This is a Congressional Interest Item.			
FY 2010 Accomplishments: Fibrin Adhesive Stat (FAST) Dressing			
Accomplishments/Planned Programs Subtotals	2.388	-	-

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

Army Page 23 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Just	ification: PE	3 2012 Army	•						DATE: Feb	ruary 2011	
APPROPRIATION/BUDGET ACTIV	ITY		•	R-1 ITEM N	IOMENCLA [*]	TURE	•	PROJECT			
2040: Research, Development, Test				PE 0603002	2A: <i>MEDICA</i>	AL ADVANCE	ĒD	MK8: PLAS	MA STERIL	IZER (CA)	
BA 3: Advanced Technology Develo	pment (ATD)			TECHNOLO	OGY						
COST (\$ in Millions)			FY 2012	FY 2012	FY 2012					Cost To	
COST (\$ in Millions)	FY 2010	FY 2011	Base	oco	Total	FY 2013	FY 2014	FY 2015	FY 2016	Complete	Total Cost
MK8: PLASMA STERILIZER (CA)	2.387	-	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for Plasma Sterilizer advanced technology development.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
Title: Plasma Sterilizer	2.387	-	-
Description: This is a Congressional Interest Item.			
FY 2010 Accomplishments: Plasma Sterilizer			
Accomplishments/Planned Programs Subtotals	2.387	-	-

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

Army Page 24 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Just	ification: PE	3 2012 Army	•						DATE: Feb	ruary 2011	
APPROPRIATION/BUDGET ACTIV 2040: Research, Development, Test BA 3: Advanced Technology Develo	& Evaluation	•		R-1 ITEM N PE 0603000 TECHNOLO	2A: <i>MEDICA</i>	TURE LL ADVANCE	ΞD		OIER-MOUN' SYSTEM (C	TED EYE-TF CA)	RACKING &
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ML3: SOLDIER-MOUNTED EYE- TRACKING & CONTROL SYSTEM (CA)	3.482	-	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for Biosensor Communicator and Controller System advanced technology development.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
Title: Biosensor Communicator and Controller System	3.482	-	-
Description: This is a Congressional Interest Item.			
FY 2010 Accomplishments: Biosensor Communicator and Controller System			
Accomplishments/Planned Programs Subtotals	3.482	-	-

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

Army Page 25 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Just	ification: PB	2012 Army	,						DATE: Feb	ruary 2011	
APPROPRIATION/BUDGET ACTIV 2040: Research, Development, Test BA 3: Advanced Technology Develo	& Evaluation			R-1 ITEM N PE 0603002 TECHNOLO	2A: MEDICA		ED.	PROJECT MM2: MED INITIATIVE		NCE TECHN	OLOGY
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MM2: MEDICAL ADVANCE TECHNOLOGY INITIATIVES (CA)	231.980	-	-	-	-	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Congressional Interest Item funding for Medical Advanced Technology Initiatives.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012
Title: Cellular Therapy for Battlefield Medical Care.	2.785	-	-
Description: Funding is provided for the following effort			
FY 2010 Accomplishments:			
This is a Congressional Interest Item.			
Title: Center for Genetic Origins of Cancer.	1.990	-	-
Description: Funding is provided for the following effort			
FY 2010 Accomplishments:			
This is a Congressional Interest Item.			
Title: Combat Wound Initiative at Walter Reed Army Medical Center.	2.387	-	-
Description: Funding is provided for the following effort			
FY 2010 Accomplishments:			
This is a Congressional Interest Item.			
Title: Human Genomics, Molecular Epidemiology and Clinical Diagnostics for Infectious Diseases.	1.194	-	-
Description: Funding is provided for the following effort			
FY 2010 Accomplishments:			
This is a Congressional Interest Item.			
Title: Medical Surveillance Initiative-Clinical Looking Glass.	1.194	-	-
Description: Funding is provided for the following effort			

Army Page 26 of 48 R-1 Line Item #30

	UNULASSII ILD			
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: Fe	bruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV. INITIATIVES (CA)	ANCE TECH	NOLOGY
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: National Oncogenomics and Molecular Imaging Center.		4.735	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Neuroimaging & Neuropsychiatric Trauma in US Warfighter	S.	6.217	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Telepharmacy Robotic Medicine Device Unit.		0.796	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Institute for the Advancement of Bloodless Medicine.		1.485	_	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: National Biodefense Training.		4.974	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Rugged Electronic Textile Vital Signs Monitoring.		2.387	_	-
Description: Funding is provided for the following effort				
			I	I

UNCLASSIFIED

Army Page 27 of 48 R-1 Line Item #30

	UNULASSII ILD			
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: Fe	bruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV. INITIATIVES (CA)	ANCE TECH	VOLOGY
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Trauma Care, Research and Training.		2.387	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Maine Institute for Human Genetics.		1.592	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Institute for Regenerative Medicine.		3.183	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: National Center of Opthalmology Training and Education a	al Wills Eye Health System.	2.387	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Rural Health - CERMUSA.		1.592	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Spinal Muscular Atrophy (SMA) Research Program.		2.984	-	-
Description: Funding is provided for the following effort				
			I	I

UNCLASSIFIED

	UNCLASSIFIED			
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: Fe	bruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV. INITIATIVES (CA)	ANCE TECHI	NOLOGY
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Advanced Lower Limb Prosthesis for Battlefield Amputees	5.	3.183	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Advanced Restoration Therapies in Spinal Cord Injuries.		1.592	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Prader-Willi Syndrome (PWS) Research.		1.592	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Remote Bio-Medical Detector.		2.785	_	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Advanced Regenerative Medicine Therapies for Combat In	njuries.	3.183	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Chronic Tinnitus Treatment Program.		0.796	-	-
Description: Funding is provided for the following effort				
		The state of the s	1	

Army Page 29 of 48 R-1 Line Item #30

	ONOLAGOII ILD			
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: Fe	bruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV INITIATIVES (CA)	ANCE TECHI	NOLOGY
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Bioelectrics Research for Casualty Care and Management.		1.194	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Advanced Medical Multi-Missions and CASEVAC Roles.		0.796	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Brain Interventional-Surgical Hybrid Initiative.		2.387	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: 101st Airborne Injury Prevention & Performance Enhancem	ent Research Initiative.	2.984	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Blood, Medical & Food Safety Via Eco-Friendly Wireless Se	ensing.	1.592	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: International Heart Institute/U.S. Army Vascular Graft Rese	arch Project.	1.592	-	-
Description: Funding is provided for the following effort				
		l l	I .	I .

Army Page 30 of 48 R-1 Line Item #30

	UNCLASSIFIED			
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: F	ebruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV INITIATIVES (CA)	ANCE TECH	NOLOGY
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Military Burn Trauma Research Program.		4.477	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Military Nutrition Research: Personnel Readiness and Wa	rfighter Performance.	0.796	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Staph Vaccine.		6.367	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Linear Accelerator Cancer Research.		0.796	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Midwest Traumatic Injury Rehabilitation Center.		1.162	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Oncology Group Pediatric Cancer Research (CH).		1.592	-	-
Description: Funding is provided for the following effort				
		I	1	1

Army Page 31 of 48 R-1 Line Item #30

	UNULASSII ILD			
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: Fe	bruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV INITIATIVES (CA)	ANCE TECH	NOLOGY
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Strattice Dermal Matrix Research.		1.990	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Battlefield Nursing Program.		1.592	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Medical Errors Reduction Initiative.		1.990	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Personal Status Monitor (Nightengale).		0.796	_	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Advanced Cancer Genome Institute.		1.989	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Advanced Military Wound Healing Research and Treatme	nt.	0.796	-	-
Description: Funding is provided for the following effort				
			l	I

UNCLASSIFIED

Army Page 32 of 48 R-1 Line Item #30

	UNCLASSIFIED			
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: Fe	bruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV. INITIATIVES (CA)	PROJECT MM2: MEDICAL ADVANCE TECHNOLOGY	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: ALS Therapy Development for Gulf War Research.		1.592	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Anti-Microbial Bone Graft Product.		1.592		- -
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Antioxidant Micronutrient Therapeutic Countermeasures.		0.796	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Automated Portable Field System f/Rapid Detection & Dia	gnosis of Endemic Diseases & Other Pathogens.	1.592	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Battlefield Related Injury Translational Research Strategie	S.	1.791	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Bio-Printing of Skin for Battlefield Burn Repairs.		1.990	-	-
Description: Funding is provided for the following effort				
1			1	I

UNCLASSIFIED

	ONOLAGON ILD			
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: Fe	bruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV. INITIATIVES (CA)	ROJECT M2: MEDICAL ADVANCE TECHNOLOGY	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Bio-Surveillance in a Highly Mobile Population.		1.592	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Blood and Bone Marrow Collection Fellowship.		1.990	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Brain Safety Net.		2.387	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Breast Cancer Medical Information Network Decision Supp	port.	0.796	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Center for Cancer Immunology Research.		1.592	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Center of Excellence in Infectious Diseases and Human M	licrobiome.	2.387	-	-
Description: Funding is provided for the following effort				
			l .	1

Army Page 34 of 48 R-1 Line Item #30

	UNCLASSIFIED			
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: Fe	bruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV. INITIATIVES (CA)	PROJECT MM2: MEDICAL ADVANCE TECHNOLOGY	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Clinical Development of a Norovirus Gastroenteritis Vaccin	ne.	3.581	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Clinical Technology Integration for Military Health.		1.591	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Collagen-Based Wound Dressing.		0.796	0.796 -	
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Cooperative International Neuromuscular Research.		3.263	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Countermeasures to Hemorrhaging (Liquid Bandage and Tissue Rengeneration).		5.730	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Customized Nursing Programs for Fort Benning.		1.592	-	-
Description: Funding is provided for the following effort				
		l l	I .	I .

UNCLASSIFIED

Army Page 35 of 48 R-1 Line Item #30

	UNCLASSIFIED			
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: Fe	bruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV. INITIATIVES (CA)	OJECT 2: MEDICAL ADVANCE TECHNOLOGY	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Enhancing Wound Healing, Tissue Regeneration, and Bio	marker Discovery.	1.990	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Exceptional Family Transition (EFTT) for Soldiers, Sailors, Marines, and Airmen.		0.637	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Health Disparaties in Troop Readiness.		7.958	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Highly Functional Neurally Controlled Skeletally Attached	and Intelligent Prosthetic Devises.	3.024	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Identification of Pain Mechanisms and Therapeutic Target	s.	0.796	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Imaging and Cognitive Evaluation of Soldiers.		0.637	-	-
Description: Funding is provided for the following effort				

Army Page 36 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: Fe	bruary 2011		
040: Research, Development, Test & Evaluation, Army PE 0603002A: MEDICAL ADVANCED MM2		PROJECT MM2: MEDICAL ADVANCE TECHNOLO INITIATIVES (CA)			
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012	
FY 2010 Accomplishments: This is a Congressional Interest Item.					
Title: Infection Prevention Program for Battlefield Wounds.		1.592	-	-	
Description: Funding is provided for the following effort					
FY 2010 Accomplishments: This is a Congressional Interest Item.					
Title: Infectious and Airborne Pathogen Reduction.		2.228	-	-	
Description: Funding is provided for the following effort					
FY 2010 Accomplishments: This is a Congressional Interest Item.					
Title: In-field Body Temperature Conditioner.		2.386	-	-	
Description: Funding is provided for the following effort					
FY 2010 Accomplishments: This is a Congressional Interest Item.					
Title: Institute for Simulation and Interprofessional Studies.		4.615	-		
Description: Funding is provided for the following effort					
FY 2010 Accomplishments: This is a Congressional Interest Item.					
Title: Integrated Patient Electronic Record System.		1.592	-	-	
Description: Funding is provided for the following effort					
FY 2010 Accomplishments: This is a Congressional Interest Item.					
Title: Intelligent Orthopedic Fracture Implant Program.		0.796	-		
Description: Funding is provided for the following effort					

UNCLASSIFIED

Page 37 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: Fe	bruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV INITIATIVES (CA)	ANCE TECHI	VOLOGY
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Malaria Vaccine Development.		3.978	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Marty Driesler Lung Cancer Project.		1.592	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Mass Casualty First Responders Disaster Surge Technological	ogy Program.	2.387	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Medical Biosurveillance and Efficiency Program.		1.592	_	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Microencapsulation and Vaccine Delivery Research.		0.796	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Military Drug Management System.		2.387	-	-
Description: Funding is provided for the following effort				

Army Page 38 of 48 R-1 Line Item #30

	UNCLASSIFIED			
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: Fe	bruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV. INITIATIVES (CA)	ANCE TECHI	NOLOGY
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Military Medical Decontamination System.		4.477	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Military Mental Health Initiative.		0.597	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Military Pediatric Training and Support.		3.979	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Mission Hospital Computerized Physician Order Entry.		0.796	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
<i>Title:</i> Mobile Aerosol Monitoring for the Department of Defense.		1.194	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Mobile Integrated Diagnostic and Data Analysis System (N	MIDDAS).	1.592	-	-
Description: Funding is provided for the following effort				
1			I .	I .

UNCLASSIFIED

Army Page 39 of 48 R-1 Line Item #30

	UNCLASSIFIED			
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: F	ebruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL AD INITIATIVES (CA)	VANCE TECH	NOLOGY
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Multi-Dose Closed Loop pH Monitoring System for Platele	ts.	1.59	1 -	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Multiplexed Human Fungal Infection Diagnostic.		1.59	2 -	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Musculoskeletal Interdisciplinary Research Initiative.		1.59	2 -	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: NAU-TGen North Dangerous Pathogens DNA Forensics (Center Upgrades.	1.59	2 -	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Near Infrared Spectroscopy Military Personnel Assessmen	nt.	0.79	ŝ -	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Neural Control of External Devices.		1.99	-	-
Description: Funding is provided for the following effort				

Army Page 40 of 48 R-1 Line Item #30

	ONGE/ (OOII IED			
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: Fe	bruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV. INITIATIVES (CA)	ANCE TECHI	VOLOGY
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Nicholson center for Surgical Advancement Medical Robo	tics and Simulation.	4.178	-	_
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Nurse Education Center of Excellence for Remote and Me	edically Underserved Populations (CERMUSA).	1.592	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Nursing Teaching and Leadership Program.		0.796	-	_
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Operation Re-Entry NC.		2.387	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Parsons Institute for Information Mapping.		1.194	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Pride Center for America's Wounded Veterans.		1.592	-	-
Description: Funding is provided for the following effort				
			I	I

Army Page 41 of 48 R-1 Line Item #30

	UNCLASSIFIED			
Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATE: F	ebruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV INITIATIVES (CA)	ANCE TECH	NOLOGY
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Rapid Burn Wound Therapies.		1.989	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Regenerative Medicine to Address Acute Hearing Loss.		2.386	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Sensor Tape Physiological Monitoring.		1.990	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Silicon Nanomaterial for Battlefield Medical Devices.		2.787	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Smart Wound Dressing for MRSA-Infected Battle Wounds.		0.796	-	-
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Stress Disorders Research Initiative at Fort Hood.		2.387	-	-
Description: Funding is provided for the following effort				

Army Page 42 of 48 R-1 Line Item #30

	DATE: Fe	ebruary 2011	
R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT MM2: MEDICAL ADV. INITIATIVES (CA)	ANCE TECH	VOLOGY
	FY 2010	FY 2011	FY 2012
lowing Combat Injury.	1.990	-	-
	0.955	-	-
	1.592	-	-
Applications.	0.796	-	-
	1.194	-	-
	0.359	-	-
	PE 0603002A: MEDICAL ADVANCED TECHNOLOGY Iowing Combat Injury.	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY NITIATIVES (CA)	PE 0603002A: MEDICAL ADVANCED MM2: MEDICAL ADVANCE TECHI INITIATIVES (CA)

Army Page 43 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army		DATF: Fa	hruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	PROJECT EED MM2: MEDICAL ADVANCE TECHNO INITIATIVES (CA)		
B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012	
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Vanadium Safety Readiness.		3.342	-	
Description: Funding is provided for the following effort				
FY 2010 Accomplishments: This is a Congressional Interest Item.				
Title: Human Organ and Tissue Preservation Technology		1.592	-	
Description: This is a Congressional Interest Item.				
FY 2010 Accomplishments: Human Organ and Tissue Preservation Technology				
Title: Battlefield Exercise and Combat Related Spinal Cord Injury Research			-	
Description: This is a Congressional Interest Item.				
FY 2010 Accomplishments: Battlefield Exercise and Combat Related Spinal Cord Injury Res	earch			
Title: High Performance Computing in Biomedical Engineering a	and Health Sciences	1.194	-	
Description: This is a Congressional Interest Item.				
FY 2010 Accomplishments: High Performance Computing in Biomedical Engineering and He	ealth Sciences			
Title: Fighting Combat-related Fatigue Syndrome		0.796	-	
Description: This is a Congressional Interest Item.				
FY 2010 Accomplishments: Fighting Combat-related Fatigue Syndrome				
	Accomplishments/Planned Prograi	ms Subtotals 231.980	-	

Army Page 44 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army	DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY	R-1 ITEM NOMENCLATURE	PROJECT
2040: Research, Development, Test & Evaluation, Army	PE 0603002A: MEDICAL ADVANCED	MM2: MEDICAL ADVANCE TECHNOLOGY
BA 3: Advanced Technology Development (ATD)	TECHNOLOGY	INITIATIVES (CA)
0.04 5 5 11 0 (0.1 141111)		·

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

Page 45 of 48 R-1 Line Item #30 Army

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army						DATE: Febr	uary 2011				
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)				IOMENCLA 2A: <i>MEDICA</i> DGY		ED.		FIGHTER M MANCE STL		OTECTION	
COST (\$ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MM3: WARFIGHTER MEDICAL PROTECTION & PERFORMANCE STDS	6.326	7.347	9.324	-	9.324	11.076	11.897	14.556	15.013	Continuing	Continuing

A. Mission Description and Budget Item Justification

This project supports the Medical and Survivability technology areas of the future force with laboratory validation studies and field demonstrations of biomedical products designed to protect, sustain, and enhance Soldier performance in the face of a myriad of environmental, physiological stressors, and materiel hazards encountered in training and operational environments. This effort focuses on demonstrating and transitioning technologies as well as validated tools associated with biomechanical-based health risks, injury assessment and prediction, Soldier survivability, and performance during continuous operations. The three main thrust areas are (1) Physiological Health and Environmental Protection, (2) Injury Prevention and Reduction, and (3) Psychological Health and Resilience.

This project contains no duplication with any effort within the Military Departments, and includes direct participation by other Services.

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 Research Institute of Environmental Medicine (USARIEM), Natick, MA, and the US Army Aeromedical Research Laboratory (USAARL), Fort Rucker, AL.

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2010	FY 2011	FY 2012	
Title: Physiological Health and Environmental Protection (Sleep Research/Environmental Monitoring)	2.109	2.608	1.603	
Description: This effort supports development of laboratory products, interventions, and decision aids for the validation of physiological status and prediction of Soldier performance in extreme environments.				
FY 2010 Accomplishments: Transitioned heat strain decision aid to the United States Army Ranger School which will provide a more comprehensive risk assessment tool for heat-related injury in the training environment; refined sensor technologies for prediction of heat injuries; refined computational model for predicting performance affected by chronic sleep restriction in the operational environment.				
FY 2011 Plans:				

Army Page 46 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: Fe	bruary 2011	
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY		T ARFIGHTER DRMANCE S		ROTECTION
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2010	FY 2011	FY 2012
Validate the next generation of individual physiological sensors for advanced evaluations of a computational model for predicting perfenvironment.					
FY 2012 Plans: Complete field studies of the heat strain decision-aid with the US A training; validate a computational model for predicting performance environment.					
Title: Environmental Health and Protection - Physiological Awarer	ness Tools and Warrior Sustainment in Extreme Envi	ronments	-	-	1.544
Description: This effort supports development of non-invasive teconometric protection and sustainment across the operational spectrum.	chnologies, decision-aid tools, and models to enhanc	e Warrior			
FY 2012 Plans: Will validate and transition non-invasive hydration assessment ser	nsors to the advanced development program.				
Title: Injury Prevention and Reduction (Physical Performance Enh	nancement)		3.320	3.345	3.598
Description: This effort supports validation of injury prediction too ballistic impact.	ols for brain, spine, and thoracic injury from blast, blu	nt, and			
FY 2010 Accomplishments: Field evaluated loading assessment system for the prediction of sydecrement models by comparing with data obtained from large an evaluations based on common Soldiering tasks.					
FY 2011 Plans: Validate safe, rapid assessment criteria for spinal injury risk predict models and injury risk functions using an instrumented headform; and toxic gas inhalation; refine analysis tools which can use non-	transition integrated software version for combined b	lunt trauma			
FY 2012 Plans: Will validate software that accounts for the effects of clothing and lestimate lung, heart, and rib injury from blunt trauma due to debris selected elements of neurosensory performance assessment batter.	s impact (secondary blast injury); will validate the effe				
Title: Psychological Health and Resilience			0.897	1.394	2.579
		·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·

UNCLASSIFIED

Army Page 47 of 48 R-1 Line Item #30

Exhibit R-2A, RDT&E Project Justification: PB 2012 Army			DATE: February 2011		
APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 3: Advanced Technology Development (ATD)	R-1 ITEM NOMENCLATURE PE 0603002A: MEDICAL ADVANCED TECHNOLOGY	MM3: <i>WA</i>	PROJECT MM3: WARFIGHTER MEDICAL PROTECTION & PERFORMANCE STDS		
B. Accomplishments/Planned Programs (\$ in Millions)			FY 2010	FY 2011	FY 2012
Description: This effort supports validation of neurocognitive as preclinical methods to treat Post-Traumatic Stress Disorder in a	• •	te tools and			
FY 2010 Accomplishments: Conducted field study to determine the extent to which baseline sensitivity to concussion.	psychological and neurological functioning impacts re	esilience and			
FY 2011 Plans: Validate utility of neurocognitive measures for tracking and monitorial Traumatic Stress Disorder model using current treatment metho	· ·	: Post-			
FY 2012 Plans: Will determine effectiveness of various treatment modalities (e.g scoring guidelines for revisions to the Post-Deployment Health A		•			
	Accomplishments/Planned Program	ms Subtotals	6.326	7.347	9.324

C. Other Program Funding Summary (\$ in Millions)

N/A

D. Acquisition Strategy

N/A

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.

Army Page 48 of 48 R-1 Line Item #30