THE ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, DC 20301-1200

HEALTH AFFAIRS

MAY 13 2008

The Honorable David R. Obey
Chairman, Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515–6015

Dear Mr. Chairman:

This letter forwards the enclosed report in response to the request in Conference Report 110-434, accompanying the Department of Defense Appropriations Act for Fiscal Year 2008, for the Secretary of Defense to provide a report on the status of the Peer Reviewed Medical Research Program.

The Peer Reviewed Medical Research Program provides support for military health-related research of clear scientific merit. Proposals are solicited via a supplement to the U.S. Army Medical Research and Materiel Command (USAMRMC) Broad Agency Announcement and undergo scientific (peer) and programmatic (military relevance, cost/benefit, and program balance) reviews.

Proposals will be solicited through four award mechanisms. Supplements to the USAMRMC Broad Agency Announcements will be released shortly with proposals due in June. The two-tiered scientific and programmatic proposal review process will occur in August and October 2008, respectively.

Thank you for your continued support of the Military Health System.

Sincerely,

S. Ward Casscells, MD

Enclosure:
As stated

cc:
The Honorable Jerry Lewis
Ranking Member

THE ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, DC 20301-1200

HEALTH AFFAIRS

MAY 13 2008

The Honorable Daniel K. Inouye
Chairman, Subcommittee on Defense
Committee on Appropriations
United States Senate
Washington, DC 20510–6028

Dear Mr. Chairman:

This letter forwards the enclosed report in response to the request in Conference Report 110-434, accompanying the Department of Defense Appropriations Act for Fiscal Year 2008, for the Secretary of Defense to provide a report on the status of the Peer Reviewed Medical Research Program.

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Sincerely,

S. Ward Casscells, MD

Enclosure:
As stated

cc:
The Honorable Ted Stevens
Ranking Member

THE ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, DC 20301-1200

HEALTH AFFAIRS

MAY 13 2008

The Honorable Robert C. Byrd
Chairman, Committee on Appropriations
United States Senate
Washington, DC 20510–6025

Dear Mr. Chairman:

This letter forwards the enclosed report in response to the request in Conference Report 110-434, accompanying the Department of Defense Appropriations Act for Fiscal Year 2008, for the Secretary of Defense to provide a report on the status of the Peer Reviewed Medical Research Program.

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Sincerely,

S. Ward Casscells, MD

Enclosure:
As stated

cc:
The Honorable Thad Cochran
Ranking Member

THE ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, DC 20301-1200

HEALTH AFFAIRS

MAY 13 2008

The Honorable Susan Davis
Chairwoman, Subcommittee on Military Personnel
Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515–6035

Dear Madam Chairwoman:

This letter forwards the enclosed report in response to the request in Conference Report 110-434, accompanying the Department of Defense Appropriations Act for Fiscal Year 2008, for the Secretary of Defense to provide a report on the status of the Peer Reviewed Medical Research Program.

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Sincerely,

S. Ward Casscells, MD

Enclosure:
As stated

cc:
The Honorable John M. McHugh
Ranking Member

THE ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, DC 20301-1200

HEALTH AFFAIRS

MAY 13 2008

The Honorable Ben Nelson
Chairman, Subcommittee on Personnel
Committee on Armed Services
United States Senate
Washington, DC 20510–6050

Dear Mr. Chairman:

This letter forwards the enclosed report in response to the request in Conference Report 110-434, accompanying the Department of Defense Appropriations Act for Fiscal Year 2008, for the Secretary of Defense to provide a report on the status of the Peer Reviewed Medical Research Program.

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Sincerely,

S. Ward Casscells, MD

Enclosure:
As stated

cc:
The Honorable Lindsey O. Graham
Ranking Member

THE ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, DC 20301-1200

HEALTH AFFAIRS

MAY 13 2008

The Honorable Carl Levin
Chairman, Committee on Armed Services
United States Senate
Washington, DC 20510–6050

Dear Mr. Chairman:

This letter forwards the enclosed report in response to the request in Conference Report 110-434, accompanying the Department of Defense Appropriations Act for Fiscal Year 2008, for the Secretary of Defense to provide a report on the status of the Peer Reviewed Medical Research Program.

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Sincerely,

S. Ward Casscells, MD

Enclosure:
As stated

cc:
The Honorable John McCain
Ranking Member

THE ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, DC 20301-1200

HEALTH AFFAIRS

MAY 13 2008

The Honorable Ike Skelton
Chairman, Committee on Armed Services
U.S. House of Representatives
Washington, DC 20515–6035

Dear Mr. Chairman:

This letter forwards the enclosed report in response to the request in Conference Report 110-434, accompanying the Department of Defense Appropriations Act for Fiscal Year 2008, for the Secretary of Defense to provide a report on the status of the Peer Reviewed Medical Research Program.

The Peer Reviewed Medical Research Program provides support for military health-related research of clear scientific merit. Proposals are solicited via a supplement to the U.S. Army Medical Research and Materiel Command (USAMRMC) Broad Agency Announcement and undergo scientific (peer) and programmatic (military relevance, cost/benefit, and program balance) reviews.

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Thank you for your continued support of the Military Health System.

Sincerely,

S. Ward Casscells, MD

Enclosure:
As stated

cc:
The Honorable Duncan Hunter
Ranking Member

THE ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, DC 20301-1200

HEALTH AFFAIRS

MAY 13 2008

The Honorable John P. Murtha
Chairman, Subcommittee on Defense
Committee on Appropriations
U.S. House of Representatives
Washington, DC 20515–6018

Dear Mr. Chairman:

This letter forwards the enclosed report in response to the request in Conference Report 110-434, accompanying the Department of Defense Appropriations Act for Fiscal Year 2008, for the Secretary of Defense to provide a report on the status of the Peer Reviewed Medical Research Program.

The Peer Reviewed Medical Research Program provides support for military health-related research of clear scientific merit. Proposals are solicited via a supplement to the U.S. Army Medical Research and Materiel Command (USAMRMC) Broad Agency Announcement and undergo scientific (peer) and programmatic (military relevance, cost/benefit, and program balance) reviews.

Proposals will be solicited through four award mechanisms. Supplements to the USAMRMC Broad Agency Announcements will be released shortly with proposals due in June. The two-tiered scientific and programmatic proposal review process will occur in August and October 2008, respectively.

Thank you for your continued support of the Military Health System.

Sincerely,

S. Ward Casscells, MD

Enclosure:
As stated

cc:
The Honorable C. W. Bill Young
Ranking Member

REPORT TO THE US CONGRESS

PEER REVIEWED MEDICAL RESEARCH PROGRAM

March 3, 2008

Peer Reviewed Medical Research Program
Report to Congress

TABLE OF CONTENTS

PURPOSE OF REPORT

This report provides the status of the US Army Medical Research and Materiel Command (USAMRMC) Peer Reviewed Medical Research Program (PRMRP), formerly called Defense Health Research Program (fiscal years 1999–2000 [FY99–00]). The PRMRP was established by Congress in FY99 to fund medical research projects that have direct relevance to military health. This report provides the PRMRP status through the initiation of the FY08 program.

EXECUTIVE SUMMARY

INTRODUCTION

The Peer Reviewed Medical Research Program (PRMRP), which was originally titled Defense Health Research Program (fiscal years 1999–2000 [FY99–00]), was created by Congress in FY99 to provide support for military health-related research of clear scientific merit. The US Army Medical Research and Materiel Command (USAMRMC) is the Executive Agent for the PRMRP. The PRMRP is managed by the USAMRMC Office of the Congressionally Directed Medical Research Programs (CDMRP). The FY99–06 PRMRP congressional appropriation totaled $344.5 million (M), which supported a diverse portfolio consisting of 247 projects. The program was continued in FY08 with total appropriations to date of $394.5M (FY99–06; FY08). Proposals are solicited via a supplement to the USAMRMC Broad Agency Announcement and undergo scientific peer review and programmatic review. Proposals that address the unique focus and goals of the PRMRP most effectively are recommended for funding to the Commanding General (CG), USAMRMC, by a Joint Programmatic Review Panel. Following approval by the CG, USAMRMC, the US Army Medical Research Acquisition Activity negotiates awards.

FY08

In FY08, $50M was appropriated to the PRMRP. A total of 21 topic areas was recommended by Congress: Amyotrophic Lateral Sclerosis; Alcoholism Research; Blood Cancer; Drug Abuse; Epilepsy Research; Eye and Vision Research; Integrated Tissue Hypoxia Research; Interstitial Cystitis; Inflammatory Bowel Diseases; Leishmaniasis; Lupus; Kidney Cancer; Mesothelioma; Multiple Sclerosis; Nutrition and Health Promotion; Paget's Disease; Polycystic Kidney Disease; Pulmonary Hypertension; Scleroderma; Social Work Research; and Tinnitus. Proposals will be solicited through four award mechanisms. Supplements to the USAMRMC BAA will be released in March 2008. The deadline for proposal receipt will be in June 2008. A two-tier proposal review process will occur in August and October 2008, respectively.

FY06

In FY06, $50M was appropriated to the PRMRP. A total of 21 topic areas was recommended by Congress: Advanced Proteomics; Alcoholism Research; Autism; Blood-Related Cancer Research such as Leukemia, Lymphoma, and Multiple Myeloma; Childhood Asthma; Chronic Pain and Fatigue Research; Childhood Cancer Research; Diabetes Research; Duchenne's Disease Research; Eye and Vision Research; Fibromyalgia; Interstitial Cystitis Syndrome; Kidney Cancer Research; Lupus Research; Osteoporosis and Bone-Related Diseases; Polycystic Kidney Disease; Pulmonary Hypertension; Paget's Disease; Post-Traumatic Stress Disorders; Social Work Research; and Autoimmune Diseases such as Scleroderma and Sjögren's Syndrome. The Office of the Assistant Secretary of Defense for Health Affairs (OASD[HA]) added the topic area Military Relevant Disease Management. A total of 651 proposals was received in May 2006 and underwent peer review and programmatic review in July and September 2006, respectively. A total of 51 proposals was approved for funding by the CG, USAMRMC.

FY99–FY05

The total FY99–FY05 PRMRP congressional appropriation was $294.5M. During that period, proposals were solicited in 15, 18, 31, 25, 28, 23, and 21 topic areas, respectively. Following scientific peer review and programmatic review, a total of 196 proposals was approved for funding by the CG, USAMRMC. A portion of FY99 and FY01 PRMRP funds was assigned by the OASD(HA) for management outside the CDMRP. In FY99, $4M was assigned to the Brooke Army Medical Center to support a Chronic Disease Management Project focusing on congestive heart failure. Management responsibility for the project was assigned to the USAMRMC Office of Telemedicine and Advanced Technology Research Center (TATRC). In FY01, $10M was assigned to the Naval Health Research Center to support the Department of Defense portion of the Leadership and Investment in Fighting an Epidemic Initiative. Management responsibility for this project was assigned to the Navy Bureau of Medicine and Surgery (BUMED) and implemented at the Naval Health Research Center in San Diego.

PROGRESS AND ACCOMPLISHMENTS

A number of the FY99–FY05 funded projects, those managed by the CDMRP and those managed by TATRC and BUMED, have already produced interesting research outcomes relevant to military health issues. These projects range from basic research to technology development and cover more than 60 topic areas including: Childhood Asthma, Military Relevant Disease Management, Pre-clinical and Clinical Activities of the Novonex/Ex-Rad Drugs (radiation protection), Respiratory Research, Anti-Diarrhea Supplement, Chronic Pain, Lupus, and Lupus-Biomarker Research.

Examples of productive research on disease etiology performed by PRMRP-supported researchers include: improved understanding of the mechanisms of eosinophilia in asthma that may lead to the development of new treatment options; identification of lupus-specific gene expression signatures that may be used for clinical management of lupus; and a study of the mechanism of iron involvement in acute respiratory distress syndrome. PRMRP research projects have resulted in the development of new treatment options such as new formulations of nonsteroidal anti-inflammatory drugs (NSAIDs) with lower levels of debilitating side effects; an oral immunoprophylactic for enterotoxic *Escherichia coli*; use of vasopressin to successfully treat septic shock; and studies of the efficacy of treating spinal cord injuries with stereotactic radiation alone or in combination with methylprednisolone. The PRMRP addressed a significant threat to the United States military by supporting preclinical studies of the Novonex/Ex-Rad drug 4-carboxystyrl-4-chlorobenzylsulfone to determine its efficacy as a preventive medical countermeasure for future lethal radiation exposures.

SUMMARY

The PRMRP continues to fulfill congressional intent by funding research of clear scientific merit with direct relevance to the health of the warfighter and the military family and the American public. The FY99–FY06 PRMRP congressional appropriation, which totaled $344.5M, has provided funding for 247 projects in 69 topic areas. Many projects funded by the PRMRP have begun to yield combat health support technologies and products in the areas of Combat Casualty Care, Military Infectious Diseases, Military Operational Medicine, and Medical Chemical and Biological Defense, thus complementing the current USAMRMC Core priorities. The FY08

PRMRP is under way and is expected to continue supporting exciting new scientific research, the development of agents and devices for therapeutic and diagnostic use, and the transition of products to clinical use and field deployment.

FISCAL YEARS 1999–2008
PEER REVIEWED MEDICAL RESEARCH PROGRAM

I. INTRODUCTION

The Peer Reviewed Medical Research Program (PRMRP) was created by Congress in fiscal year 1999 (FY99) to provide support for military health-related research of clear scientific merit. The program was continued through FY06 and in FY08 with total appropriations of $394.5 million (M) (FY99–FY06; FY08) via Defense Health Programs; Research, Development, Test and Evaluation (DHP, RDT&E). The US Army Medical Research and Materiel Command (USAMRMC) was selected by the Office of the Assistant Secretary of Defense for Health Affairs [(ASD(HA)] as Executive Agent for this program through Joint Services coordination and the specific recommendation of the Armed Services Biomedical Research Evaluation and Management Committee. The PRMRP is managed through the USAMRMC Office of the Congressionally Directed Medical Research Programs (CDMRP). The administrative process includes establishing a yearly execution strategy and programmatic priorities that include scientific merit and military relevance. The management strategy is established by an interagency Joint Programmatic Review Panel (JPRP), which consists of representatives from the Army, Air Force, Navy, Marine Corps, Office of the ASD(HA), and Departments of Veterans Affairs and Health and Human Services. Proposals for each year's program are solicited via a supplement to the USAMRMC Broad Agency Announcement (BAA). Following receipt, proposals undergo a review of their scientific merit (peer review), conducted by external scientific and clinical experts; programmatic review is conducted by the JPRP. The JPRP, through defined programmatic priorities, recommends proposals that most effectively address the unique focus and goals of the PRMRP for funding to the Commanding General (CG), USAMRMC (who holds final approval authority). Following approval by the CG, USAMRMC, awards are negotiated by the US Army Medical Research Acquisition Activity.

II. PROGRAM OVERVIEW

FY08

In FY08, $50M was appropriated to the PRMRP. A total of 21 topic areas was recommended by Congress: Amyotrophic Lateral Sclerosis; Alcoholism Research; Blood Cancer; Drug Abuse; Epilepsy Research; Eye and Vision Research; Integrated Tissue Hypoxia Research; Interstitial Cystitis; Inflammatory Bowel Diseases; Leishmaniasis; Lupus; Kidney Cancer; Mesothelioma; Multiple Sclerosis; Nutrition and Health Promotion; Paget's Disease; Polycystic Kidney Disease; Pulmonary Hypertension; Scleroderma; Social Work Research; and Tinnitus. Proposals will be solicited through four award mechanisms: (1) Investigator-Initiated Research, (2) Translational Research, (3) Advanced Technology/Therapeutic Development, and (4) Clinical Trial. Supplements to the USAMRMC BAA will be released March 2008. The deadline for proposal receipt will be June 2008. A two-tier proposal review process will occur in August and October 2008, respectively.

FY06

In FY06 $50M was appropriated to the PRMRP. The USAMRMC received funds for the PRMRP in February 2006. Proposals were solicited in the following 21 topic areas recommended by Congress: Advanced Proteomics; Alcoholism Research; Autism; Blood-Related Cancer Research such as Leukemia, Lymphoma, and Multiple Myeloma; Childhood Asthma; Chronic Pain and Fatigue Research; Childhood Cancer Research; Diabetes Research; Duchenne's Disease Research; Eye and Vision Research; Fibromyalgia; Interstitial Cystitis Syndrome; Kidney Cancer Research; Lupus Research; Osteoporosis and Bone-Related Diseases; Polycystic Kidney Disease; Pulmonary Hypertension; Paget's Disease; Post-Traumatic Stress Disorders; Social Work Research; and Autoimmune Diseases such as Scleroderma and Sjögren's Syndrome. The Office of the Assistant Secretary of Defense for Health Affairs (OASD[HA]) added the topic area Military Relevant Disease Management with special emphasis on antibiotic resistance; neurotoxicity of mefloquine; rehabilitation, face and/or eye injury; respiratory infection including associated respiratory disease; drug abuse; efficacy and subsequent clinical guidelines for the use of probenecid or other drugs to decrease dosage requirements of oseltamivir phosphate for the treatment of influenza; human performance optimization; radioprotectants; and mental health resiliency. A total of 651 proposals was received in May 2006 and underwent peer review and programmatic review in July and September 2006, respectively. A total of 51 proposals was approved for funding by the Commanding General (CG), USAMRMC. Detailed funding information regarding congressional appropriation and associated withholds, and proposals received and funded by topic area are provided in Tables I and II, respectively.

Table I: FY06 PRMRP Appropriation, Withholds, and Estimated Research and Management Costs

FY06 Appropriation	$50,000,000
Less: Congressional Rescission Small Business Innovation Research	($500,000) ($1,238,000)
Total Congressional/DOD withholds	($1,738,000)
Amount Received by USAMRMC	$48,262,000
Less: USAMRMC and Management Costs	($3,622,045)
Research	$44,639,955

Table II: FY06 PRMRP Funding Outcomes by Topic Area

Topic Areas	Proposals Received	Awards	Investment	Organization	Proposal Title
Advanced Proteomics	11	3	$2.7M	Geneva Foundation	Proteomic Study of Human Malaria Parasite Plasmodium vivax Liver Stages for Development of Vaccines and Drugs
				University of Nebraska Medical Center	Mass Spectrometry to Identify New Biomarkers of Nerve Agent Exposure
				University of Florida	Biochemical Markers of Brain Injury: An Integrated Proteomics-Based Approach
Alcoholism Research	21	2	$1.9M	University of Toronto	Elucidating the Susceptibility Mechanism of Alcoholic Pancreatitis: The SNARE Mechanism of Pathologic Basolateral Exocytosis
				Henry M. Jackson Foundation	Amphetamine Challenge: A Marker of Brain Function that Mediates Risk for Drug and Alcohol Abuse
Autism	12	1	$0.9M	University of North Carolina, Chapel Hill	Cortical-Cortical Interactions and Sensory Information Processing in Autism
Autoimmune Diseases such as Scleroderma and Sjögren's Syndrome	32	4	$3.7M	University of Texas Health Science Center at Houston	Candidate Gene Polymorphisms in Scleroderma: Defining Genetic Susceptibility Factors
				Creighton University	Impact of Erb-B Signaling on Myelin Repair in the CNS Following Virus-Induced Damage
				Drexel University	Modulation of Fibrosis in Scleroderma by 3-Deoxyglucosone
				University of Texas Health Science Center at Houston	The Integrative Studies of Genetic and Environmental Factors in Systemic Sclerosis
Blood-Related Cancer Research such as Leukemia, Lymphoma, and Multiple Myeloma	25	3	$2.4M	University of Texas M. D. Anderson Cancer Center	Second-Generation Therapeutic DNA Lymphoma Vaccines
				University of California, Davis	Targeted Lymphoma Cell Death by Novel Signal Transduction Modifications
				Baylor College of Medicine	Enhanced Eradication of Lymphoma by Tumor-Specific Cytotoxic T Cells Secreting an Engineered Tumor-Specific Immunotoxin
Childhood Asthma	5	0	N/A		

Topic Areas	Proposals Received	Awards	Investment	Organization	Proposal Title
Childhood Cancer Research	19	2	$1.6M	University of Texas M. D. Anderson Cancer Center	Development of Augmented Leukemia/Lymphoma-Specific T-Cell Immunotherapy for Deployment with Haploidentical Hematopoietic Progenitor-Cell Transplant
				Naval Health Research Center	Health Outcomes among Infants Born to OIF/OEF Deployers
Chronic Pain and Fatigue Research	25	5	$3.8M	University of Texas Southwestern Medical Center at Dallas	Development of Novel Therapy for Chronic Neuropathic Pain
				University of Michigan	Pharmacological Studies of NOP Receptor Agonists as Novel Analgesics
				Henry M. Jackson Foundation	Complement Activation after Exercise: Markers of Prolonged Myalgia-Arthralgia-Fatigue Syndromes Post Vaccines and in Systemic Lupus Erythematosus in Remission
				University of Virginia	Development of a Novel Injectable Controlled Analgesic Delivery System for Effective Pain Management
				Rutgers, State University of New Jersey	Chronic Pain Treatment by Controlled Release of Local Anesthetics from Biocompatible Hydrogel Wound Dressings
Diabetes Research	99	5	$4.6M	Benaroya Research Institute at Virginia Mason	Humanized In Vivo Model for Autoimmune Diabetes
				Wayne State University	Diabetic Nephropathy and Mitochondrial Function
				Joslin Diabetes Center	Identifying and Overcoming Barriers to Diabetes Management in the Elderly: An Intervention Study
				University of Chicago	Individual Differences in Diabetes Risk: Role of Sleep Disturbances
				SmartCells, Inc.	Large Animal Safety and Efficacy of Glucose-Regulated Insulin Formulations
Duchenne's Disease Research	3	1	$0.8M	Charles R. Drew University of Medicine and Science	Modulation of Stem Cell Differentiation and Myostatin as an Approach to Counteract Fibrosis in Muscle Dystrophy and Regeneration After Injury

Topic Areas	Proposals Received	Awards	Investment	Organization	Proposal Title
Eye and Vision Research	52	8	$7.5M	University of Oklahoma Health Sciences Center	Improved Therapeutic Regimens for Treatment of Post-Traumatic Ocular Infections
				Augusta Biomedical Research Corporation	Intraceptor Interference of VEGF Pathways in Corneal Angiogenesis
				Schepens Eye Research Institute	Molecular Blockade of Lymphangiogenesis in Promoting High-Risk Corneal Transplant Survival
				Regents of the University of California, San Francisco	A Hybrid Electrochemical Microstimulator Implant for Denervated Muscles
				Baylor College of Medicine	Repair of Corneal Injury with Stem Cell Based Bioengineered Tissue
				University of Iowa	Treatment of Laser-Induced Retinal Injury and Visual Loss Using Sustained Release of Intra-Vitreal Neurotrophic Growth Factors
				Massachusetts Eye and Ear Infirmary	Optimization of Microelectronic Methods to Produce an Implantable Retinal Prosthesis to Treat Blindness
				Boston VA Research Institute, Inc. (BVARI)	Replicating Physiological Patterns of Activity with Prosthetic Stimulation
Fibromyalgia	3	1	$0.9M	University of Michigan	Developing Biomarkers for Fibromyalgia
Interstitial Cystitis Syndrome	4	0	N/A		
Kidney Cancer Research	14	1	$0.9M	University of Cincinnati	Identification of Genes in Kidney Cancer Oncogenesis
Lupus Research	16	3	$2.8M	Medical University of South Carolina	Complement Inhibitory Therapy of Lupus
				Children's Hospital, Cincinnati	Early Prediction Of Lupus Nephritis Using Advanced Proteomics
				Feinstein Institute for Medical Research	Determination of the Role of Estrogen Receptors and Estrogen Regulated Genes in B Cell Autoreactivity
*Military Relevant Disease Management	177	0	N/A		
Osteoporosis and Bone-Related	57	4	$3.6M	University of Pittsburgh	ATF4, A Novel Mediator of the Anabolic Actions of PTH on Bone

Topic Areas	Proposals Received	Awards	Investment	Organization	Proposal Title
Diseases				Baylor College of Medicine	Cellular Therapy to Obtain Spine Fusion
				Creighton University	Determination of Optimum Vitamin D Nutrition in Young Women
				Florida State University	Bone Tissue Regeneration from Human Mesenchymal Stem Cells
Paget's Disease	0	0	N/A		
Polycystic Kidney Disease	17	1	$0.9M	University of California, Santa Barbara	Investigation of the Regulation of the mTOR Pathway in Polycystic Kidney Disease
Post-Traumatic Stress Disorders	46	5	$3.7M	University of Minnesota, Twin Cities	Longitudinal Risk and Resilience Factors Predicting Psychiatric Disruption, Mental Health Service Utilization, and Military Retention in OIF National Guard Troops
				Massachusetts General Hospital	A Psychophysiologic Study of Weakening Traumatic Combat Memories with Post-Reactivation Propranolol
				Henry M. Jackson Foundation	Online Early Resilience Intervention for Combat-Related PTSD in Military Primary Healthcare Settings: A Randomized Trial of "DESTRESS-PC"
				Butler Hospital	Biomarkers of Risk for Post-Traumatic Stress Disorder (PTSD)
				TEMPVA Research Group, Inc	Predictors of Treatment Response to Fluoxetine in PTSD Following a Recent History of War Zone Stress Exposure
Pulmonary Hypertension	8	1	$0.9M	University of Virginia School of Medicine	S-nitrosylation and the Development of Pulmonary Hypertension
Social Work Research	3	1	$1.0M	State University of New York, Stony Brook	Family Maltreatment, Substance Problems, and Suicidality: Prevalence Surveillance and Ecological Risk/Protective Factor Models
Total	**651**	**51**	**$44.6M**		

* Topic Area added by OASD(HA)

FY99–FY05

The total FY99–FY05 PRMRP congressional appropriation was $294.5M. During that period proposals were solicited in 15, 18, 31, 25, 28, 23, and 21 topic areas, respectively. A total of 196 proposals that most effectively addressed the unique vision and mission of the PRMRP was approved for funding by the CG, USAMRMC. PRMRP funding summaries including topic area, organization, and award budget are provided, by fiscal year, in Appendix I.

Of the $294.5M appropriated to the PRMRP, $14M was managed outside the CDMRP. A total of $10M from the FY01 PRMRP appropriation was assigned to the Naval Health Research Center and managed by the Navy Bureau of Medicine and Surgery to support the Department of Defense portion of the Leadership and Investment in Fighting an Epidemic (LIFE) Initiative. Research accomplishments for this project are provided in Appendix II. A total of $4M of the FY99 PRMRP appropriation was assigned to the Brooke Army Medical Center by the OASD(HA) to support a Chronic Disease Management Project focusing on congestive heart failure. Management responsibility was assigned to the USAMRMC Office of Telemedicine and Advanced Technology Research Center in FY01.

III. ACCOMPLISHMENTS

PRMRP Response to Urgent Needs and Coordination with USAMRMC Core Mission

The FY99–FY06 PRMRP-funded projects continue to yield valuable research outcomes and the development and deployment of technologies relevant to military health. PRMRP-supported projects complement the core research and development areas of the USAMRMC Research Area Directorates (RADs) and the PRMRP staff coordinates with the RADs to avoid overlap and duplication and to help bring PRMRP-funded technologies to deployment. Many projects funded by the PRMRP have begun to yield combat health support technologies and products in the areas of Combat Casualty Care, Military Infectious Diseases, Military Operational Medicine, and Medical Chemical and Biological Defense. The flexibility of the PRMRP allows for a quick response to new and changing priorities in military health.

Childhood Asthma
Asthma is one of the most common chronic diseases of childhood. In the United States, there are approximately nine million children under 18 years of age who have been diagnosed with this disease. Childhood asthma is a complex disease in which multiple mediators and cell types contribute to airway pathogenesis.

Dr. Mary Beth Hogan of West Virginia University, a recipient of an FY01 PRMRP Investigator-Initiated Research Award titled "Bone Marrow Function in Development of Childhood Asthma," adapted an animal model of asthma to study the effects of pulmonary allergen exposure on bone marrow eosinophil progenitor cells. In asthmatic children, pulmonary exposure to allergens results in damage to bronchioles by invasion of eosinophils, inflammatory cells that are formed in the bone marrow. Thus, eosinophils are considered the main effector cells in asthma pathogenesis and are associated with disease severity. Dr. Hogan studied the contribution of other regulatory mechanisms in the bone marrow to eosinophil production. Her team showed that bone marrow stromal cells may contribute to an increase in eosinophil production found during an asthmatic

episode. Previous research had suggested eosinophil production was regulated exclusively by T lymphocytes.

Dr Hogan's work demonstrated that stromal cells and T lymphocytes both contribute to accelerated eosinophil production in asthma. Inflammatory mediators released from the lung were shown to modify stromal cell support of eosinophilopoiesis, which may contribute to the chronic inflammation associated with long-term asthma. Dr. Hogan has shown that asthma has systemic effects upon bone marrow regulation of hematopoiesis, in particular, eosinophilopoiesis. Her team's interest in childhood asthma has led them to investigate events in eosinophilopoiesis during the initial phase of the development of asthma and in events contributing to the development of chronic asthma. Taken together, Dr Hogan's findings on the relative roles of T lymphocytes and stromal cells in eosinophilia may aid in the design of new asthma treatments.

Military Relevant Disease Management
Septic shock is a high-risk sequelum of infection seen in all military hospitals, and its efficient treatment is a significant military relevant disease management concern. Septic shock treatment is frequently unsuccessful due to the inability to consistently raise blood pressure to improve organ perfusion and prevent multi-system organ failure. Vasopressin (VP), an effective pressor (agent to raise blood pressure) has been avoided for initial interventions for septic shock. The drug's strong vasoconstricting action was considered detrimental to perfusion of certain organs such as the gastrointestinal tract.

With support from an FY02 PRMRP Investigator-Initiated Research Award, "Effects of Vasopressin on Systemic Organ Perfusion in a Porcine (SUS SCROFA) Model of Vasodilatory Septic Shock," *Dr. Catherine Uyehara of the Tripler Army Medical Center* and her research team have used animal models to demonstrate that VP appears safe for initial interventions and may have beneficial effects in treating septic shock beyond its ability to simply raise blood pressure. The group found that VP could (1) completely reverse the hypotension induced by endotoxin, in contrast to dopamine (DA) and norepinephrine (NE); (2) preserve blood flow to the brain, heart, and kidneys while decreasing flow to the skin, gut, and muscle; and (3) preserve renal function, with a dramatic increase in urine flow, in contrast to the renal shutdown seen with DA and NE. Importantly, the VP-induced decrease in blood flow to the gut did not result in pathological tissue changes different from that of untreated or NE-treated endotoxin groups. As a result of the differential effects that VP has on different compartments, the scientific team has hypothesized that there is a differential distribution of vascular VP receptors within different vascular beds. Their data also suggest that VP may stimulate adrenal function, resulting in greater release of cortisol. Thus, VP may help counteract adrenal insufficiency in septic shock by stimulating the adrenal gland.

Dr. Uyehara's study has provided a better understanding of the effects of VP on organ perfusion in comparison to other commonly used pressor agents, and this information may be used to design optimal pharmacologic tools and clinical guidelines in the treatment of septic shock.

Military Relevant Disease Management
The spinal cord often responds to injury with profound loss of neural tissue and functional capacity. In the United States, the incidence of spinal cord injury (SCI) is approximately 12,000 cases per year, and the prevalence is 240,000. War veterans comprise approximately 22% of this group due to the hazardous nature of combat-related activities. The only available therapy for SCI,

methylprednisolone, has several limitations. There is a great need for clinically tested and potentially superior SCI treatments.

Dr. Richard Zeman of New York Medical College and his scientific team are developing an approach based on the therapeutic use of stereotactic X-irradiation. Sponsored by an FY04 PRMRP Investigator-Initiated Research Award titled "Control of Spinal Cord Injury by Stereotactic X-irradiation," Dr. Zeman's team is evaluating the efficacy of stereotactic X-irradiation as standalone treatment and in combination with methylprednisolone. The expected benefit of using stereotactic versus conventional X-irradiation is in the delivery of a radiation beam directly to the target with high precision, avoiding unnecessary injury to the surrounding tissues and uninjured portions of the spinal cord. The precise delivery of this novel therapy will allow pin-point accuracy in determining the optimal dimensions of the target site volume with respect to the contusion epicenter. Initial rodent studies have demonstrated that stereotactic radiosurgery (1) improved locomotor and histological outcomes after SCI, (2) was equally effective when used in combination with methylprednisolone, and (3) had greater therapeutic value than methylprednisolone alone. Interestingly, irradiation of the adjacent spinal cord segments either rostrally or caudally to the contusion epicenter sites of the spinal cord produced equivalent increases in locomotor recovery. Future studies will help define the anatomical location of the minimum therapeutic target delivery, the time-dependent effects of the novel therapy, and the role of angiogenesis and tissue perfusion in improved post-therapeutic recovery. These studies will be used to design clinical trials on efficacy of stereotactic X-irradiation of SCI.

Anti-Diarrhea Supplement

Diarrhea caused by enterotoxigenic *Escherichia coli* (ETEC) is a significant health threat for military personnel and civilians traveling to developing countries and is the leading bacterial cause of childhood diarrhea on a global scale. Incidence rates as high as 50% occur in travelers where food and water sanitation is poor. Rehydration and antibiotic treatment are the cornerstones of ETEC disease management. Even with early institution of appropriate therapy, however, ETEC diarrhea exacts a toll in terms of lost duty and diminished performance.

CAPT Stephen Savarino of the Naval Medical Research Center and his colleagues, recipients of an FY03 PRMRP New Program Project Award titled "Development of a Bovine Milk Immunoglobulin Supplement that Prevents Traveler's Diarrhea by Blocking Pathogen Adherence," are developing a promising oral immunoprophylactic that will confer protection against a broad number of types of ETEC. CAPT Savarino previously identified a class of adhesin proteins that directly mediate bacterial adherence to the intestine. Because antibodies to these adhesins prevent ETEC bacteria from binding to target cells *in vitro*, he proposed that oral delivery of such antibodies to humans would prevent ETEC binding the gut and thereby prevent diarrhea. These antigens are highly conserved, and antibodies to a panel of as few as three adhesins could neutralize adherence to a broad number of ETEC types. This could have the benefit of reducing the eventual cost of a passive or active adhesin-based ETEC vaccine.

ETEC antigens were used to immunize cows to produce milk-expressed antibodies. Milk whey from the cows was collected and processed to produce a final powdered product containing the high titer antibodies (referred to as bovine milk immunoglobulin or BIgG). BIgG was administered orally to healthy adult volunteers in a randomized, placebo-controlled, double-blind study at the Johns Hopkins Bloomberg School of Public Health. After three days of oral treatment with the BIgG preparations, volunteers were challenged orally with a live, diarrhea-causing ETEC strain.

Antibodies to the prototype adhesin conferred significant protection against diarrhea. This has provided the first evidence that such adhesins play a central role in human disease and that anti-adhesin antibodies alone can prevent ETEC diarrhea, representing a major breakthrough in the field.

CAPT Savarino's research team has also manufactured a panel of ETEC strains expressing different fimbrial colonizing factors being used in the development of new volunteer challenge models. New human challenge models are being established. A collaborator in Lima, Peru has established new ETEC challenge models in nonhuman primates. These new human and monkey models will be invaluable for screening vaccine candidates in the future.

Pre-Clinical and Clinical Activities of the Novonex/Ex-Rad Drugs

Nuclear/radiological agents are a significant threat to the United States military. The chance of exposure to ionizing radiation has the potential to significantly impact the planning and execution of military operations, making it essential that radiological therapeutics are available.

With the support of an FY02 PRMRP Investigator-Initiated Research Award titled "Research and Development of a Novel, Chemically Engineered Radioprotectant, Novonex/Ex-Rad: Pre-clinical Studies of Novonex/Ex-Rad," *Dr. K. Sree Kumar of the Armed Forces Radiobiology Research Institute* and colleagues are conducting preclinical studies with ON 01210, a drug that appears to be highly promising for radioprotection.

ON 01210 is a synthetic, small molecular weight, sulfur-containing organic compound designed and developed by Onconova Therapeutics, Inc., for the purpose of arresting normal mammalian cells at the G1 and G2 checkpoints of the cell cycle in order to shield them from genotoxic damage.

Dr. Kumar and colleagues have shown that exposure of cells to ON 01210 before irradiation results in significant protection from DNA damage in comparison to untreated cells. Toxicology studies showed the drug to be pharmacologically safe, and no major differences have been observed in the behavior and physiological state of ON 01210-treated animals.

Respiratory Research

Acute respiratory distress syndrome (ARDS) is a complication arising from both direct and indirect lung injury, such as blast injury and hemorrhagic shock followed by resuscitation. ARDS is characterized by alveolar damage, disruption of alveolar epithelium, and infiltration by immune cells into the parenchyma. This inflammatory process can be localized in the lung or can involve other organs. The mortality rate for ARDS is high, 45% to 92%, depending on the etiology, with the majority of deaths occurring in those patients progressing to multi-organ failure. Labile iron released from hemoglobin and extravasated blood is often associated with traumatic injuries, including those leading to ARDS, and it is known to catalyze production of free radicals.

Dr. James Atkins of the Walter Reed Army Institute of Research, with funding from an FY03 PRMRP Investigator-Initiated Research Award titled "Role of Disrupted Iron Homeostasis in the Lung Injury Seen after Blast Injury and Hemorrhage/Resuscitation," is examining the relationship between the iron and the inflammatory response seen in ARDS. Dr. Atkins identified a series of events following traumatic injury , beginning with the release of nitric oxide (NO) that help to "pull" immune cells across the endothelial lining of the blood vessels and into the lung parenchyma. Dr. Atkins and co-workers also found that hemorrhage results in a large increase in the production

of NO. Resuscitation from hemorrhage increases iron in the bloodstream and increases the amount of labile iron in the lung.

These results suggest that although the sources of iron in the lung are different in direct lung trauma and hemorrhage/resuscitation, the increase in labile iron may be a common mechanism helping to initiate the inflammatory cascade. The source of increased blood iron in hemorrhage/resuscitation is a focus of ongoing investigation. The link between ARDS and multi-organ failure is controversial and it may involve mediators released from the inflamed lung or a common mechanism of injury such as increased iron.

Chronic Pain

Patients with spinal cord injury (SCI) suffer from neurological, renal, and gastrointestinal complications, and a majority endure chronic pain. Accordingly, many of these patients are on anti-inflammatory, analgesic, and narcotic drugs, each with its own deleterious side effects. The use of nonsteroidal anti-inflammatory drugs (NSAIDs), which have potent anti-inflammatory and analgesic activity in patients with SCI, has been limited because of the drugs' gastrointestinal (GI) side effects.

Dr. Lenard M. Lichtenberger of the University of Texas Health Science Center at Houston received an FY04 PRMRP Advanced Technology Award for his proposal titled "Use of PC-NSAIDS in Chronic Pain." He and his colleagues are investigating the utility of a new class of NSAIDs coupled with phosphatidylcholine (PC) in the treatment and/or prevention of chronic neuropathic SCI pain. Preliminary results in rodent model systems show that PC-NSAIDs have lower GI toxicity and more enhanced therapeutic effectiveness than the parent NSAID to inhibit fever, inflammation, and pain. Positive results in these preclinical studies should hasten the development of PC-NSAID formulations for parenteral and enteral use for improved treatment of patients suffering from Chronic Pain Syndrome. In addition, the research performed during this project is expected to result in better treatment for military personnel immediately following battle and/or accidents to help prevent early inflammatory processes that lead to painful central nervous system injury.

Lupus and Lupus-Biomarker Research

Systemic Lupus Erythematosus (SLE) is a chronic inflammatory autoimmune disease that can cause irreversible damage to a broad range of organs and tissues. The extensive clinical heterogeneity of SLE, primarily due to the involvement of a broad range of self-antigens, presents a tremendous challenge in diagnosis and management of this disease. There is significant interest in identifying biomarkers to help physicians better manage SLE patients. A panel of lupus biomarkers is likely to be relevant for diagnosing other autoimmune disorders, which affect up to 5% of the population, since many self-antigens are targeted in SLE patients.

With the support of an FY05 PRMRP Investigator-Initiated Research Award titled "Validation of Biomarkers in Systemic Lupus," *Dr. Emily Gillespie of the University of Minnesota* and colleagues have identified numerous gene expression signatures that are differentially expressed in peripheral blood cells of SLE patients. SLE patients may have active or quiescent disease, and some quiescent patients express a pattern of disease flares that can be predicted – described as "future" disease. The researchers selected unique lupus-specific gene signatures using bioinformatic modeling of existing expression profiles generated with genome-wide microarrays in 143 SLE patients. Statistical

analyses of the selected genetic data demonstrated the ability to classify the current, future, and quiescent disease states of these lupus patients with about 90% accuracy. In order to test these predictors in a larger, independent group of patients, Drs. Moser and Gillespie designed and successfully tested a multiplexed real-time PCR assay for detection of the first, most promising gene expression signature. This group continues their research efforts to further refine and validate the most specific genetic biomarkers that will help to significantly improve clinical management for those affected by SLE.

Additional Progress Update

A review of advancements from the studies managed by the Navy Bureau of Medicine and Surgery to support the Department of Defense portion of the Leadership and Investment in Fighting an Epidemic (LIFE) Initiative is provided in Appendix II.

IV. SUMMARY

The PRMRP continues to fulfill congressional intent by funding research of clear scientific merit with direct relevance to the health of the warfighter, the military family, and the American public. The FY99–FY06 PRMRP congressional appropriation totaled $344.5M and provided funding for 247 projects across 69 topic areas. Many of the projects funded by the PRMRP have begun to yield combat health support technologies and products in the areas of Combat Casualty Care, Military Infectious Diseases, Military Operational Medicine, and Medical Chemical and Biological Defense, thus complementing current USAMRMC Core priorities. The FY08 PRMRP is under way and is expected to continue supporting exciting new scientific research, the development of agents and devices for therapeutic and diagnostic use, and the transition of products to clinical use and field deployment.

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APPENDICES

APPENDIX I – PRMRP FUNDING SUMMARIES

Table I: FY99 DHRP Funding Outcomes by Topic Area and Institution

Topic Area	Institution	Budget
Alcoholism Research	The Nathan S. Kline Institute for Psychiatric Research	$475,282
Alcoholism Research	University of New Mexico Health Sciences Center	$715,039
Alcoholism Research	Louisiana State University Health Sciences Center	$510,217
Alcoholism Research	Research Triangle Institute	$1,608,635
Alcoholism Research	University of New Mexico Health Sciences Center	$387,460
Alcoholism Research	University of Minnesota School of Medicine	$607,086
Alcoholism Research	Tripler Army Medical Center	$230,120
Chemical Weapons Treatment	Henry M. Jackson Foundation (Uniformed Services University of the Health Sciences)	$1,283,218
Disease Management	T.R.U.E. Research Foundation (Walter Reed Army Medical Center)	$744,500
Healthcare Information Protection	University of California at San Francisco	$916,343
Lung Research	Naval Health Research Center	$425,337
Pediatric Asthma	Brooke Army Medical Center	$75,329
Pediatric Asthma	State University of New York at Buffalo	$209,778
Sleep Management	Walter Reed Army Institute of Research	$1,758,569
Sleep Management	NTI, Inc.	*$1,680,170
Smoking Cessation	University of Minnesota	$2,774,406

*Grant was funded with FY99 research dollars in the amount of $1,269,274 and FY02 research dollars in the amount of $155,896 and FY04 research dollars in the amount of $255,000.

Table II: FY00 PRMRP Funding Outcomes by Topic Area and Institution

Topic Area	Institution	Budget
Advanced Soft Tissue Modeling	Massachusetts General Hospital	$1,968,490
Advanced Soft Tissue Modeling	Cleveland Clinic Foundation	$1,845,080
Alcohol Abuse Prevention Research	University of New Mexico	$525,212
Alcohol Abuse Prevention Research	Pacific Institute for Research and Evaluation	$964,853
Alcohol Abuse Prevention Research	University of New Mexico	$1,336,262

Topic Area	Institution	Budget
Alcohol Abuse Prevention Research	Johns Hopkins University	$1,191,816
Childhood Asthma	Tripler Army Medical Center	$1,547,400
Defense and Veterans Head Injury Program	Henry M. Jackson Foundation (National Institutes of Health, Bethesda)	*$2,405,483
Defense and Veterans Head Injury Program	T.R.U.E. Research Foundation (US Army Aeromedical Research Laboratory)	$948,121
Dengue Fever Vaccine Research	Naval Medical Research Center	$439,850
Gulf War Illnesses	Wake Forest University School of Medicine	$790,884
Gulf War Illnesses	Walter Reed Army Medical Center	$445,078
Militarily Relevant Disease Management	Naval Submarine Medical Research Laboratory	**$5,826,062
Militarily Relevant Disease Management	Walter Reed Army Medical Center	$1,730,872

*Grant was funded with FY00 research dollars in the amount of $2,133,483 and FY02 research dollars in the amount of $272,000.
**Grant was funded with FY00 research dollars in the amount of $5,326,062 and FY02 research dollars in the amount of $500,000.

Table III: FY01 PRMRP Funding Outcomes by Topic Area and Institution

Topic Area	Institution	Budget
Acute Lung Injury Research	University of Arizona	$1,268,823
Acute Lung Injury Research	Johns Hopkins University	$386,236
Acute Lung Injury Research	University of Pennsylvania	$1,283,287
Acute Lung Injury Research	Northeastern University	$113,137
Acute Lung Injury Research	Atlanta Research and Education Foundation	$671,010
Acute Lung Injury Research	Johns Hopkins University	*$2,013,226
Alcohol Abuse Prevention Research	University of Illinois at Chicago	$1,042,703
Arthropod-Transmitted Infectious Disease	University of Connecticut Health Center	$894,632
Arthropod-Transmitted Infectious Disease	Albert Einstein College of Medicine	$1,053,074
Arthropod-Transmitted Infectious Disease	Albert Einstein College of Medicine	$1,185,539
Arthropod-Transmitted Infectious Disease	University of Texas Medical Branch	$1,284,529
Biological Hazard Detection System/Bio-sensor Microchip	Armed Forces Institute of Pathology	$382,691
Childhood Asthma	West Virginia University	$898,623

Topic Area	Institution	Budget
Childhood Asthma	Geneva Foundation	$652,675
Childhood Asthma	University of Minnesota	$1,672,392
Digital Mammography Imaging	University of Michigan	$1,717,673
Fungi Free	Ganeden Biotech, Inc.	$319,745
Gulf War Illnesses	Veterans Affairs Medical Center	$1,689,945
Gulf War Illnesses	Armed Forces Radiobiology Research Institute	$382,829
Gulf War Illnesses	Naval Health Research Center	$696,627
Laser Eye Injury/Eye Cancer Research and Treatment	T.R.U.E. Research Foundation (Air Force Research Laboratory, Brooks, Texas)	$756,250
Laser Eye Injury/Eye Cancer Research and Treatment	Johns Hopkins University	$549,638
Medical Surgery Technology	University of Washington	$1,198,256
Militarily Relevant Disease Management	University of Miami School of Medicine	$739,056
Militarily Relevant Disease Management	Johns Hopkins University	$243,452
Militarily Relevant Disease Management	Naval Health Research Center/ University of Ottawa	**$1,363,241
Militarily Relevant Disease Management	University of Illinois College of Medicine	$965,931
Militarily Relevant Disease Management	Henry M. Jackson Foundation (Walter Reed Army Institute of Research)	$191,715
Militarily Relevant Disease Management	Henry M. Jackson Foundation (Tripler Army Medical Center)	$1,817,797
Molecular Biology for Cancer Research	Thomas Jefferson University	$965,282
Molecular Biology for Cancer Research	Henry M. Jackson Foundation (Walter Reed Army Medical Center)	$734,261
Molecular Biology for Cancer Research	Thomas Jefferson University	$802,398
Obesity Related Disease Prevention (esp. for minorities)	Baylor College of Medicine	$964,601
Remote Emergency Medicine Ultrasound	GE Corporate Research and Development	$1,992,742
Sleep Management	Veterans Medical Research Foundation	$1,701,135
Smoking Cessation	Oregon Research Institute	$1,949,634
Smoking Cessation	Naval Health Research Center	$465,267

* Grant was funded with FY01 research dollars in the amount of $645,851 and FY02 research dollars in the amount of $1,367,375.
** Grant was funded with FY01 research dollars in the amount of $1,190,116 and FY04 research dollars in the amount of $173,125.

Table IV: FY02 PRMRP Funding Outcomes by Topic Area and Institution

Topic Area	Institution	Budget
Acute Lung Injury Research	T.R.U.E. Research Foundation (US Army Institute of Surgical Research)	$1,980,400
Chemo-Preventative Approaches to Smoking-Related Illness	University of Arizona	$1,261,963
Childhood Asthma	East Carolina University	$920,999
Closed-Loop Frozen Blood Processing Systems	Mission Medical, Inc.	$1,499,916
Dengue Fever Vaccine	Naval Medical Research Center	$1,079,876
High Risk Infectious Disease	UCLA School of Medicine	$1,850,112
High Risk Infectious Disease	Veterans Affairs Medical Center	$763,680
High Risk Infectious Disease	Virginia Tech	$1,068,111
Laser Eye Injury	Uniformed Services University of the Health Sciences	$1,599,027
Metabolically Engineered Tissue for Trauma Care	Johns Hopkins University	$340,355
Military Nutrition Research	Henry M. Jackson Foundation (Uniformed Services University of the Health Sciences)	$1,558,944
Military Nutrition Research	University of North Dakota	$621,359
Military Relevant Disease Management	Albert Einstein College of Medicine	$2,933,914
Military Relevant Disease Management	T.R.U.E. Research Foundation (Tripler Army Medical Center)	$353,180
Military Relevant Disease Management	University of Massachusetts Medical School	$1,109,402
Military Relevant Disease Management	University of Texas Southwestern Medical Center	$1,561,796
Military Relevant Disease Management	Oregon Health and Science University	$1,902,417
Military Relevant Disease Management	Virginia Commonwealth University	$2,849,627
Military Relevant Disease Management	Thomas Jefferson University	$2,729,639
Military Relevant Disease Management	T.R.U.E. Research Foundation (US Air Force SGXW Advanced Technology Innovation Center)	$506,500
Military Relevant Disease Management	T.R.U.E. Research Foundation (Naval Health Research Center)	$164,494
Paget's Disease	University of Pittsburgh	*$1,045,662

Topic Area	Institution	Budget
Pre-Clinical and Clinical Activities of the Novonex/ Ex-Rad Drugs	Henry M. Jackson Foundation (Armed Forces Radiobiology Research Institute)	$1,584,656
Radiation Protection	Henry M. Jackson Foundation (Armed Forces Radiobiology Research Institute)	$881,091
Real-Time Heart Rate Variability	Midwest Research Institute	$891,141
Sleep Management	Northeastern Ohio University College of Medicine	$640,572
Smoking Cessation	Research Triangle Institute	**$2,199,161
Social Work Research	State University of New York at Stony Brook	$1,553,178
Traumatic Brain Injury	University of Florida	$2,168,431
Traumatic Brain Injury	Henry M. Jackson Foundation (Defense and Veterans Head Injury Program)	$2,486,224
Traumatic Brain Injury	University of Maryland, Baltimore	$1,461,337

* Grant was funded with FY02 research dollars in the amount of $834,271.37 and FY03 research in the amount of $211,390.63
** Grant was funded with FY02 research dollars in the amount of $2,192,298 and FY04 research dollars in the amount of $6,862.94

Table V: FY03 PRMRP Funding Outcomes by Topic Area and Institution

Topic Area	Institution	Budget
Acellular Matrix Research for Military Orthopedic Trauma	Baylor College of Medicine	$729,316
Alcoholism Research	Research Triangle Institute	$1,453,018
Amyotrophic Lateral Sclerosis	State University of New York, Albany	$1,152,744
Anti-Diarrhea Supplement	Henry M. Jackson Foundation (Naval Medical Research Center)	$3,704,331
Army Nutrition Research	US Army Research Institute of Environmental Medicine	$592,739
Bone-Related Disease Research	Baylor College of Medicine	$649,767
Casualty Care Research Center	Oregon Health Sciences University	$986,699
Casualty Care Research Center	Wake Forest University	$563,678
Cell Response to Anti-Cancer Agents	University of Maryland, Baltimore	$1,458,857
Epilepsy	Henry M. Jackson Foundation (Uniformed Services University of the Health Sciences)	$1,225,862

Topic Area	Institution	Budget
Infectious Disease Tracking System	Foundation for Health Care Quality	$2,537,937
Interstitial Cystitis Research	University of Iowa	$973,009
Low Vision Research	Schepens Eye Research Institute	$2,987,463
Military Relevant Disease and Injury	University of Connecticut, Farmington	$1,732,296
Military Relevant Disease and Injury	Children's Hospital, Cincinnati	$2,562,548
Military Relevant Disease and Injury	Palomar Medical Products, Inc.	$2,499,596
Military Relevant Disease and Injury	Massachusetts General Hospital	$1,760,289
Military Relevant Disease and Injury	Naval Health Research Center	$1,041,751
Military Relevant Disease and Injury	Lovelace Respiratory Research Institute	$524,200
Military Relevant Disease and Injury	Lovelace Respiratory Research Institute	$1,828,876
Military Relevant Disease and Injury	Southern Research Institute	$1,749,271
Military Relevant Disease and Injury	Southern Research Institute	$3,987,925
Military Relevant Disease and Injury	Henry M. Jackson Foundation (Naval Health Research Center)	$811,304
Military Relevant Disease and Injury	Henry M. Jackson Foundation (Naval Health Research Center)	$487,270
Military Relevant Disease and Injury	Mount Sinai School of Medicine	$2,499,738
Neuroscience Research	Boston University, Boston Campus	$1,021,862
Respiratory Research	T.R.U.E. Research Foundation (Walter Reed Army Institute of Research)	$2,175,347
Smoking Cessation	San Diego State University Foundation	$134,547
Social Work Research	Research Triangle Institute	$1,435,384

Table VI: FY04 PRMRP Funding Outcomes by Topic Area and Institution

Topic Area	Institution	Budget
Alcoholism Research	Oregon State University	$1,255,745
Amyotrophic Lateral Sclerosis	Johns Hopkins University	$1,260,682

Topic Area	Institution	Budget
Amyotrophic Lateral Sclerosis	Harvard University	$1,527,936
Blood-Related Cancer Research	University of Pennsylvania	$1,972,773
Blood-Related Cancer Research	Mount Sinai School of Medicine	$1,279,507
Childhood Asthma	Emory University	$1,000,000
Chronic Pain Research	University of Texas Health Science Center-Houston	$1,789,202
Epilepsy	University of Pennsylvania	$1,999,939
Geneware Rapid Vaccine	Brentwood Biomedical Research Institute	$372,587
Limb Loss and Paralysis Research	Boston VA Research Institute, Inc.	$1,493,932
Limb Loss and Paralysis Research	Case Western Reserve University	$1,749,133
Lung Cancer Screening	University of Pittsburgh	$656,841
Malaria Vaccine Initiative	Seattle Biomedical Research Institute	$2,006,516
Military Relevant Disease Management	Henry M. Jackson Foundation (Naval Medical Research C	$1,981,866
Military Relevant Disease Management	IQuum, Inc.	$1,942,997
Military Relevant Disease Management	New York Medical College	$1,573,916
Military Relevant Disease Management	Brentwood Biomedical Research Institute (Veterans Administration Greater Los Angeles Health Care System)	$1,950,760
Military Relevant Disease Management	T.R.U.E. Research Foundation (Walter Reed Army Medical Center)	$1,204,207
Military Relevant Disease Management	University of Alabama at Birmingham	$1,600,000
Military Relevant Disease Management	University of California, San Diego	$1,346,672
Military Relevant Disease Management	Albert Einstein College of Medicine of Yeshiva University	$1,732,333
Muscle Function Research	University of Iowa	$1,975,220
Muscle Function Research	University of Illinois at Chicago	$1,466,307

Topic Area	Institution	Budget
Osteoporosis and Bone Related Disease Research	University of Michigan	$1,088,879
Osteoporosis and Bone Related Disease Research	Oregon Health & Science University	$1,721,331
Osteoporosis and Bone Related Disease Research	Southwest Research Institute	$1,544,717
Post-Traumatic Stress Disorder	Brown University	$982,926
Reserve Component Medical Training Program	University of Miami School of Medicine	$1,953,840
Smoking Cessation	Nova Southeastern University	$1,574,915

Table VII: FY05 PRMRP Funding Outcomes by Topic Area and Institution

Topic Area	Institution	Budget
Acellular Human Tissue Matrix Research	LifeCell Corporation	$999,744
Alcoholism Research	Louisiana State University Health Science Center	$619,184
Alcoholism Research	University of North Carolina, Chapel Hill	$920,314
Amyotrophic Lateral Sclerosis	Duke University	$978,514
Amyotrophic Lateral Sclerosis	University of Cincinnati	$1,000,799
Anti-Radiation Drug Development	Burnham Institute	$1,001,112
Anti-Radiation Drug Development	Henry M. Jackson Foundation (Armed Forces Radiobiology Research Institute)	$655,729
Autoimmune Diseases such as Scleroderma and Sjögren's Syndrome	Northwestern University	$1,003,600
Blood-Related Cancer Research	Brown University	$981,963
Blood-Related Cancer Research	University of Southern California	$1,581,083
Childhood Asthma	Harvard University	$1,000,000
Chronic Pain Research	University of Florida	$1,008,426
Conjugate Vaccines to Prevent Shigellosis	EndoBiologics, Inc.	$1,003,866

Topic Area	Institution	Budget
Diabetes Research	Johns Hopkins University	$987,156
Interstitial Cystitis Research	University of Iowa	$987,145
*Lung Cancer Screening	H. Lee Moffitt Cancer Center & Research Institute	$994,087
Lupus and Lupus-Biomarker Research	University of Minnesota	$994,149
Lupus and Lupus-Biomarker Research	Henry M. Jackson Foundation (Uniformed Services University of the Health Sciences)	$1,279,303
*Military Relevant Disease Management	Temple University	$1,000,000
*Military Relevant Disease Management	University of Pittsburgh	$1,970,155
*Military Relevant Disease Management	Social Sectors Development Strategies, Inc.	$999,982
*Military Relevant Disease Management	Columbia University College of Physicians and Surgeons	$1,000,000
*Military Relevant Disease Management	University of Texas Health Science Center at San Antonio	$989,980
*Military Relevant Disease Management	University of Cincinnati	$2,000,000
*Military Relevant Disease Management	T.R.U.E. Research Foundation (Walter Reed Army Institute of Research)	$2,659,856
*Military Relevant Disease Management	University of Miami School of Medicine	$884,897
*Military Relevant Disease Management	Henry M. Jackson Foundation (Armed Forces Radiobiology Research Institute)	$1,005,353
Orthopaedic Extremity Trauma Research	University of Rochester	$873,388
Orthopaedic Extremity Trauma Research	University of Michigan	$999,859
Orthopaedic Extremity Trauma Research	Western Institute for Biomedical Research	$2,914,637
Orthopaedic Extremity Trauma Research	University of California, Santa Barbara	$991,582

Topic Area	Institution	Budget
Orthopaedic Extremity Trauma Research	Johns Hopkins University	$1,007,200
Osteoporosis and Bone-Related Disease Research	University of Notre Dame	$777,826
Osteoporosis and Bone-Related Disease Research	Geneva Foundation (Eisenhower Army Medical Center)	$888,048
Osteoporosis and Bone-Related Disease Research	Texas A&M University System Health Sciences Center	$904,499
Osteoporosis and Bone-Related Disease Research	University of Toronto	$999,298
Post-Traumatic Stress Disorder	Bronx Veterans Medical Research Foundation, Inc.	$1,006,720
Post-Traumatic Stress Disorder	Seattle Institute for Biomedical and Clinical Research	$1,000,000
Post-Traumatic Stress Disorder	University of Pittsburgh	$999,623
Social Work Research	State University of New York, Stony Brook	$1,010,021

* Topic Area added by OASD (HA)

Table VIII: FY99–06 PRMRP Summary

	FY99	FY00	FY01	FY02	FY03	*FY04	FY05	FY06
Appropriations	$19.5M	$25M	$50M	$50M	$50M	$50M	$50M	$50M
Topic Areas Offered	15	18	31	25	28	25	23	21
Proposals Received	90	163	180	125	298	308	492	651
Number of Awards	16	14	37	31	29	29	40	51

APPENDIX II – DEPARTMENT OF DEFENSE HIV/AIDS PREVENTION PROGRAM (DHAPP)

Background: Currently, the continent of Africa is the epicenter of the Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS) epidemic. Many militaries and other uniformed organizations in Africa are experiencing readiness problems resulting from high rates of HIV/AIDS among their personnel. The US Government began an initiative in Fiscal Year 2001 (FY01) to help fight the HIV/AIDS epidemic in Africa and India. The Department of the Navy was assigned as the Executive Agent for the DHAPP activities. The program is being managed by the Naval Health Research Center, San Diego, California.

Funding History: In FY01, the Office of the Assistant Secretary of Defense for Health Affairs assigned $10M of the FY01 PRMRP appropriation to begin the Program. Continued funding was provided to DHAPP in FY02 through a $14 million (M) "congressional add" to the Defense Health Program. In FY03 Congress provided $7M for the Program, and the language expanded the opportunity for HIV/AIDS cooperation with militaries outside of Africa. The FY04 congressional add to the Defense Health Program for Global HIV Prevention was $4.25M. In FY04 additional funding was provided to the Department of Defense for support of militaries in selected countries through the President's Emergency Plan for AIDS Relief (PEPFAR). In FY05 DHAPP received $7.5M in direct congressional funding as well as continuing support through PEPFAR.

Objectives: The DHAPP objectives include assisting in the development, implementation, and maintenance of military-specific HIV prevention programs and integrating with other US Government programs and those managed by allies and the United Nations to leverage available funds.

Implementation Strategy: DHAPP has a bilateral and regional strategy for HIV/AIDS cooperation and security assistance. Using country priorities set by the Under Secretary of Defense (USD) for Policy, implementation of the bilateral strategy begins by coordinating with the responsible Combatant Commander and US Country Team to offer military-to-military assistance with HIV/AIDS prevention. Receptive defense forces are requested to submit an overall HIV/AIDS prevention plan to DHAPP for evaluation. Onsite visits and the submitted plan are used by DHAPP to determine gaps and areas eligible for technical assistance and resource support. DHAPP provides technical assistance and resource support to defense forces in the following areas: (1) HIV screening, (2) surveillance, (3) voluntary counseling and training, (4) peer education, (5) instructor training, (6) sexually transmitted infections syndromic management, (7) mass awareness campaigns, (8) communication and coordination, 9) occupational exposure intervention, (10) infrastructure development, and (11) clinical education.

Status: The Program has established links with militaries in 71 countries around the world. Immediate successes include: (1) establishing HIV/AIDS prevention programs in militaries with no prior program; (2) coordinating access of uniformed personnel to existing US Government, US Agency for International Development, and US Centers for Disease Control and Prevention efforts, and host country HIV/AIDS programs; (3) continuing to providing staff in-country for HIV/AIDS prevention programs; (4) providing materials and consultation to develop country-specific behavioral intervention programs; and (5) fully integrating into the PEPFAR strategy and

management process. The Program accomplishes these efforts mainly through direct military-to-military cooperation but limited support is provided through contracting external organizations to support specific aspects of a proposed program. In addition, the training program established in 2004 for HIV/AIDS practitioners from militaries assisted by the Program has now been expanded to include training at an African care and research center.

Accomplishments in FY05

1. Provided HIV technical assistance and resource support affecting more than 6 million uniformed personnel in 71 countries.

2. Supported 258 counseling and testing centers, at which 64,157 troops were tested for HIV and given their results.

3. Reached 337,733 troops and family members with prevention messages.

4. Trained 5,166 military members as peer educators.

5. Provided 5,407 uniformed personnel with HIV-related palliative care and trained 906 military health providers in the provision of that care.

6. Trained 305 uniformed health providers in antiretroviral therapy techniques, equipped 26 laboratories to provide HIV and/or CD4 testing, and trained 128 laboratory technicians to provide those tests.

Accomplishments in FY06

The Program strategy for FY06 was characterized by the following:

1. Continued integration with the State Department Office of the Global AIDS Coordinator to expand military programs in the focus countries of the President's Emergency Plan for AIDS Relief (PEPFAR), and strengthened military programs in the other PEPFAR countries.

2. Expanded and strengthened existing capability and support to militaries in sub-Saharan Africa, with approximately 65% of effort and funding directed to militaries in that part of world.

3. Expanded involvement and integration of DOD Board of Directors for international HIV activities.

4. Increased integration of the Program with US Theater Security Cooperation Plans.

5. Further integrated partner military HIV prevention programs with local and national health programs, US Government agencies, and international HIV assistance organizations.

6. Continued and expanded clinical education programs.

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