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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Defense Health Agency **Date:** May 2021

Appropriation/Budget Activity 0130: <i>Defense Health Program I BA 2: RDT&E</i>					R-1 Program Element (Number/Name) PE 0601117DHA / <i>Basic Operational Medical Research Sciences</i>							
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	52.190	17.408	8.913	9.091	-	9.091	0.000	0.000	0.000	0.000	Continuing	Continuing
100A: <i>CSI - Congressional Special Interests</i>	9.331	0.000	0.000	0.000	-	0.000	-	-	-	-	Continuing	Continuing
371: <i>GDF - Basic Operational Medical Research Science</i>	42.859	8.556	0.000	0.000	-	0.000	-	-	-	-	Continuing	Continuing
371A: <i>GDF - BOMRS (Combat Casualty Care)</i>	0.000	8.852	1.304	1.328	-	1.328	-	-	-	-	Continuing	Continuing
371B: <i>GDF - BOMRS (Military Operational Medicine)</i>	0.000	0.000	5.498	5.609	-	5.609	-	-	-	-	Continuing	Continuing
371E: <i>GDF - BOMRS (Military Infectious Disease)</i>	0.000	0.000	2.111	2.154	-	2.154	-	-	-	-	Continuing	Continuing

Note

n/a

A. Mission Description and Budget Item Justification

Guidance for Development of the Force-Basic Medical Research Sciences: This program element (PE) provides support for basic medical research directed toward greater knowledge and understanding of the fundamental principles of science and medicine that are relevant to the improvement of Force Health. Research in this PE is designed to address areas of interest to the Secretary of Defense regarding Wounded Warriors, capabilities identified through the Joint Capabilities Integration and Development System, and sustainment of DoD and multi-agency priority investments in science, technology, research, and development. Medical research, development, test, and evaluation (RDT&E) priorities for the Defense Health Program (DHP) are guided by, and will support, the Quadrennial Defense Review, the National Research Action Plan for Improving Access to Mental Health Services for Veterans, Service Members, and Military Families, the National Strategy for Combating Antibiotic Resistance, and the National Strategy for Biosurveillance.

Research will support efforts such as the Precision Medicine Initiative which seeks to increase the use of big data and interdisciplinary approaches to establish a fundamental understanding of military disease and injury to advance health status assessment, diagnosis, and treatment tailored to individual Service members and beneficiaries, research focused on protection against emerging infectious disease threats, the advancement of state of the art regenerative medicine manufacturing technologies consistent with the National Strategic Plan for Advanced Manufacturing, the advancement of global health engagement and capitalization of complementary research and technology capabilities, improving deployment military occupational and environmental exposure monitoring, and the strengthening of the scientific basis for decision-making in patient safety and quality performance in the Military Health System. The program also supports the Interagency Strategic Plan for Research and Development of Blood Products and Related Technologies for Trauma Care and Emergency Preparedness. Program development and execution is peer-reviewed and coordinated with all of the Military Services, appropriate Defense agencies or activities and other federal agencies, to include the Department of Veterans Affairs, the Department of Health and Human Services, and the Department of Homeland Security. Funds in this PE are for basic research that promises to

UNCLASSIFIED

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provide important new approaches to complex military medical problems. As the research efforts mature, the most promising efforts will transition to applied research (PE 0602115) or technology development (PE 0603115) funding.

In FY 2016, Congressional Special Interest (CSI) funds were provided for Core Research Funding. Because of the CSI annual structure, out-year funding is not programmed.

<u>B. Program Change Summary (\$ in Millions)</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	17.408	8.913	9.091	-	9.091
Current President's Budget	17.408	8.913	9.091	-	9.091
Total Adjustments	0.000	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			

Change Summary Explanation

N/a in accordance to FY22 PB

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Health Agency **Date:** May 2021

Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601117DHA / <i>Basic Operational Medical Research Sciences</i>	Project (Number/Name) 100A / <i>CSI - Congressional Special Interests</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
100A: <i>CSI - Congressional Special Interests</i>	9.331	0.000	0.000	0.000	-	0.000	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification
Congressional program increase: Restore Core Research Funding Reduction

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
Title: CSI - Restoral	0.000	-	-
Description: CSI Restoral for directed research in GDF - Basic Medical Research Sciences: This program element (PE) provides support for basic medical research directed toward greater knowledge and understanding of the fundamental principles of science and medicine that are relevant to the improvement of Force Health.			
Accomplishments/Planned Programs Subtotals	0.000	-	-

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

Remarks

D. Acquisition Strategy
N/A

UNCLASSIFIED

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Appropriation/Budget Activity 0130 / 2					R-1 Program Element (Number/Name) PE 0601117DHA / <i>Basic Operational Medical Research Sciences</i>				Project (Number/Name) 371 / <i>GDF - Basic Operational Medical Research Science</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
371: <i>GDF - Basic Operational Medical Research Science</i>	42.859	8.556	0.000	0.000	-	0.000	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Basic research described here focuses on enhancement of knowledge to support capabilities identified through the Joint Capabilities Integration and Development System process and sustainment of DoD and multi-agency priority investments in science, technology, research, and development as stated in the Quadrennial Defense Review, the National Research Action Plan for Improving Access to Mental Health Services for Veterans, Service Members, and Military Families, and the National Strategy for Combating Antibiotic Resistance. This project supports basic research managed by the Joint Program Committees (JPCs) in the following areas: 1- Military Infectious Diseases basic research develops protection and treatment products for military relevant infectious diseases. 2- Military Operational Medicine basic research focuses on the development of medical countermeasures against operational stressors, prevention of physical and psychological injuries during training and operations, and maximizing the health, performance and fitness of Service members. 3- Combat Casualty Care basic research focuses on optimizing survival and recovery in injured Service members across the spectrum of care from point of injury through en route and facility care.

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

	FY 2020	FY 2021	FY 2022
Title: Project 371 GDF – Basic Operational Medical Research Sciences	8.556	-	-
Description: Provide support for basic medical research directed toward attaining greater knowledge and understanding of fundamental principles of science and medicine relevant to the improvement of medical care in operationally relevant environments.			
Accomplishments/Planned Programs Subtotals	8.556	-	-

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

N/A

Remarks

D. Acquisition Strategy

N/A

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Health Agency **Date:** May 2021

Appropriation/Budget Activity 0130 / 2					R-1 Program Element (Number/Name) PE 0601117DHA / <i>Basic Operational Medical Research Sciences</i>				Project (Number/Name) 371A / <i>GDF - BOMRS (Combat Casualty Care)</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
371A: <i>GDF - BOMRS (Combat Casualty Care)</i>	0.000	8.852	1.304	1.328	-	1.328	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Basic research described here focuses on the enhancement of knowledge to support capabilities identified through the Joint Capabilities Integration Development System process and sustainment of DoD and multi-agency priority investments in science, technology, research and development as stated in the Quadrennial Defense Review, and the National Research Action Plan for Improving Access to Mental Health Services for Veterans, Service members, and Military Families.

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

	FY 2020	FY 2021	FY 2022
Title: Joint Battlefield Healthcare (Formerly Combat Casualty Care)	8.852	1.304	1.328
Description: Joint Battlefield Healthcare activities are focused on developing and understanding of acute and long-term trauma-associated pathophysiology mechanisms to include advanced hemostatic and resuscitative approaches to prolonged field care, enroute care, wound healing and recovery, and neurotrauma.			
FY 2021 Plans: Joint Battlefield Healthcare activities are focused on developing and understanding of acute and long-term trauma-associated pathophysiology mechanisms to include advanced hemostatic and resuscitative approaches to prolonged field care, enroute care, wound healing and recovery, and neurotrauma.			
FY 2022 Plans: Conduct Joint Battlefield Healthcare basic research activities focused on defining biological and pathophysiological mechanisms of the acute effects of trauma including that of life threatening external, junctional (arm pit and groin), and internal (abdomen and chest) bleeding; abnormal blood clotting due to excessive blood loss; and compromised breathing due trauma to the thorax or airways. Will continue Joint Battlefield Healthcare activities are focused on developing and understanding of acute and long-term trauma-associated pathophysiology mechanisms to include advanced hemostatic and resuscitative approaches to prolonged field care, enroute care, wound healing and recovery, and neurotrauma.			
FY 2021 to FY 2022 Increase/Decrease Statement: Funding change reflects planned lifecycle of this effort. Increase due to inflation.			
Accomplishments/Planned Programs Subtotals	8.852	1.304	1.328

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

N/A

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Health Agency		Date: May 2021
Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601117DHA / <i>Basic Operational Medical Research Sciences</i>	Project (Number/Name) 371A / <i>GDF - BOMRS (Combat Casualty Care)</i>

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

Remarks

D. Acquisition Strategy

N/A

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Health Agency **Date:** May 2021

Appropriation/Budget Activity 0130 / 2	R-1 Program Element (Number/Name) PE 0601117DHA / <i>Basic Operational Medical Research Sciences</i>	Project (Number/Name) 371B / <i>GDF - BOMRS (Military Operational Medicine)</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
371B: <i>GDF - BOMRS (Military Operational Medicine)</i>	0.000	0.000	5.498	5.609	-	5.609	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Conduct scientific studies and experimentation directed toward increasing fundamental knowledge and understanding to support the development of medical countermeasures against combat stressors, prevention of physical and psychological injuries and maximizing the health, performance and fitness of service members during training and from point of injury through role of care four.

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

	FY 2020	FY 2021	FY 2022
Title: Military Health and Recovery (Formerly Military Operational Medicine)	0.000	5.498	5.609
<p>Description: Efforts include injury prevention and recovery, optimized cognition and fatigue management, physiological health and resilience, and performance in extreme environments. Activities will continue to focus on: injury prevention and recovery related to blunt, blast, and accelerative injuries; injury prevention and recovery related to musculoskeletal injury; performance nutrition and weight balance; operational systems toxicology for environmental health hazards; and, fatigue, cognitive health and performance.</p> <p>FY 2021 Plans: Efforts include injury prevention and recovery, optimized cognition and fatigue management, physiological health and resilience, and performance in extreme environments. Activities will continue to focus on: injury prevention and recovery related to blunt, blast, and accelerative injuries; injury prevention and recovery related to musculoskeletal injury; performance nutrition and weight balance; operational systems toxicology for environmental health hazards; and, fatigue, cognitive health and performance.</p> <p>FY 2022 Plans: Discover and identify new chemical compounds for further characterization and optimization as potential drug leads against emerging infectious diseases (EID). Discover and identify new antigens (a substance which induces an immune response in the body), virulence factors (molecules produced by microorganisms that help them attach, evade host responses and allow spread) and adjuvants (a substance which enhances the body's immune response to an antigen) that will lead to the development of effective EID countermeasures, develop approaches for countermeasures that achieve protective effectiveness and identify correlates of protection (measurable signs of immunity) across genetically diverse species.</p> <p>Will continue efforts include injury prevention and recovery, optimized cognition and fatigue management, physiological health and resilience, and performance in extreme environments. Activities will continue to focus on: injury prevention and recovery related to</p>			

UNCLASSIFIED

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
blunt, blast, and accelerative injuries; injury prevention and recovery related to musculoskeletal injury; performance nutrition and weight balance; operational systems toxicology for environmental health hazards; and, fatigue, cognitive health and performance. <i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Increase is due to inflation.				
Accomplishments/Planned Programs Subtotals		0.000	5.498	5.609
C. Other Program Funding Summary (\$ in Millions) N/A				
Remarks n/a				
D. Acquisition Strategy N/A				

UNCLASSIFIED

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Appropriation/Budget Activity 0130 / 2					R-1 Program Element (Number/Name) PE 0601117DHA / <i>Basic Operational Medical Research Sciences</i>				Project (Number/Name) 371E / <i>GDF - BOMRS (Military Infectious Disease)</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
371E: <i>GDF - BOMRS (Military Infectious Disease)</i>	0.000	0.000	2.111	2.154	-	2.154	-	-	-	-	Continuing	Continuing

A. Mission Description and Budget Item Justification

Basic research focused on the development of products for the prevention and treatment of military relevant infectious diseases.

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

	FY 2020	FY 2021	FY 2022
Title: Military Infectious Disease	0.000	2.111	2.154
Description: Military infectious diseases activities continue to support studies in bacterial diseases for the prevention and treatment of infections with multidrug-resistant (MDR) bacterial pathogens. In addition, to responding to emerging infectious diseases and acute respiratory diseases.			
FY 2021 Plans: Military infectious diseases activities continue to support studies in bacterial diseases for the prevention and treatment of infections with multidrug-resistant (MDR) bacterial pathogens. In addition, to responding to emerging infectious diseases and acute respiratory diseases.			
FY 2022 Plans: Will continue Military infectious diseases activities in bacterial diseases for the prevention and treatment of infections with multidrug-resistant (MDR) bacterial pathogens. In addition, to responding to emerging infectious diseases and acute respiratory diseases.			
FY 2021 to FY 2022 Increase/Decrease Statement: Increase due to inflation.			
Accomplishments/Planned Programs Subtotals	0.000	2.111	2.154

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

N/A

Remarks

n/a

D. Acquisition Strategy

N/A