Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army											Date: March 2023	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 2: *Applied Research*					R-1 Program Element (Number/Name) PE 0602386A / *Biotechnology for Materials - Applied Research*							
COST ($ in Millions)	**Prior Years**	**FY 2022**	**FY 2023**	**FY 2024 Base**	**FY 2024 OCO**	**FY 2024 Total**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**Cost To Complete**	**Total Cost**
Total Program Element	-	19.889	21.811	16.736	-	16.736	10.956	7.356	7.360	7.441	Continuing	Continuing
CP6: *Foundational Biotechnology Design and Dev*	-	19.889	21.811	16.736	-	16.736	10.956	7.356	7.360	7.441	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element (PE) investigates, designs, and performs research focused on novel biotechnological methods, techniques, and materials to increase the resiliency of the military supply chain. The Army is responsible for centrally managing funding for Tri-Service Biotechnology for a Resilient Supply Chain (T-BRSC) efforts. T-BRSC leverages bio-industrial manufacturing to ensure critical domestic supply chain resilience for defense needs through domestic production of raw materials and critical products. Efforts under this PE collaborate with sister Services and select allied partners to create a cohesive biotechnology architecture to enable defense needs. Applied research projects investigate and design bio-engineered materials to ensure domestic sourcing for critical supply chain resiliency. This PE designs and validates technologies to enable rapid prototyping and evaluating of bio-engineered and bio-manufactured materials. Also under this PE are efforts determine and validate a digital architecture to secure biotech data and create computer aided design software to support the safe design and enhanced biosecurity of biotechnology products and applications.

Research in this PE is coordinated with PE 0603386A (Biotechnology for Materials - Advanced Research).

The cited research is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Research in this PE is performed by the United States (US) Army Futures Command (AFC).

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	20.643	21.919	16.662	-	16.662
Current President's Budget	19.889	21.811	16.736	-	16.736
Total Adjustments	-0.754	-0.108	0.074	-	0.074
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.754	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	0.074	-	0.074
• FFRDC Transfer	-	-0.108	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army	Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 2: *Applied Research*	**R-1 Program Element (Number/Name)** PE 0602386A *I Biotechnology for Materials - Applied Research*

Change Summary Explanation

Increased funding due to revised economic assumptions.

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army			Date: March 2023
Appropriation/Budget Activity 2040 / 2	R-1 Program Element (Number/Name) PE 0602386A / *Biotechnology for Materials - Applied Research*	Project (Number/Name) CP6 / *Foundational Biotechnology Design and Dev*	

COST ($ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
CP6: *Foundational Biotechnology Design and Dev*	-	19.889	21.811	16.736	-	16.736	10.956	7.356	7.360	7.441	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Project works collaboratively with Joint Service partners to investigate and determine novel biotechnology methods and processes to establish a domestic resilient supply chain for defense needs. Applied research designs and conducts experiments on bio-derived, bio-functionalized, and bio-manufactured materials and biosynthetic precursors. Efforts under this Project investigate and validate models for design of defense applications. Areas of focus may include reclamation or sequestration of rare Earth/critical elements in the defense supply chain and drop-in replacements for currently employed military materials.

Work in this Project compliments Program Element (PE) 0603386A (Biotechnology for Materials - Advanced Research) / CP7 (Biotechnology Demonstration and Evaluation).

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by the United States Army Futures Command.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Title: Biotechnology Safety by Design for Defense	19.889	21.015	16.736
Description: This task designs and investigates novel and emerging biotechnologies related to bio-engineered or bio-manufactured materials and their precursors to address vulnerabilities in the critical material supply chain for military needs.			
FY 2023 Plans: Funds research at the convergence of biotechnologies and information science to expand defense biotechnology capabilities to enable the application of biotechnology solutions for new materials. Validate computational models and computer aided design software supporting simulation of biotechnology solutions for defense needs. Identify and investigate potential risks and safety concerns of biotechnology capabilities throughout the research cycle through implementation of the final product. Develop and validate biosecurity methods that can be operationalized to develop the foundation for the secure use of biotechnology solutions in the future. Validate methods that control and secure DoD biotechnology data and enable their exchange with collaborators across the biotechnology ecosystem with minimal risk, facilitating development and leveraging of critical partnerships that promote responsible usages and best practices of biotechnology.			
FY 2024 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2024 Army		Date: March 2023
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602386A / *Biotechnology for Materials - Applied Research*	**Project (Number/Name)** CP6 / *Foundational Biotechnology Design and Dev*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2022	FY 2023	FY 2024
Will refine models based on experiments and iterate on design to unlock more rapid, innovative, and diverse biotechnology applications than currently recognize or realize, and determine the direction of biotechnology solutions for defense needs. Operationalize safety-by-design measures to protect biotechnology capabilities throughout the product and program lifecycle through implementation of the final product. Operationalize biosecurity methods to develop the foundation for the secure use of biotechnology solutions in the future. Operationalize a digital framework enabling interchange of data amongst the collaborators across the biotechnology ecosystem to promote interoperability and critical partnership. Exploit biotechnologies to recover rare earth elements (REE) necessary for critical defense components and advanced technologies. Develop processes and improve the performance for a biotechnology pipeline. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding decrease reflects planned lifecycle of this effort.			
Title: SBIR/STTR Transfer ***FY 2023 Plans:*** Funding transferred in accordance with Title 15 USC §638. ***FY 2023 to FY 2024 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC §638.	-	0.796	-
Accomplishments/Planned Programs Subtotals	19.889	21.811	16.736

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A