Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army											Date: May 2021	
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*							
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	-	-	-	20.643	-	20.643	-	-	-	-	-	-
CP6: *Foundational Biotechnology Design and Dev*	-	-	-	20.643	-	20.643	-	-	-	-	-	-

Note

In Fiscal Year (FY) 2022, this Program Element (PE) is created to focus on broad biotechnology efforts in collaboration with Joint Service partners supporting Tri-Service Biotechnology for a Resilient Supply Chain efforts.

A. Mission Description and Budget Item Justification

This 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, 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.

Creation of this PE facilitates the Army's central management of the Joint Service T-BRSC effort and ensures traceability of funding. The foundational efforts of T-BRSC support a robust pipeline for biotechnology related manufacturing for defense needs. The Army recognizes emerging biotechnologies as a critical technology that will provide innovative solutions to address the Army's capability gaps for decades to come. This PE creation is necessary for the broad planned initiatives under this effort as no existing Army S&T Project has the requisite programmatic scope of T-BRSC.

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

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

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army					Date: May 2021
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*		
B. Program Change Summary ($ in Millions)	**FY 2020**	**FY 2021**	**FY 2022 Base**	**FY 2022 OCO**	**FY 2022 Total**
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	20.643	-	20.643
Total Adjustments	0.000	0.000	20.643	-	20.643
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	20.643	-	20.643

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army			Date: May 2021
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 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
CP6: *Foundational Biotechnology Design and Dev*	-	-	-	20.643	-	20.643	-	-	-	-	-	-

Note

This is a new start in FY 2022.

In Fiscal Year (FY) 2022, this new Project is created to support the Army's central management of Tri-Service Biotechnology for a Resilient Supply Chain (T-BRSC) efforts.

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.

This Project is coordinated with 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 (US) Army Futures Command (AFC).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: Biotechnology Safety by Design for Defense	-	-	20.643
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 2022 Plans: ? Investigate biotechnology capabilities to determine more rapid, innovative, and diverse applications of biotechnology solutions than is currently realized. Design computational models and computer aided design software to enable virtual tests of biotechnology solutions for defense needs. ? Investigate safety-by-design measures and other biosecurity methods to protect biotechnology capabilities and products from misuse to ensure their safe and effective use in an operational environment.			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Army		Date: May 2021
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 2020	FY 2021	FY 2022
? Determine a Joint digital architecture to consolidate and secure DoD biotechnology data to promote and streamline information exchange and collaboration toward accelerating the development of innovative applications of biotechnologies for defense needs. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** This project is a new start in FY 2022.			
Accomplishments/Planned Programs Subtotals	-	-	20.643

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A