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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2025 Army **Date:** March 2024

<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604386A / <i>Biotechnology for Materials - Dem/Val</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	0.000	20.862	0.000	20.862	0.000	0.000	0.000	0.000	0.000	20.862
CQ9: <i>Biotechnology for Materials - Dem/Val</i>	-	-	-	20.862	-	20.862	-	-	-	-	0.000	20.862

**Note**

Biotechnology for Materials - Dem/Val is a new start in FY 2025.

**A. Mission Description and Budget Item Justification**

This Project will create a pipeline to down-select promising biotechnology capabilities towards fielded novel solutions for warfighter needs by enabling prototyping at an efficiency and speed greater than is currently possible, through integration of "cutting-edge" instrumentation and robotics in laboratory and armament/warfare centers/depots testing & evaluation systems. T-BRSC will deliver biotechnology advanced evaluations that exhibit Defense supply chain resiliency by providing alternative means of sourcing critical materials (e.g. jet fuel precursors, energetic precursors, lubricants, epoxies, anti-fouling compounds, recovery of rare earth elements) for transition into service acquisition programs. T-BRSC's comprehensive DoD investment strategy will develop the necessary biotechnology pipeline from demonstration and prototyping to manufacture and fielding, to reduce the risk of technological overmatch by adversaries and enable U.S. military and national security objectives for the future. This will provide Supply Chain Resiliency to the U.S. military, while enabling U.S. industry to support military and national security objectives, as well as de-risking cross-cutting and dual-use technologies necessary to drive commercialization and promote the U.S. Bioeconomy to compete with adversaries.

Work in this Project complements 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 Assistant Secretary of the Army for Acquisition, Logistics and Technology and the Army Research, Development, Test and Evaluation (RDT&E) Enterprise.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2025 Army	<b>Date:</b> March 2024
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<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0604386A / <i>Biotechnology for Materials - Dem/Val</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	20.862	-	20.862
Total Adjustments	0.000	0.000	20.862	-	20.862
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	20.862	-	20.862

**Change Summary Explanation**

Funding increase reflects New Start for Biotechnology for Materials - Dem/Val.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Army										<b>Date:</b> March 2024		
<b>Appropriation/Budget Activity</b> 2040 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0604386A / <i>Biotechnology for Materials - Dem/Val</i>				<b>Project (Number/Name)</b> CQ9 / <i>Biotechnology for Materials - Dem/Val</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>FY 2029</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
CQ9: <i>Biotechnology for Materials - Dem/Val</i>	-	-	-	20.862	-	20.862	-	-	-	-	0.000	20.862
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Biotechnology for Materials - Dem/Val is a new start within the Biotechnology for Materials - Dem/Val program in FY 2025.

**A. Mission Description and Budget Item Justification**

This Project will create a pipeline to down-select promising biotechnology capabilities towards fielded novel solutions for warfighter needs by enabling prototyping at an efficiency and speed greater than is currently possible, through integration of "cutting-edge" instrumentation and robotics in laboratory and armament/warfare centers/depots testing & evaluation systems. T-BRSC will deliver biotechnology advanced evaluations that exhibit Defense supply chain resiliency by providing alternative means of sourcing critical materials (e.g. jet fuel precursors, energetic precursors, lubricants, epoxies, anti-fouling compounds, recovery of rare earth elements) for transition into service acquisition programs. T-BRSC's comprehensive DoD investment strategy will develop the necessary biotechnology pipeline from demonstration and prototyping to manufacture and fielding, to reduce the risk of technological overmatch by adversaries and enable U.S. military and national security objectives for the future. This will provide Supply Chain Resiliency to the U.S. military, while enabling U.S. industry to support military and national security objectives, as well as de-risking cross-cutting and dual-use technologies necessary to drive commercialization and promote the U.S. Bioeconomy to compete with adversaries.

Work in this Project complements 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 Army Research, Development, Test and Evaluation (RDT&E) Enterprise.

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

	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>
<b>Title:</b> Title: Biotechnology for Materials - Dem/Val	-	-	20.862
<b>Description:</b> Description: This task evaluates the application of emerging biotechnologies and bio-manufactured materials for acquisition programs to address resilient military supply chain for needs.			
<b>FY 2025 Plans:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Army		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604386A / <i>Biotechnology for Materials - Dem/Val</i>	<b>Project (Number/Name)</b> CQ9 / <i>Biotechnology for Materials - Dem/Val</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>
Will begin the evaluation of the application of biofuels as energetic materials in hypersonic systems; evaluate the performance of these fuels in hypersonic weapon systems; evaluate the application of high temperature resistant bio-manufactured composites hypersonic defense systems, unmanned aerial vehicles (UAVs) and fire-resistant casings for batteries.  <b><i>FY 2024 to FY 2025 Increase/Decrease Statement:</i></b> In Fiscal Year (FY) 2025, this effort is a New Start.			
<b>Accomplishments/Planned Programs Subtotals</b>	-	-	20.862

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

N/A

**Remarks**

N/A

**D. Acquisition Strategy**

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Army												Date: March 2024			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
2040 / 4				PE 0604386A / Biotechnology for Materials - Dem/Val				CQ9 / Biotechnology for Materials - Dem/Val							
Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Biotechnology for Materials - Dem/Val	Various	Various : Various	-	-		-		2.104	Oct 2024	-		2.104	0.000	2.104	-
<b>Subtotal</b>			-	-		-		2.104		-		2.104	0.000	2.104	N/A
Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
High energy density endothermic biofuels combustion in scramjet combustor system	Various	Various : Various	-	-		-		4.659	Nov 2024	-		4.659	0.000	4.659	-
Self-insulating missile case prototypes and burn testing; bio-based airframe complete.	Various	Various : Various	-	-		-		1.950	Nov 2024	-		1.950	0.000	1.950	-
<b>Subtotal</b>			-	-		-		6.609		-		6.609	0.000	6.609	N/A
Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
High fidelity testing of bio-blend endothermic fuel cooling/heat-sink properties for flight testing	Various	Various : Various	-	-		-		6.293		-		6.293	0.000	6.293	-
Materials qualification testing, demonstration of drone manufacturing	Various	Various : Various	-	-		-		5.856		-		5.856	0.000	5.856	-
<b>Subtotal</b>			-	-		-		12.149		-		12.149	0.000	12.149	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2025 Army</b>								<b>Date: March 2024</b>			
<b>Appropriation/Budget Activity</b> 2040 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0604386A / <i>Biotechnology for Materials - Dem/Val</i>				<b>Project (Number/Name)</b> CQ9 / <i>Biotechnology for Materials - Dem/Val</i>			
	<b>Prior Years</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>		
<b>Project Cost Totals</b>	-	-	-	20.862	-	20.862	0.000	20.862	N/A		

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2025 Army</b>		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604386A / <i>Biotechnology for Materials - Dem/Val</i>	<b>Project (Number/Name)</b> CQ9 / <i>Biotechnology for Materials - Dem/Val</i>

Event Name	FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028				FY 2029							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Evaluate emerging biotechnologies and bio-manufactured m...																																
High energy density endothermic biofuels combustion in s...																																
Self-insulating missile case prototypes and burn testing...																																
High fidelity testing of bio-blend endothermic fuel cool...																																
Materials qualification testing, demonstration of drone ...																																

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2025 Army		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 2040 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0604386A / <i>Biotechnology for Materials - Dem/Val</i>	<b>Project (Number/Name)</b> CQ9 / <i>Biotechnology for Materials - Dem/Val</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Evaluate emerging biotechnologies and bio-manufactured materials	1	2025	4	2026
High energy density endothermic biofuels combustion in scramjet combustor system	1	2025	4	2025
Self-insulating missile case prototypes and burn testing; bio-based airframe complete.	1	2025	4	2025
High fidelity testing of bio-blend endothermic fuel cooling/heat-sink properties for flight testing	3	2025	4	2026
Materials qualification testing, demonstration of drone manufacturing	3	2025	4	2026