Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army												Date: March 2023
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army* / BA 1: *Basic Research*					R-1 Program Element (Number/Name) PE 0601102A / *Defense Research Sciences*							
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	-	358.521	391.642	296.670	-	296.670	309.571	320.379	340.802	350.897	0.000	2,368.482
AA1: *ILIR - AMC*	-	10.486	11.532	11.758	-	11.758	12.070	12.084	12.092	12.224	0.000	82.246
AA2: *ILIR - SMDC*	-	0.957	1.039	1.068	-	1.068	1.096	1.073	1.074	1.086	0.000	7.393
AA3: *Single Investigator Basic Research*	-	86.464	97.025	108.599	-	108.599	107.794	112.803	123.367	127.116	0.000	763.168
AA4: *Training and Human Science Research*	-	20.862	22.180	21.024	-	21.024	21.026	20.979	24.112	24.397	0.000	154.580
AA5: *Biotechnology and Systems Biology*	-	5.842	6.421	6.547	-	6.547	6.614	6.622	9.555	9.518	0.000	51.119
AA6: *Robotics and Mobile Energy*	-	19.857	21.854	25.268	-	25.268	27.467	27.511	27.538	27.811	0.000	177.306
AA7: *Mechanics and Ballistics*	-	32.114	35.234	35.014	-	35.014	35.482	35.525	37.889	38.635	0.000	249.893
AA8: *Sensing and Electromagnetics*	-	13.092	13.619	16.383	-	16.383	26.083	31.647	29.340	33.406	0.000	163.570
AA9: *Information and Networking*	-	38.956	42.839	43.075	-	43.075	43.520	43.568	46.644	47.199	0.000	305.801
AB1: *Basic Res in infect Dis, Oper Med and Combat Care*	-	36.137	4.405	4.508	-	4.508	4.664	4.641	4.644	4.696	0.000	63.695
AB2: *Protection, Maneuver, Geospatial, Natural Sciences*	-	17.311	19.201	19.564	-	19.564	19.860	20.026	20.644	20.863	0.000	137.469
CH9: *Advancing Concepts and Technology Forecasting*	-	3.443	3.793	3.862	-	3.862	3.895	3.900	3.903	3.946	0.000	26.742
T14: *BASIC RESEARCH INITIATIVES - AMC (CA)*	-	73.000	112.500	-	-	-	-	-	-	-	0.000	185.500

A. Mission Description and Budget Item Justification

This Program Element (PE) builds fundamental scientific knowledge contributing to the sustainment of United States (US) Army scientific and technological superiority in land warfighting capability and to solving military problems related to long-term national security needs, investigates new concepts and technologies for the Army's future force, and provides the means to exploit scientific breakthroughs and avoid technological surprises. This PE fosters innovation in Army niche areas (e.g., lightweight armor, energetic materials, and night vision capability) and areas where there is no commercial investment due to limited markets (e.g., vaccines for tropical diseases).

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It also focuses university single investigator research on areas of high interest to the Army (e.g., high-density compact power and novel sensor phenomenology). The in-house portion of the program capitalizes on the Army's scientific talent and specialized facilities to transition knowledge and technology into appropriate developmental activities. The extramural program leverages the research efforts of other government agencies, academia, and industry. This PE also supports basic research at the Army laboratories through the In-House Laboratory Independent Research (ILIR) program. The ILIR program serves as a catalyst for major technology breakthroughs by providing laboratory directors flexibility in implementing novel research ideas, by nurturing promising young scientists and engineers, and is used to attract and retain top doctoral degreed scientists and engineers. The ILIR program also provides a source of competitive funds for peer reviewed efforts at Army laboratories to stimulate high quality, innovative research with significant opportunity for payoff to Army warfighting capability. This PE also identifies emerging and disruptive basic scientific research outcomes in order to translate, integrate, and ingrain research outcomes with Army Warfighting Concepts which describe how the Army will fight in the far-term future.

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

B. Program Change Summary ($ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	368.751	279.328	283.521	-	283.521
Current President's Budget	358.521	391.642	296.670	-	296.670
Total Adjustments	-10.230	112.314	13.149	-	13.149
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	112.500			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-10.230	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	13.149	-	13.149
• FFRDC Transfer	-	-0.186	-	-	-

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Project: T14: *BASIC RESEARCH INITIATIVES - AMC (CA)*		
Congressional Add: *Program increase*	25.000	-
Congressional Add: *Program increase - EXPLOSIVES AND OPIOIDS DUAL-USE UV DETECTION*	5.000	10.000
Congressional Add: *Program Increase: Cell-Free Expression for Biomanufacturing*	10.000	-
Congressional Add: *Program Increase - DIGITAL THREAD FOR ADVANCED MANUFACTURING*	5.000	9.500
Congressional Add: *Program Increase - JOINT RESEARCH LABRATORIES*	20.000	18.000
Congressional Add: *Lightweight High Entropy Metallic Alloy Discovery*	3.000	-

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Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2022	FY 2023
Congressional Add: *Unmanned Aerial Systems Propulsion*	5.000	-
Congressional Add: *Program Increase - ARTIFICIAL INTELLIGENCE (AI) FUSION*	-	2.500
Congressional Add: *Program Increase - BASIC RESEARCH*	-	25.000
Congressional Add: *Program Increase - CENTER FOR UAS PROPULSION*	-	5.000
Congressional Add: *Program Increase - COUNTER UAS TECHNOLOGY RESEARCH*	-	5.000
Congressional Add: *Program Increase - HIGH ENTROPY METALLIC ALLOYS*	-	5.000
Congressional Add: *Program Increase - RENEWABLE ENERGY TECHNOLOGIES*	-	15.000
Congressional Add: *Program Increase - SUSTAINABLE AVIATION FUEL PROPULSION*	-	7.500
Congressional Add: *Program Increase - UNMANNED AERIAL SYSTEMS HYBRID PROPULSION*	-	10.000
Congressional Add Subtotals for Project: T14	73.000	112.500
Congressional Add Totals for all Projects	73.000	112.500

Change Summary Explanation

Increased funding to support basic research enhancements for strategic competition.