Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Chemical and Biological Defense Program	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	R-1 ITEM NOMENCLATURE PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
Total Program Element	-	46.561	50.566	51.426	-	51.426	52.351	53.294	61.076	60.242	Continuing	Continuing
IS1: *CHEM/BIOLO DEFENSE - INFORMATION SCIENCES (BASIC RESEARCH)*	-	1.992	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.992
LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)*	-	21.924	34.563	34.646	-	34.646	34.416	32.932	40.675	39.447	Continuing	Continuing
PS1: *CHEM/BIO DEFENSE - PHYSICAL SCIENCES (BASIC RESEARCH)*	-	16.419	16.003	16.780	-	16.780	17.935	20.362	20.401	20.795	Continuing	Continuing
TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)*	-	6.226	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.226

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This Program Element supports the Joint Service basic research program for Chemical, Biological, and Radiological (CBR) defense. The objective of the basic research program is to advance fundamental knowledge and understanding of those fundamental sciences identified as having potential future impact on the Chemical and Biological Defense Program, with an emphasis in exploring new and innovative research for combating or countering chemical, biological and radiological weapons. Moreover, basic research supports a Joint Force concept of a lethal, integrated, supportable, highly mobile force with enhanced capability by the individual service member. Specifically, the program promotes theoretical and experimental research and studies in the physical, life and information sciences. A portion of this program element directly supports basic research efforts for the transformational medical technologies program. The work in this program element is consistent with the Chemical Biological Defense Program Research, Development and Acquisition (RDA) Plan. Basic research technological breakthroughs support applied research (PE 0602384BP) activities. Basic research activities described in this budget justification leverage existing research programs and activities within the DoD and other government agencies and promotes cross-pollination between government and academia, as well as sponsors promising efforts of world class scientists. The projects in this PE are placed in BA1, because they are basic research efforts directed towards non-specific or non-unique military applications. \

Key efforts within this PE are in support of the FY14 policy priorities for Countering Biological Threats. This PE supports the priority to "Leverage science, technology, and innovation through domestic and international partnerships and agreements to improve global capacity to respond to and recover from biological incidents." These efforts are captured in the Life Sciences project and total $34.6M.

Exhibit R-2, RDT&E Budget Item Justification: PB 2014 Chemical and Biological Defense Program	DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	**R-1 ITEM NOMENCLATURE** PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*

The Projects within this BA changed in FY13 to reflect the research areas of Life Sciences (LF1), and Physical Sciences (PS1). The previous IS1 and TB1 efforts were consolidated into LF1 and PS1.

B. Program Change Summary ($ in Millions)	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total
Previous President's Budget	52.617	50.566	53.478	-	53.478
Current President's Budget	46.561	50.566	51.426	-	51.426
Total Adjustments	-6.056	0.000	-2.052	-	-2.052
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-5.333	0.000			
• SBIR/STTR Transfer	-0.723	0.000			
• Other Adjustments	0.000	0.000	-2.052	-	-2.052

Change Summary Explanation

Funding: FY12
-$ 5.333M Reprogrammings (IS1 -$234K; LF1 -$2,605K; PS1 -$1,376K; TB1 -$1,118K)
-$ .723M SBIR/STTR Transfers (IS1 -$33K; LF1 -$309K; PS1 -$269K; TB1 -$112K)

Schedule: N/A

Technical: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2014 Chemical and Biological Defense Program			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	R-1 ITEM NOMENCLATURE PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*	PROJECT IS1: *CHEM/BIOLO DEFENSE - INFORMATION SCIENCES (BASIC RESEARCH)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
IS1: *CHEM/BIOLO DEFENSE - INFORMATION SCIENCES (BASIC RESEARCH)*	-	1.992	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.992

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project (IS1) advances fundamental knowledge in mathematics, modeling, and bioinformatics. Research efforts include exploration of macro- and micro-scale meteorological effects on CB agent transport and dispersion that can lead to new and improved algorithms for hazard prediction and new CB decision support tools; and computational algorithm development of biological processes that can lead to new or improved medical countermeasures.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: 1) Information Sciences (Basic Research)	1.992	0.000	0.000
Description: Information Science (Basic Research) focuses on advancing knowledge of in-silico modeling techniques for both physical and physiological environments to enable a greater understanding of CB threats. ***FY 2012 Accomplishments:*** Pursued development of quantitative computational models for metabolic networks of pathogens which include interactions with host cell environments. Used computational models to help identify interactions that are candidate targets for medical countermeasures. Further exploration of these efforts will take place under Life Sciences Basic Research (LF1).			
Accomplishments/Planned Programs Subtotals	1.992	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	97.530	44.331	53.901		53.901	55.042	59.834	66.483	66.214	Continuing	Continuing
• CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)*	23.838	20.034	18.091		18.091	19.224	18.348	20.621	19.960	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2014 Chemical and Biological Defense Program		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	R-1 ITEM NOMENCLATURE PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*	PROJECT IS1: *CHEM/BIOLO DEFENSE - INFORMATION SCIENCES (BASIC RESEARCH)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2014 Chemical and Biological Defense Program			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	R-1 ITEM NOMENCLATURE PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*	PROJECT LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)*	-	21.924	34.563	34.646	-	34.646	34.416	32.932	40.675	39.447	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project (LF1) supports research efforts in fundamental science phenomenology in microbiology, biochemistry, pathogenic mechanisms, cell and molecular biology, and immunology that are investigating molecular signatures, mechanisms of action, recognition, catalysis, and biomimetics. Efforts in Life Sciences (Basic Research) include: innovative biotechnology approaches with potential application for rapidly identifying, diagnosing, preventing, and treating disease resulting from exposure to biological or chemical agents, or from radiological exposure; biological and bio-inspired science addressing concepts such as synthetic biology, biomimetics; and other emerging areas of science to build a foundation for developing novel materials. Ultimately, knowledge gained through research in this area supports the development of medical and physical countermeasures against biological or chemical agents in areas such as diagnostics, detection, biosurveillance, protection (both physical and vaccine) and therapeutic intervention.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: 1) Life Sciences (Basic Research)	21.924	34.563	34.646
Description: Life Sciences (Basic Research) focuses on fundamental efforts to investigate molecular signatures, mechanisms of action, recognition, catalysis and biomimetics, as well as agent interactions and evolution.			
FY 2012 Accomplishments: Elucidated interactions between biological (bacterial, viral or toxin) or chemical agents and their host and host cells to understand mechanisms of pathogenesis and/or protective immunity. Examined polymicrobial interactions that may impact the growth of biological agents and/or their course of disease. Investigated immunological and physiological bases for tolerance to, or protection against, organophosphorous agents. Characterized the host response to ionizing radiation and mechanisms of injury. Studied the evolution of viral and bacterial families at the genomic and phenotypic levels and characterized molecular signatures of virulence and/or manipulation in the laboratory (e.g., genetic modification and culturing). Explored the mechanisms by which viruses modulate virulence and target host species. Investigated mechanisms behind the functionality of biological systems. Explored novel techniques for the design and synthesis of biomimetic reagents for affinity and reactivity.			
FY 2013 Plans: Continue previous work emphasizing efforts to understand pathogens, novel threats and host responses (including human and zoonotic). Investigate and evaluate systemic biological responses following exposure of living systems to CB agents. Improve			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Chemical and Biological Defense Program		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	R-1 ITEM NOMENCLATURE PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*	PROJECT LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
understanding of polymicrobial interactions influencing response to or course of disease. Exploit advances in systems biology to mine "omics" experimental designs involving agents and hosts to provide new biomarkers, targets and options. "Omics" informally refers to a field of study in biology ending in "-omics", such as genomics or proteomics. Explore materials in biotic/abiotic interface and biomimetics to enable functional molecular development (such as robust synthetic enzymes). In FY13, all research from TBMDB TMT/TB1: Transformational Medical Technologies was realigned to Life Sciences (LF1). ***FY 2014 Plans:*** Continue efforts to understand pathogens, novel threats and host responses (including human and zoonotic) to prevent/minimize host injury. Investigate and evaluate systemic biological responses following exposure of living systems to CB agents. Improve understanding of how polymicrobial interactions interfere with bacterial activities (through investigation of genetic networks) to influence discovery of novel antagonists for medical countermeasures, thus influencing response to or course of disease. As an important Life Sciences issue, pursue computational infectious models that utilize experimental data to generate mathematical models of infection and immunity. Continue exploration of materials in biotic/abiotic interface and biomimetics to enable design of robust synthetic enzymes. Explore how nanostructured materials morphology relates to biological interaction and function, enabling control at the biotic/abiotic interface.			
Accomplishments/Planned Programs Subtotals	21.924	34.563	34.646

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)*	6.226	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	6.226
• CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	97.530	44.331	53.901		53.901	55.042	59.834	66.483	66.214	Continuing	Continuing
• TB2: *MEDICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	87.849	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	87.849
• TC2: *MEDICAL CHEMICAL DEFENSE (APPLIED RESEARCH)*	36.695	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	36.695
• TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)*	0.000	118.208	98.111		98.111	104.361	102.546	99.523	103.441	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2014 Chemical and Biological Defense Program			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	R-1 ITEM NOMENCLATURE PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*	PROJECT LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• TR2: *MEDICAL RADIOLOGICAL DEFENSE (APPLIED RESEARCH)*	0.935	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	0.935
• CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)*	23.838	20.034	18.091		18.091	19.224	18.348	20.621	19.960	Continuing	Continuing
• TB3: *MEDICAL BIOLOGICAL DEFENSE (ATD)*	168.684	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	168.684
• TC3: *MEDICAL CHEMICAL DEFENSE (ATD)*	21.182	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	21.182
• TR3: *MEDICAL RADIOLOGICAL DEFENSE (ATD)*	1.431	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	1.431

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2014 Chemical and Biological Defense Program			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	R-1 ITEM NOMENCLATURE PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*	PROJECT PS1: *CHEM/BIO DEFENSE - PHYSICAL SCIENCES (BASIC RESEARCH)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
PS1: *CHEM/BIO DEFENSE - PHYSICAL SCIENCES (BASIC RESEARCH)*	-	16.419	16.003	16.780	-	16.780	17.935	20.362	20.401	20.795	Continuing	Continuing

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project (PS1) advances fundamental scientific knowledge in physical science areas that include chemistry, physics, materials science, environmental sciences, and nanotechnology that could potentially lead to transformational CB defensive capabilities enhancing Warfighter performance and safety. Research results in physics, chemistry and materials sciences have potential application in point and standoff detection, as well as protection and decontamination. Surface and environmental sciences focus on the study of physical and chemical properties and phenomena of interactions, especially with regard to Non Traditional Agents (NTAs), that seek to improve capabilities such as detection, protection, and decontamination. Research in nanotechnology and nanoscale sciences, such as nanoelectromechanical systems, molecular motors, nanomechanical resonance sensing, and nanometer imaging, has potential application across CB capability areas to provide significant enhancement by, for example, decreasing detection response times, increasing medical countermeasure effectiveness against a wider array of threat agents, and providing currently unavailable modalities like detection imbedded in fabrics.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: 1) Physical Sciences (Basic Research)	16.419	16.003	16.780
Description: Physical Sciences (Basic Research) focuses on fundamental scientific phenomena including chemistry, physics, materials science, environmental science, and nanotechnology.			
FY 2012 Accomplishments: Explored improved surface and interfacial analytical methods for chemical and biological detection, particularly nanoscale chemical and biological sensing/detection, with the goal of more sensitive and selective recognition of molecular or surface interaction signatures. Investigated advances in materials science that might ultimately contribute to enhanced protection and improved detection capabilities. Initiated studies in the design, synthesis, and fundamental understanding of novel materials for improved filtration and decontamination of chemical or biological threats. Initiated studies in spectroscopic methods, novel detection approaches, and materials science for detecting chemical or biological threats on surfaces. Initiated studies to improve fundamental understanding of fluidic behavior at the nanoscale, as well as new spectra for potentially improved point detection capabilities. Explored potential contributions of computational chemistry and physics, including theoretical predictions of optical and terahertz (THz) signatures, to improve analytical methods and materials science.			
FY 2013 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2014 Chemical and Biological Defense Program		DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	**R-1 ITEM NOMENCLATURE** PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*	**PROJECT** PS1: *CHEM/BIO DEFENSE - PHYSICAL SCIENCES (BASIC RESEARCH)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Explore development of multifunctional material design and synthesis that identifies materials that integrate functionality with durability to improve CB protection by increasing protection factors (resistance or filtration) and reducing physical burden. Create novel decontamination options (through design and synthesis of novel materials/solutions) that are more broadly applicable to multiple chemicals or biologicals with less potential to harm equipment. Seek advanced options (through both experimental and theoretical efforts) for threat identification such as new spectra of signatures (THz and more) as well as other recognition elements (e.g., fluidic behavior) that reduce the requirements for consumables or logistics while increasing specificity. Explore integration of functionality that may provide dynamic capabilities for CB defense countermeasures. ***FY 2014 Plans:*** Continue exploring multifunctional material design and synthesis to identify dynamic materials that combine functionality and durability to improve CB protection by increasing protection factors and reducing physical burden. Design and synthesize novel decontamination options that are broadly applicable to multiple chemicals or biologicals and are less harmful to equipment. Continue investigations into novel signatures and analytical methods, new separation approaches, and recognition elements to reduce logistical burden while increasing specificity to overcome limitations in current approaches to identifying and quantifying CB threats. Continue exploring integration of functionality that may provide adaptive materials and capabilities for CB defense countermeasures that sense, transduce, respond and mitigate threats.			
Accomplishments/Planned Programs Subtotals	16.419	16.003	16.780

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• CB2: *CHEMICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	97.530	44.331	53.901		53.901	55.042	59.834	66.483	66.214	Continuing	Continuing
• CB3: *CHEMICAL BIOLOGICAL DEFENSE (ATD)*	23.838	20.034	18.091		18.091	19.224	18.348	20.621	19.960	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2014 Chemical and Biological Defense Program			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	R-1 ITEM NOMENCLATURE PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*	PROJECT TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)*	

COST ($ in Millions)	All Prior Years	FY 2012	FY 2013#	FY 2014 Base	FY 2014 OCO ##	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)*	-	6.226	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	6.226

FY 2013 Program is from the FY 2013 President's Budget, submitted February 2012

The FY 2014 OCO Request will be submitted at a later date

A. Mission Description and Budget Item Justification

This project (TB1) supports basic research of vaccines, diagnostic tools, and therapeutic drugs to provide effective medical defense against validated biological threat agents including bacteria, toxins, and viruses. Research efforts advance promising innovative biotechnology approaches with the potential to rapidly identify, diagnose, prevent, and treat disease due to exposure to biological threat agents. This project supports core science efforts that may be applied to biological defense capability areas, such as Pretreatments, Diagnostics, and Therapeutics.

This project includes basic research to support Transformational Medical Technologies (TMT) efforts. The program was launched to respond to the threat of emerging or intentionally bioengineered biological threats. Research efforts evaluate the molecular characteristics of the interaction between host and pathogen, characterize the host's response to infection/intoxication and identify common mechanisms and/or pathways. The research also studies the correlates of immunity (common response against different pathogens), and looks for pre-symptomatic bio-markers.

In FY13, all Project TB1 research efforts are re-aligned to Project LF1 - Life Sciences (Basic Research).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2012	FY 2013	FY 2014
Title: 1) Transformational Medical Technologies	6.226	0.000	0.000
Description: Platform Technologies are stand-alone enabling technologies that support medical countermeasures (MCM) development and when strategically aligned, provide a system of systems response capability to an adverse biological event, beginning with the identification of an unknown pathogen. The enabling technologies are divided into five platform areas: Pathogen Characterization, Target Identification, Countermeasure Discovery, Countermeasure Evaluation, and Bioinformatics. ***FY 2012 Accomplishments:*** Continued basic research efforts previously funded under the Transformational Medical Technologies Initiative. Continued to explore genetic approaches to describe host susceptibility to infectious disease and immune response. Investigated alternatives to animal models using markers of virulence, and therapeutic toxicity and efficacy. Assessed developments in technologies for potential formulation and delivery of MCMs. In FY13, all research in this area was re-aligned into Life Sciences (Basic Research) (LF1).			
Accomplishments/Planned Programs Subtotals	6.226	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2014 Chemical and Biological Defense Program			DATE: April 2013
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 1: *Basic Research*	R-1 ITEM NOMENCLATURE PE 0601384BP: *CHEMICAL/BIOLOGICAL DEFENSE (BASIC RESEARCH)*	PROJECT TB1: *MEDICAL BIOLOGICAL DEFENSE (BASIC RESEARCH)*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2012	FY 2013	FY 2014 Base	FY 2014 OCO	FY 2014 Total	FY 2015	FY 2016	FY 2017	FY 2018	Cost To Complete	Total Cost
• LF1: *CHEMICAL/BIOLOGICAL DEFENSE - LIFE SCIENCES (BASIC RESEARCH)*	21.924	34.563	34.646		34.646	34.416	32.932	40.675	39.447	Continuing	Continuing
• TB2: *MEDICAL BIOLOGICAL DEFENSE (APPLIED RESEARCH)*	87.849	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	87.849
• TM2: *TECHBASE MED DEFENSE (APPLIED RESEARCH)*	0.000	118.208	98.111		98.111	104.361	102.546	99.523	103.441	Continuing	Continuing
• TB3: *MEDICAL BIOLOGICAL DEFENSE (ATD)*	168.684	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	168.684
• TM3: *TECHBASE MED DEFENSE (ATD)*	0.000	182.330	122.717		122.717	99.930	107.506	123.790	126.110	Continuing	Continuing

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A