Acquisition Opportunities at The Joint Science and Technology Office for Chemical and Biological Defense (JSTO-CBD)

Small Business Innovation Research & Small Business Technology Transfer (SBIR / STTR) …….AND BEYOND!

Mr. Larry Pollack
Chemical and Biological Defense SBIR/STTR Program Manager
Joint Science and Technology Office for Chemical and Biological Defense

DISCLAIMER

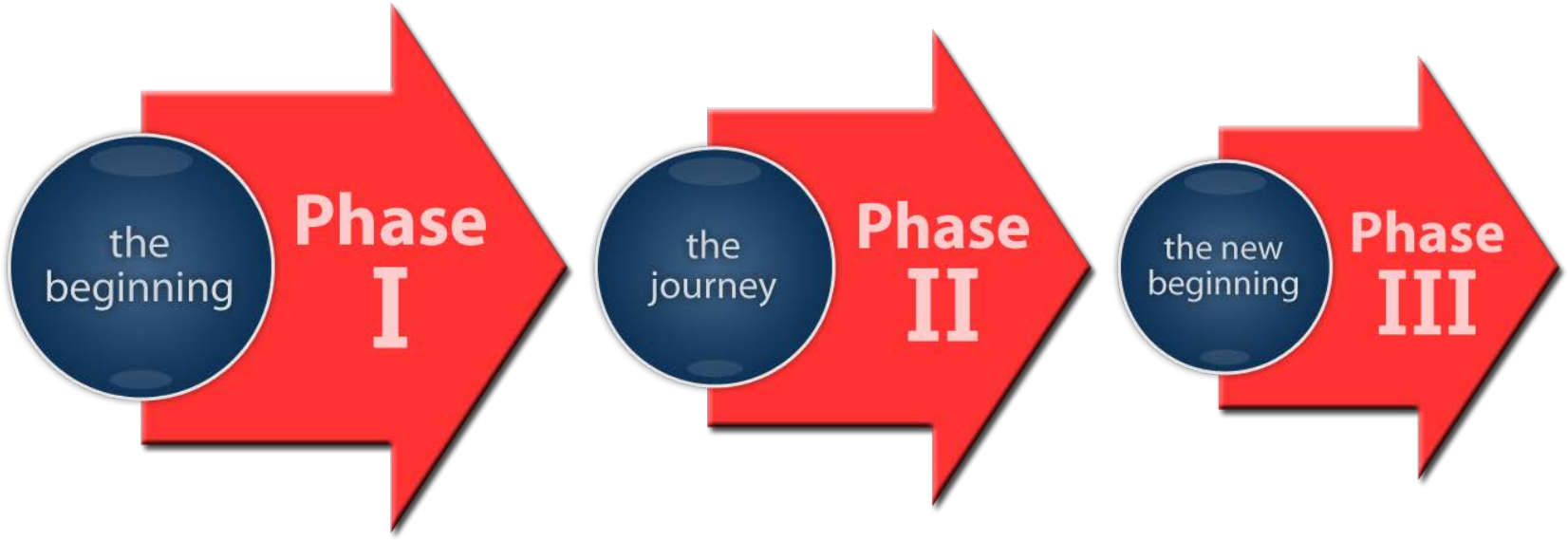
Information presented is for informational purposes only and is <u>NOT</u> binding upon DTRA or the U.S. Government

DoD Acquisition Opportunities

SBIR / STTR

Broad Agency Announcements (BAAs)

SBIR and STTR: Three-Phased Program



- ✓ Early Exploration of Ideas
- ✓ Feasibility Study

- ✓ Concept Refinement
- ✓ Prototype Development

- ✓ Further R&D/ Demonstration
- ✓ Production & Sales

SBIR and STTR: Three-Phased Program

	SBIR	STTR
PHASE I Project Feasibility	6-months Up to $167,500 *	12-months Up to $167,500 *
PHASE II Project development to prototype	2-years Up to $1,100,000 *	2-years Up to $1,100,000 *
PHASE III Commercialization (in military and/or private sector markets)	No funding or time constraints; must use non-SBIR funds	No funding or time constraints; must use non-STTR funds

* may vary by program within DoD
* NEW as of DoD FY19.2/FY19.B Announcements

DoD SBIR Key Technology Areas

- Air Platforms
- Battlespace Environments
- Chemical & Biological Defense
- Weapons
- Human Systems
- Materials & Processes
- Information Systems Technology
- Space Platforms Technology
- Biomedical
- Sensors, Electronics & Electronic Warfare
- Nuclear Technology
- Ground and Sea Vehicles Technology

USD (R&E) Technology Focus Areas

(list still in development and subject to change)

- **Hypersonics**
- **Directed Energy**
- **Command, Control and Communications**
- **Space Offense & Defense**
- **Cybersecurity**
- **Artificial Intelligence / Machine Learning**
- **Missile Defense**
- **Quantum Science & Computing**
- **Microelectronics**
- **Nuclear Modernization**

DoD SBIR/STTR Announcements

Dates established by Assistant Secretary of Defense/Research & Engineering (ASD R&E); not all DoD Components participate in each announcement

- A DoD Agency-wide Announcement includes:
  - DoD Instructions
  - Service/Component-specific Instructions
  - Topics

Announcement Schedule			
Solicitation	**Pre-Release**	**Open**	**Close ***
FY19.1 / FY19.A	28 Nov 2018	8 Jan 2019	6 Feb 2019
FY19.2 / FY19.B	19 Apr 2019	20 May 2019	19 Jun 2019
FY19.3 / FY19.C	23 Aug 2019	24 Sep 2019	23 Oct 2019

* NEW! All proposals due No Later Than 8:00pm Eastern Time for all DoD SBIR and STTR Announcements

DoD SBIR/STTR Announcements – ‘THE’ WEBSITE

https://sbir.defensebusiness.org

Technical Questions About Topics?

✓ Direct Contact with Topic Authors

- **During Pre-Release**, the names of the topic authors, phone numbers and e-mail addresses are listed with the topic
- Questions are be limited to specific information related to a particular topic's requirements
- Offerors may not ask for advice or guidance on solution approach, nor submit additional material to the topic author

✓ SBIR/STTR Interactive Topic Information System (SITIS) http://sbir.defensebusiness.org/sitis

- **After Solicitation 'Opens'**, offerors must submit written questions through SITIS; no direct contact with Topic Authors are allowed
- Questioner and respondent remain anonymous and all questions and answers are posted electronically for general viewing

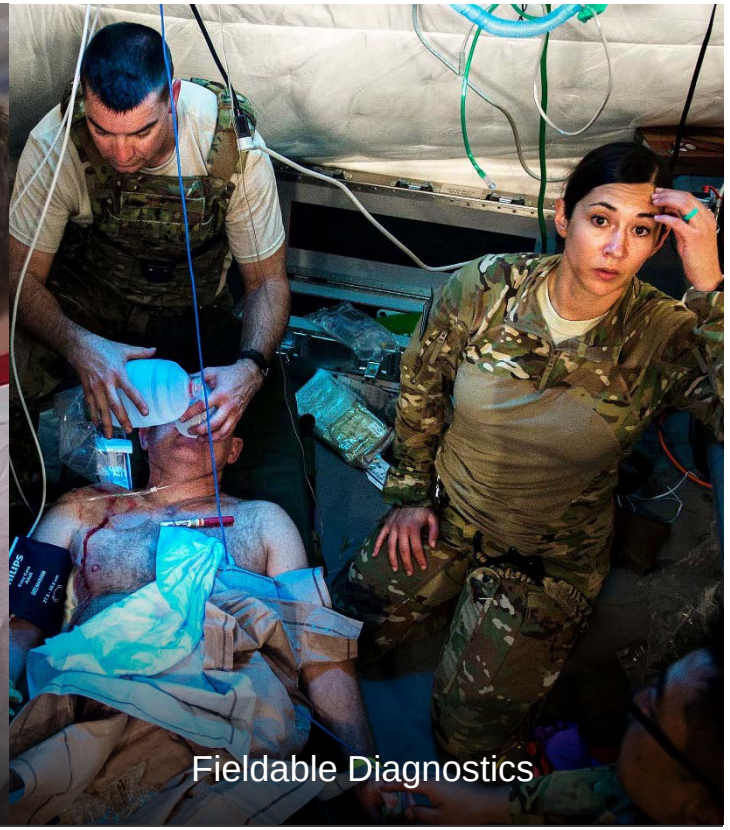
DoD Acquisition Opportunities

Chemical and Biological Defense

Technology Focus Areas

Medical Diagnostics

Lab-based Analytical Methods



Fieldable Diagnostics

Detection and Diagnostics

Vision

- Comprehensive integrated early warning to reduce the effects of biological and chemical threats

Mission

- Finding and fostering science and technology that informs rapid and efficient consequence management, to include endemic and emerging disease

Values

- Product Driven
- Innovative and Creative

Detection and Diagnostics Teams

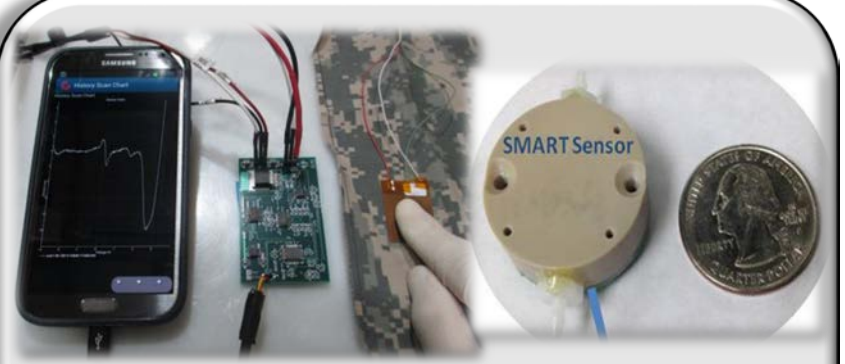
Our **Detection Team** pursues novel approaches in developing an advanced capability to inform and protect the warfighter from CB hazards by developing technologies to make actionable battlespace decisions, focusing on capability gaps for the warfighter in:

- non-medical chemical and biological detection
- remote sensing concepts
- technology enablers
- threat signature characterization

The **Diagnostics Team** develops next generation diagnostic technologies that are rapid, sensitive, and specific for the diagnosis of Warfighter exposure and/or infection. This capability looks to discovery:

- Point-of-need/care diagnostics with laboratory reference level sensitive and specificity
- Novel and innovative diagnostic assays and platforms
- Full diagnostic system capabilities from sample preparation to bioinformatics analysis

Chemical Detection: Areas of Emphasis

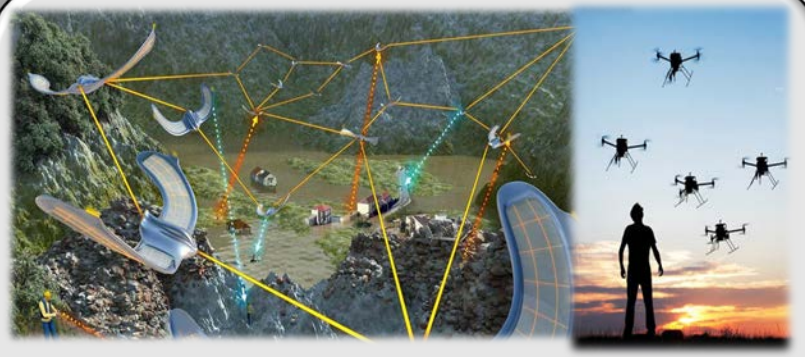


Man-worn Chemical Hazard Sensors

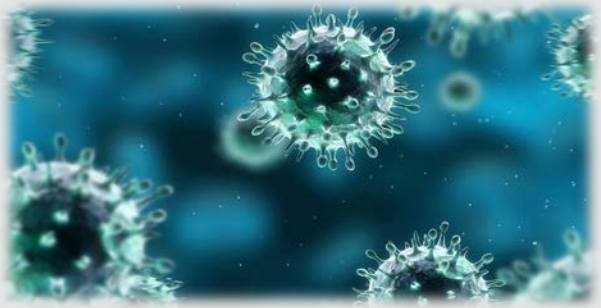
Expeditionary Analytical Toolkit (ExAnT)

Integrated Threat Awareness

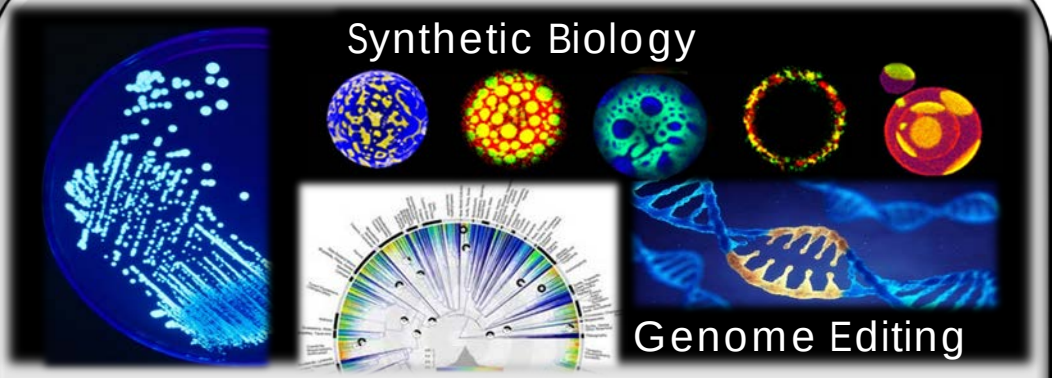
Biological Detection: Areas of Emphasis



Distributed Biological Reconnaissance



Autonomous Point Biological Collection and Detection



Emerging/Novel Bio Threat Sensing

Current Medical Diagnostics Programs

Program to develop a host-based diagnostic able to differentiate between viral and bacterial infections.

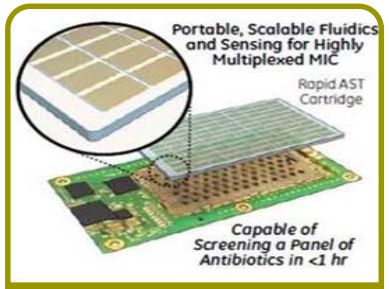
FEVER

Program to develop portable low cost lateral flow assays to diagnose infection from *Burkholderia pseudomallei* or *Yersinia pestis*.

SUDD

Program to develop a host-based assay for diagnosing the early onset to sepsis due to a synthetic or genetically modified biological threat agent.

RHODA



Program to develop a point-of-need diagnostic to identify antibiotic resistant microorganism and perform antibiotic susceptibility testing.

RADAR

Program to develop a point-of-need diagnostic to diagnose exposure to cholinesterase-inhibiting chemical warfare agents.

ICED

Program to develop diagnostic assays for the hard to detect pathogens: *Brucella spp*., *Rickettsia prowazekii*, and alphaviruses.

CANDO

Detection/Diagnostics

Dr. Richard Schoske

Detection and Diagnostics Division
DTRA Research & Development Directorate

Joint Science & Technology Office for
Chemical & Biological Defense

richard.schoske.civ@mail.mil

Vaccines/Biological Therapeutics

Provide our warfighters with vaccines and therapeutics to eliminate or mitigate biological threats thereby maintaining combat effectiveness and safeguarding lives.

Medical Countermeasures

Focus Areas: Vaccines & Therapeutics

The Vaccines and Therapeutics Division is responsible for ensuring robust pipelines of vaccine and therapeutic candidates that can be transitioned and matured into products by our advanced development partners thereby supporting the overall enterprise goal to develop and deliver novel medical technologies to address current and emerging biological threats in order to protect the lives and maintain the battle readiness of our warfighters.

Therapeutics Team (RD-CBMB)

Discovery and development of therapeutics for alphaviruses, filoviruses, botulinum toxin, and broad-spectrum antibiotics targeting multi-drug resistant bacterial threat pathogens

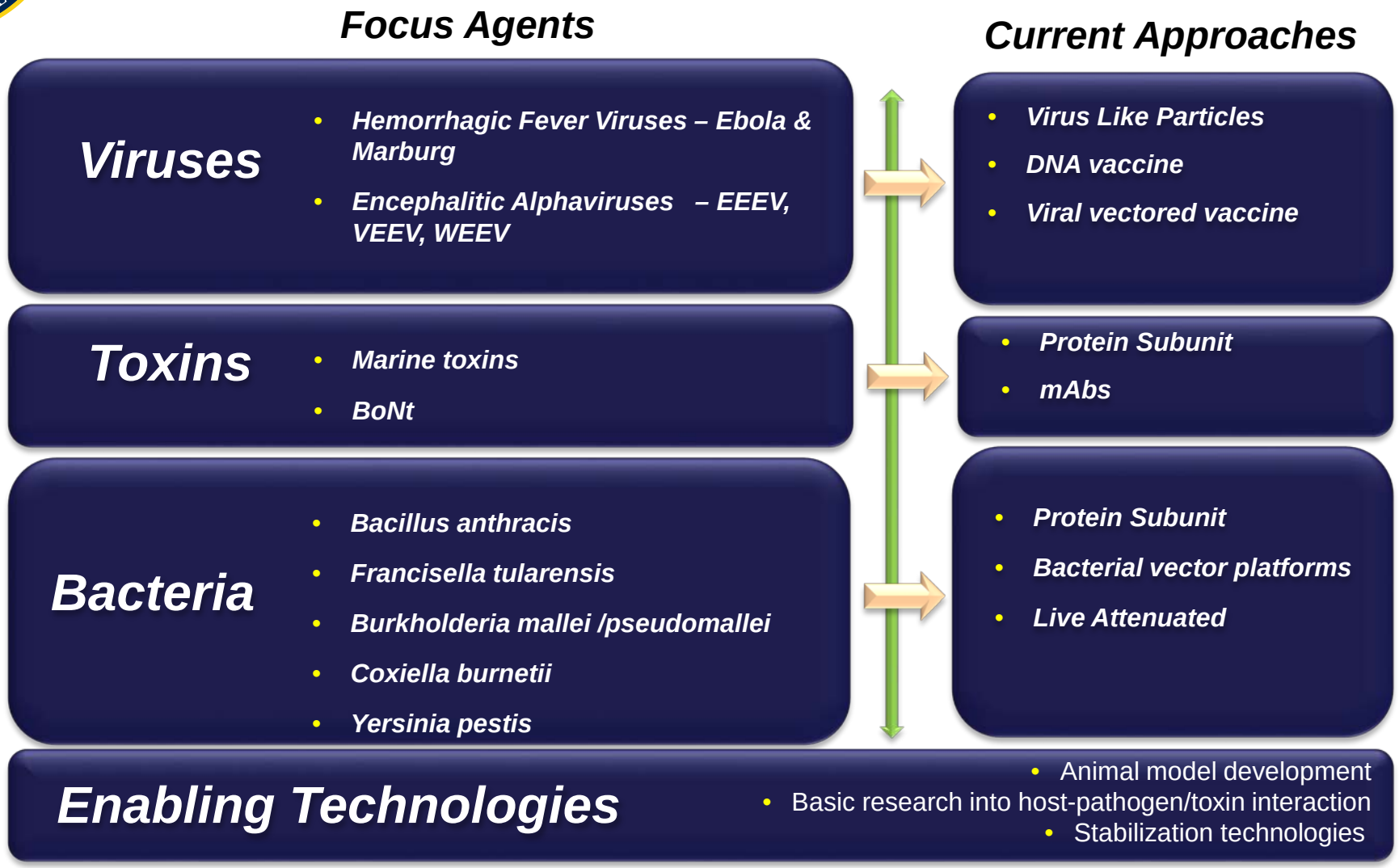
Vaccines Team (RD-CBMV)

Discovery and development of vaccines for: alphaviruses, filoviruses, *Bacillus anthracis* (anthrax), *Burkholderia mallei* (glanders), *Burkholderia pseudomallei* (meliodosis), *Francisella tularensis* (tularemia), *Coxiella burnetii* (Q Fever), and botulinum, ricin and SEB toxin

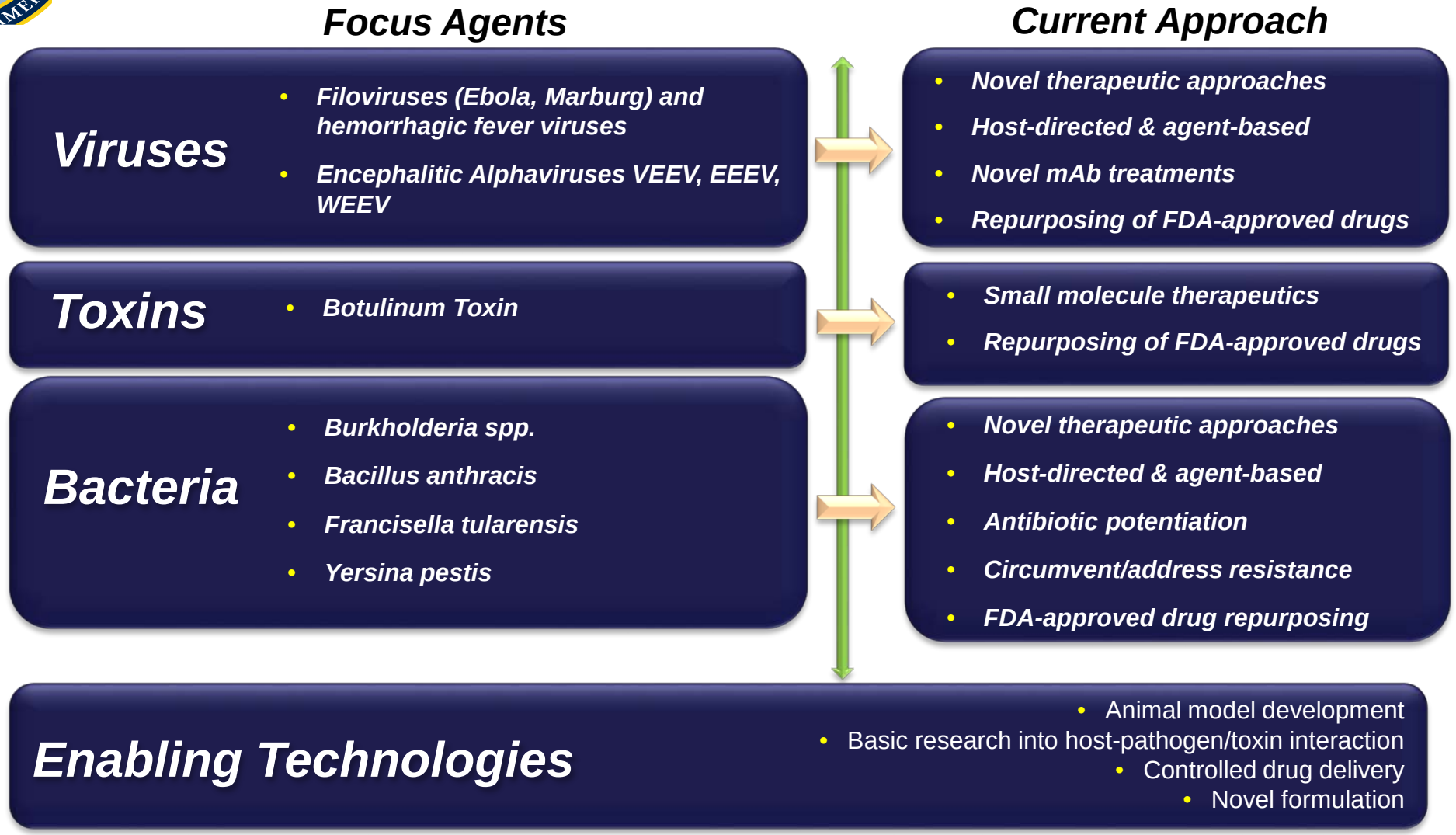
Supporting S&T

Investments in animal model development, novel manufacturing technologies that exploit readily adaptable expression platforms and leverage flexible biomanufacturing technologies, understanding host-pathogen/toxin interaction for identification of targets and/or biomarkers, adjuvants and stabilization technologies, drug delivery methods, and compound library compilation and characterization

Approaches (Vaccines)



Approaches (Therapeutics)



Vaccines/Therapeutics

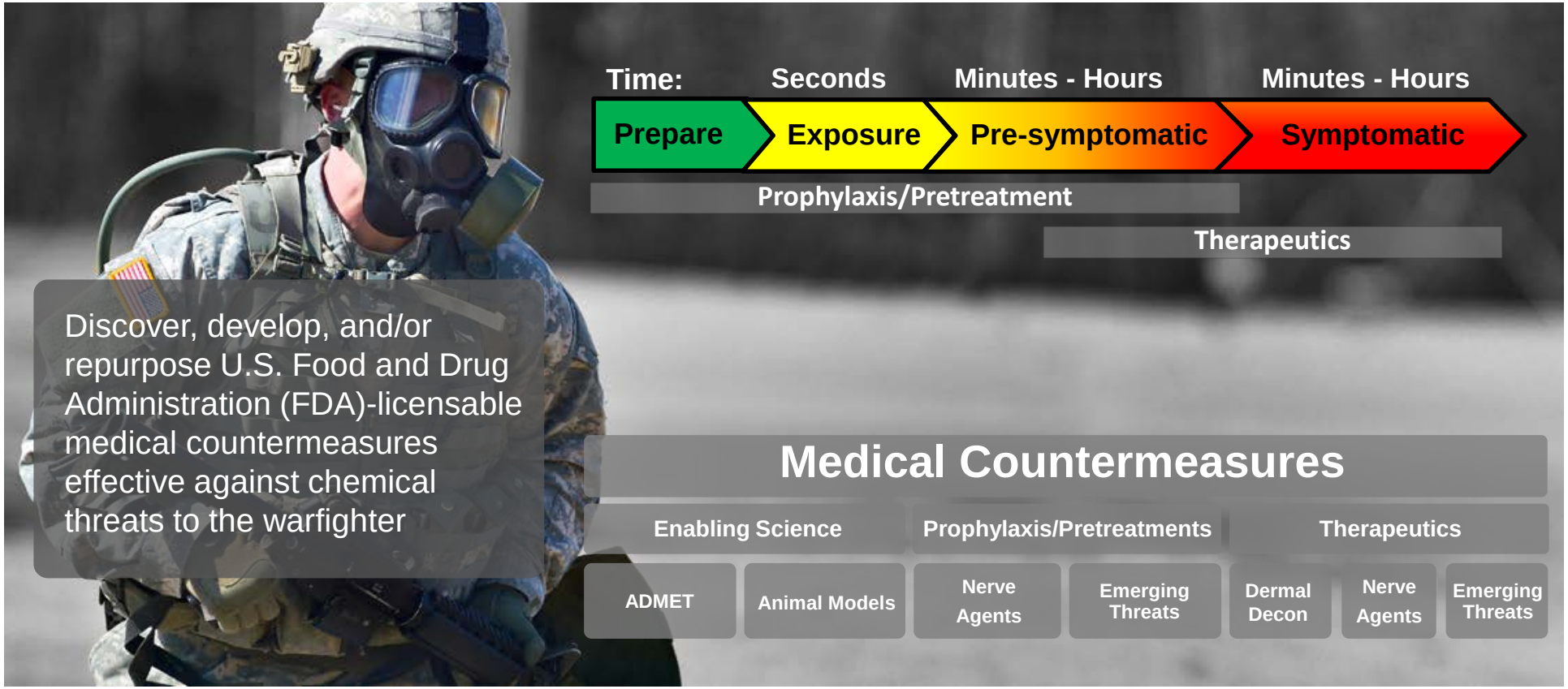
Dr. Erin Reichert

Vaccines and Therapeutics Division
DTRA Research & Development Directorate

Joint Science & Technology Office for
Chemical & Biological Defense

erin.d.reichert.civ@mail.mil

Chemical Medical Countermeasures (MCM) Program



Current Efforts and Interest

Chemical Countermeasures/ Disease Surveillance

Dr. Brandi Vann

Chemical Countermeasures and Disease Surveillance Division
DTRA Research & Development Directorate

Joint Science & Technology Office for Chemical & Biological Defense

brandi.c.vann.civ@mail.mil

Wearable Sensors & Physiological Monitoring

Chemical Countermeasures/ Disease Surveillance

Dr. Ed Argenta

Information Systems Division
DTRA Research & Development Directorate

Joint Science & Technology Office for
Chemical & Biological Defense

edward.p.argenta.civ@mail.mil

Acquisition Opportunities with the Chemical & Biological Defense Program

Broad Agency Announcements (BAAs)

Funding Opportunities

- Always posted on FedBizOpps or Grants.gov
- All DTRA solicitations each have a unique e-mail address for Q&A
- Generally referenced on the DTRA webpage:

http://www.dtra.mil/Contracts/Business-Opportunities/Current-Solicitations/

- Monitor the sites for updates!

http://www.fbo.gov

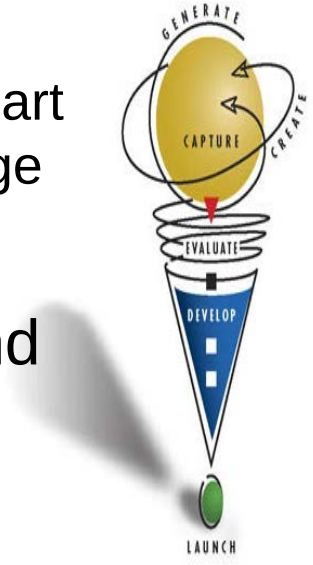
http://www,grants.gov

http://www.sbir.gov

http://www.dtra.mil

Acquisition Opportunities in the DTRA Chem/Bio Technologies Department

- Broad Agency Announcements (BAA)
  - ➢Advertised on the Federal Business Opportunities web-site: http://www.fbo.gov
  - ➢DTRA ‘two-step’ proposal process: Phase I Quad Chart and White Paper; Invited Phase II Full Proposal Package



- Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR)
  - ➢Advertised at https://sbir.defensebusiness.org
  - ➢SBIR Phase I leads to a possible contract award, where as the BAA ‘Phase I’ (see above) does NOT lead to an award

Fundamental Research BAA Solicitation: HDTRA1-14-24-FRCWMD-BAA

- In effect March 2015-September 2024; posted at Grants.gov
- TRL1, 2, 3, and ~early 4; Basic and Exploratory Applied Research (6.1 & 6.2)
- Applications MUST be submitted to Grants.gov using the application packages posted with the opportunity
- Majority of resulting awards will be grants; other award types are permissible
- BAA continuously OPEN for good ideas
  - HOWEVER – interested parties must first send e-mail (200 word max) to Thrust Area Email detailed in BAA (Section 7)
  - Based on interest, a White Paper may be accepted
- Questions? Email: **HDTRA1-FRCWMD-A@mail.mil**

Chem-Bio Technologies BAA Solicitation HDTRA1-19-S-0001

Chemical Biological Technologies Department BAA, FY2019 Program Build

- Applied Research & Advanced Technology Development
- Seeks R&D projects with strong technical merit valuable to program requirements and goals to improve military chemical and biological defense capabilities
- **BAA released 1 February 2019; Quad Charts/White Papers due: 18 March 2019 No Later Than (NLT) 2:00pm Eastern Time**
- Questions? Email: Dtra.belvoir.J9.mbx.CB-BAA@mail.mil

Rapid Innovation Fund (RIF) BAA

- Rapid Innovation Fund now a ‘Permanent’ Program of Record
- Not issued as a DTRA BAA, but rather an OSD ‘Joint Services BAA’
- Assistant Secretary of Defense/Research & Engineering (ASD R&E)
- Historically up to $3M/project; max. 2-Year PoP
- TRL5/6 leading to higher TRL
- Transition Partner/Acquisition Program of Record identified
- Open to Industry & Small Businesses, but small businesses have preference
- See: https://defenseinnovationmarketplace.dtic.mil/business-opportunities/rapid-innovation-fund/

Websites of Key Importance

- SBIR & STTR Programs

  http://www.sbir.gov
- DoD SBIR Proposal Submission ***(all DoD Services & Agencies)***

  https://sbir.defensebusiness.org

- DTRA Business Opportunities

  http://www.dtra.mil/Contracts/Business-Opportunities/Current-Solicitations/
- DTRA BAA Proposal Submission

  http://www.dtrasubmission.net

Some Helpful Resources

Federal Business Opportunities: https://www.fbo.gov/

Grants.Gov: http://www.grants.gov

Guide to DoD Contracting Opportunities:
http://www.acq.osd.mil/dpap/cpic/cp/doing_business_with_the_department_of_defense_dod_us.html

Assistant Secretary of Defense/Research & Engineering (ASD R&E) (previously the DoD Office of Small Business Programs): Doing Business with the DoD:
http://www.acq.osd.mil/osbp/sb/dod.shtml

DoD SBIR/STTR Program Information for Small Businesses:
https://sbir.defensebusiness.org

Business Opportunities at DTRA:
http://www.dtra.mil/Contracts/BusinessOpportunities.aspx

Rapid Innovation Fund (RIF):
https://defenseinnovationmarketplace.dtic.mil/business-opportunities/rapid-innovation-fund

CBD SBIR/STTR Contact Information

Mr. Larry Pollack
Chemical and Biological Defense SBIR/STTR Program Manager
Joint Science & Technology Office for Chemical and Biological Defense
Defense Threat Reduction Agency
Fort Belvoir, VA 22060-6201

lawrence.p.pollack2.civ@mail.mil

(571) 616-6037

Acquisition Opportunities with the Chemical & Biological Defense Program

But First –

A Primer in DoD Acquisition Language

‘6-Point What?’

- DOD divides its RDT&E account into seven categories, each with a numerical code
  - Basic Research (known as ‘6.1’)
  - Applied Research (‘6.2’)
  - Advanced Technology Development (‘6.3’)
  - Advanced Component Development and Prototypes (‘6.4’)
  - System Development and Demonstration (‘6.5’)
  - RDT&E Management Support (‘6.6’)
  - Operational System Development (‘6.7’)

RDT&E Funding

- The ‘6.1,’ ‘6.2’, and ‘6.3’ categories are often grouped together as **"Science and Technology"** (S&T): basic research, applied research, and advanced technology development, respectively.

- S&T is separate from the ‘6.4’ and higher categories (thru ‘6.7’), which are focused on the final development and testing of specific systems.

- Nearly all DOD support for R&D at colleges and universities comes from the S&T accounts.

Basic vice Applied & Advanced R&D

- Basic Research
  - Technology Readiness Level (TRL) 1 (of 9)
  - 6.1 funding designation
  - JSTO-CBD definition aligned with DoD definition:

    "Basic Research is systematic study directed toward greater knowledge or understanding the fundamental aspects of phenomena and has the potential for broad, rather than specific, application"

Basic vice Applied & Advanced R&D (cont'd)

- Applied Research
  - Technology Readiness Level (TRL) 2, 3, or 4 (of 9)
  - 6.2 funding designation
  - JSTO-CBD definition aligned with DoD definition:

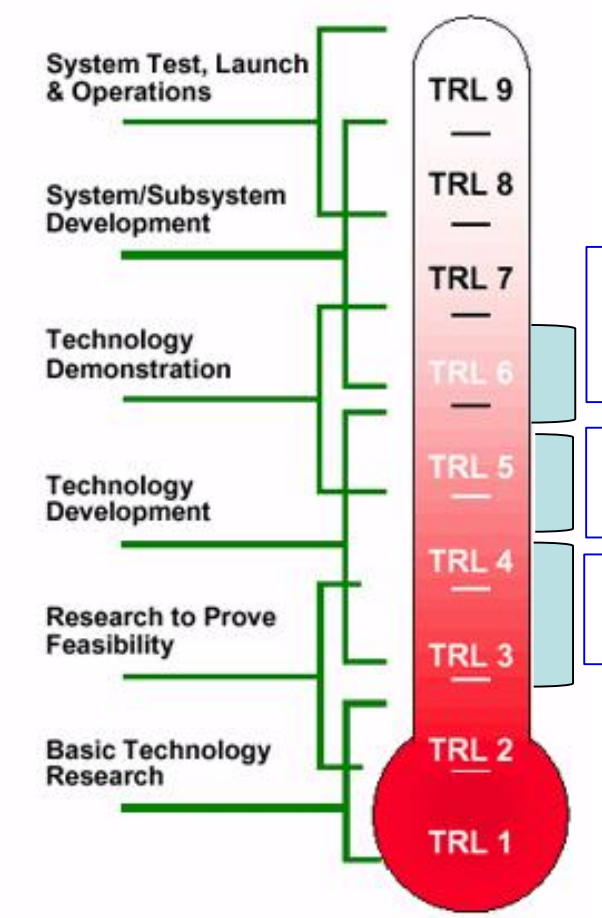
    "translates promising basic research into solutions for broadly defined military needs and includes studies, investigations, and non-system specific technology efforts. It may also include design, development, and improvement of prototypes and new processes to meet general mission area requirements."

Basic vice Applied & Advanced R&D (cont'd)

- Advanced Technology and Development
  - Technology Readiness Level (TRL) 4, 5, 6 (of 9)
  - 6.3 funding designation
  - JSTO-CBD definition aligned with DoD definition:

    "development of subsystems and components and efforts to integrate subsystems and components into system prototypes for field experiments and/or tests in a simulated environment"

SBIR/STTR Phases vice Typical TRL Levels



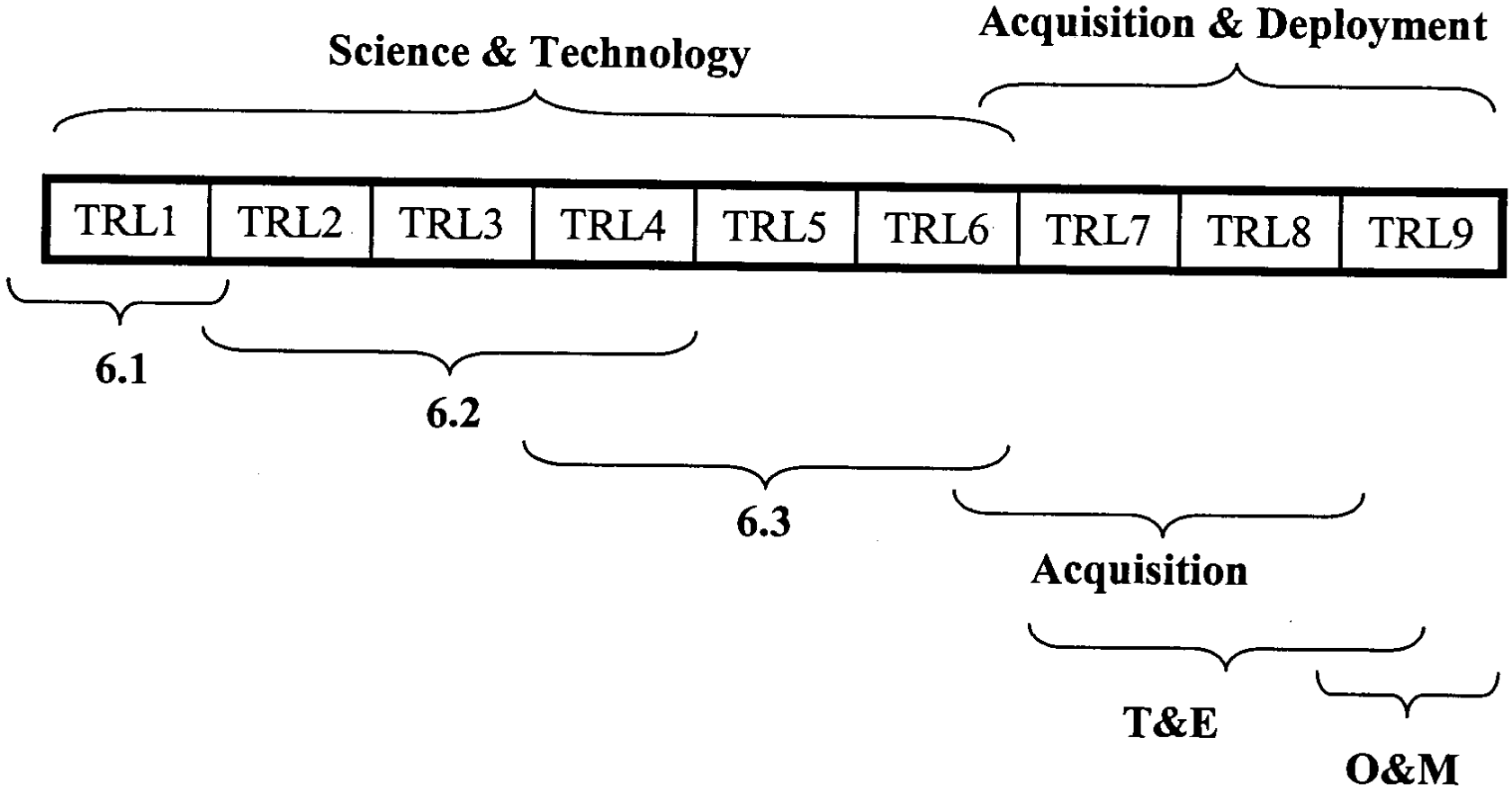
SBIR/STTR Phase III: Commercialization
MUST ONLY USE NON-SBIR/NON-STTR FUNDS;
TRL ~>5/6

SBIR/STTR Phase II: Prototype Development
(2-Year PoP); TRL 4/5

SBIR/STTR Phase I: Proof-of-Concept/ Feasibility
(~6-Month PoP); TRL 3/4

Note: the correlation between TRL & SBIR Phase represent general guidelines with some flexibility associated with each phase

Technology Readiness Levels (TRLs)



DoD TRL Definitions

TRL LEVEL

1. Basic principles observed and reported.
2. Technology concept and/or application formulated.
3. Analytical and experimental critical function and/or characteristic proof of concept.
4. Component and/or breadboard validation in laboratory environment.
5. Component and/or breadboard validation in relevant environment.
6. System/subsystem model or prototype demonstration in a relevant environment.

DoD TRL Definitions (cont'd)

TRL LEVEL

7. System prototype demonstration in an operational environment.
8. Actual system completed and qualified through test and demonstration.
9. Actual system proven through successful mission operations.

- Different TRL definitions for DoD vice NASA
- TRL definitions differ for hardware vice software
- ***'non-Medical' TRL definitions vary from 'medical' TRL definitions***
- The only 'constant': TRL 1 – TRL 9

SEE:
http://acqnotes.com/acqnote/tasks/technology-readiness-level

Contract vs Grant

(in really, really basic terms)

- Contract
  - Requires specific deliverables to receive payment
    - CDRL: Contract Data Requirements List
  - Issued in response to a proposal submitted against a specific technology topic
- Grant
  - Often, Principal Investigator (PI) directed research
  - Deliverables more loosely defined
  - Usually applied towards early stage (basic) research