

**Department of Homeland Security (DHS) Science and Technology
Directorate (S&T) Chemical and Biological Defense Division (CBD) OBAA 14-
003/Call 0020**

1. **Announcement Number:** Open Broad Agency Announcement Number (OBAA) 14-003/Call 0018
2. **FBO Solicitation Number:** HSHQDC-14-R-B0009
3. **Call 0018 Event Dates/Time (Local Eastern Time):**
 - Notification to Submit Full Proposals: April 3, 2017
 - Full Proposal Due Date: **May 3, 2017, 3:00 PM EST**
 - Notification of Selection/Non Selection of Full Proposals: June 6, 2017

There will be no exceptions to the time and date on which responses are due, unless determined otherwise by the Government. Full Proposals received after the designated closing date/time will not be considered.

Note: This Call will be conducted in accordance with the Single-Phased Evaluation Process as described under Section 1.6 of the OBAA. The OBAA 14-003/Solicitation HSHQDC-14-R-B0009 was posted on Federal Business Opportunities (FBO) on June 16, 2014. See below link.

<https://www.fbo.gov/spg/DHS/OCPO/DHS-OCPO/HSHQDC-14-R-B0009 /listing.html>

This Call will consist of the consist of the solicitation, receipt, and evaluation of a Full Proposal, limited to 30 pages, excluding the Formal Transmittal Letter, Cover Page, Summary of Costs and Related Information, Table of Contents and resumes/biographical information for proposed offerors. Once the Full Proposal review process has been completed, offerors will be notified via email, or in writing, that its proposal has been selected, selected but not funded, or not selected for award.

4. **OBAA Call Technical Topic Area (TTA) of Interest:**

The following Technical Topic Areas (TTAs) are representative only. They are provided to help interested offerors understand the classes of needs and their potential scope.

Chemical and Biological R&D Areas of Interest

CBD.01 – Diagnostics and Agent Characterization: Research to develop rapid, robust, and affordable diagnostic tools to support detection, response, recovery, and real-time bio-surveillance and situational awareness. CBD's interest in diagnostics includes efforts in the areas of biological assays, sample preparation, advanced diagnostics (e.g. multiplex, high throughput, low-cost, field-deployable, complex sample matrices, multiple target types), and agent characterization of chemical or biological materials.

CBD.02 – Surveillance and Detection: Advance the capability to provide early warning and detection of a chemical or biological incident in a cost-sustainable way. Effective

surveillance provides essential information to decision authorities on a timescale that allows them to take actions towards mitigating or responding to the threat. Efforts in this area include bioinformatics, open area and facility surveillance through sensing and data integration, and development or improvement of chemical and biological sensors.

4.1. Research Opportunity Description

4.1.1. DHS S&T: Methods and Technologies to Enhance the Collection and Analysis of Biothreat Agents in the Environment.

Background

The U.S. Department of Homeland Security (DHS) is committed to using cutting-edge technologies and scientific talent in its mission to make America safer. The DHS Directorate of Science and Technology (S&T) is tasked with researching and organizing the scientific, engineering, and technological resources of the United States and leveraging these existing resources into technological tools to help protect the homeland. The Chemical and Biological Defense Division of S&T supports this mission by identifying and developing technologies for the DHS operational components that are needed to reduce the probability and potential consequences of a biological pathogen or a chemical attack on the nation's civilian population, its infrastructure, or its agricultural system.

The mission of the Department of Homeland Security (DHS), S&T/CBD is to provide technologies, methods, and solutions to enable the detection of biological agents of concern in a timely manner, and to identify the target agents with a high degree of confidence. As the threat of bioterrorism evolves, DHS intends to assess a wide spectrum of potential technologies that can enhance its capabilities. S&T/CBD is interested in both mature and developing methods, techniques and technologies which address capability needs in the near-term (1-3 years), mid-term (3-5 years), or long-term (5-10 years). DHS's mission space includes preventing, detecting, responding to, and recovering from intentional or accidental introduction of biological and chemical agents which present a threat against the Nation's human population and critical infrastructure. To support this mission, DHS and its state and local partners have a need to quickly collect reliable information to enable a swift and confident response to a biological and/or chemical threat. The Chemical and Biological Defense (CBD) Division within DHS S&T is working toward developing and transitioning technologies that ***demonstrate significant improvements*** to current collection, extraction, preservation of signature, and analytical approaches in sensing and identifying chemical or biological agents in all types of environmental samples (solid, vapor, liquid) with high confidence. The purpose of this Call is to determine if there are mature or developing technologies from academic, commercial, or interagency sources that can address a number of gaps and in Areas-of-responsibility to improve the detection and characterization of biological agent signatures, and provide novel and significant improvements to current capabilities.

4.1.2. Description Technical Topic Areas

1. Improvement in the activity, stability, inherent processive integrity, and capabilities of amplification enzymes and polymerases used in the analysis of nucleic acids derived from select and non-select agents. In other words, how can these heat-stable polymerases be improved, either by genetic manipulation and site-directed mutagenesis, or by using chemical stabilization reagents to reduce degradation of the enzyme, thus allowing for longer enzyme “life,” better signal generation, and extension of cycle numbers.
2. Development of novel primer and probe chemistries, methods to reduce or defeat primer-dimer formation, provide methods and reagents (fluor and quencher dyes) to increase the sensitivity and spectral range of detection. Use of 3’ or 5’ adducts or other covalent modifications that would allow for such improvements.
3. Development of new and novel environmental filter materials for the recovery of nucleic acid signatures and the use of (RNA and DNA) nuclease inhibitors in the filters to increase stability of signature nucleic acids, and subsequently the rates of recovery from environmental filters of various compositions. DHS is also interested in *inexpensive* inhibitors of RNAses and DNAses that are stable yet active on environmental collectors.
4. Development of *novel* signature extraction chemistries to allow for the recovery and subsequent analysis of intact, low concentration, agent genomic nucleic acids (DNA and RNA) and proteins from environmental filters of various compositions. How do we improve the extraction of nucleic acid target templates to enable more efficient amplification or detection? We are not interested in adaptations or leveraging of existing chemistries, commercial platforms or kits.
5. Inhibitors for use in transport “buffers” to allow for the immediate transport and indefinite storage of environmental filters to prevent the degradation of nucleic acid, antigenic-protein signatures, or both.
6. Development of techniques, methods, stabilizers, preservatives, to allow for the recovery and culture of “live” or “viable” biological materials and organisms, and viruses from environmental collectors (This task is separate from signature recovery efforts.)
7. Development of technologies that allow recovery of live bacterial or viral agents from the air such that the sample can be used for growth of the organism or virus. The technology should be applicable to indoor and outdoor collection.
8. Techniques and technologies that allow real-time detection of select biological agents without amplification or use of specialized reagents; *e.g.*, antibodies, primers, probes, RT-

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PCR, PCR. This detection should be capable of specific identification, but levels of specificity will be accepted for review by the evaluation panel.

Proposals may include one, some or all individual topic areas. Please include a technical plan and description of tasks needed by the offeror's proposed team to accomplish each one, *e.g.*, what is required to address each topical area. Describe how the work will be done, how the metrics will be met, the deliverables and milestones for each topic solution proposed; the estimated cost of doing the work, and the proposed schedule for completion should be included in the proposal.

The Government has established metrics for assessing the capabilities and qualifications of the proposer to successfully meet the requirements of this Call. The criteria shown in the Evaluation Criteria section will be given **equal** weight in determining the final decisions of the source selection committee. An offeror may submit a **full** proposal to this technical topic area. The proposal will be reviewed by a panel of subject matter experts as described below in the Evaluation Criteria section. Failure to address each criterion fully will result in rejection of the proposal as non-responsive.

Note also that the emphasis with respect to past performance for the topic area will be based on demonstrated and prior experience as judged by reviewers to yield the highest possible quality of performance to assist the DHS in its biological detection and surveillance portfolio. Offerors are encouraged to submit brief and concise plans to execute the tasks, and to include information that will allow the reviewers to judge against the criterion shown in the Evaluation Criterion section.

5. **Number of Selections:** DHS S&T expects to make one or two awards using its FY 2017 funds for proof-of-concept results and data.
6. **Anticipated Ceiling:** Although subject to official fiscal appropriation and availability, it is anticipated that approximately \$1M of Fiscal Year (FY) 2017 funds will be available for any resultant awards under this OBAA Call. **The Government will reserve the right to incrementally fund any resultant contracts awarded from this OBAA Call as provided by the FAR 52.232-22, "Limitation of Funds."** Contracts or other agreements that obligate funds will not have an initial period of performance that exceeds 18 months from the date of contract award. However, Offerors will be able to propose a base effort with additional option years.
7. **Anticipated Award Type:** Award type is anticipated to be in the form of Cost Reimbursement type contracts. However, the Government reserves the right to award Fixed Price or Interagency Agreements (IAs) to appropriate parties should the situation warrant.

In the event an offeror or subcontractor is a Federally Funded Research and Development Center (FFRDC), Department of Energy National Laboratory, or other Federally funded entity, DHS/S&T will work with the appropriate sponsoring agency to issue an interagency agreement pursuant to the Economy Act (31 U.S.C. 1535) or other appropriate authority.

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- 8. Anticipated Award Dates:** The 4rd Quarter of Fiscal Year 2017 is when the government anticipates making any resultant contract awards under this Call for those Proposals which are selected. However, the award date for any resultant contract award may vary based on the quality of the proposals received and the availability of funds.
- 9. White Paper Instructions:** NA – No white papers are being requested in response to this Call.
- 10. Full Proposal Instructions:** Offerors shall submit their Full Proposals in accordance with OBAA 14-003, Section 5.4 - Format and Content of Full Proposals. See FBO link above for access to OBAA 14-003/Solicitation Number HSHQDC-14-R-B0009.
- 11. Evaluation Criteria:** The evaluation of the full proposals will be accomplished through an independent technical review using the following criteria:

Criterion I: Scientific Merit: The Offeror must demonstrate full understanding of the critical technology and scientific challenges required to achieve the desired performance metrics and strategy as described elsewhere within this Call announcement. The research approach should be scientifically sound, practical, and technically defensible. The technical approach is innovative and has advantages over other solutions, if successfully implemented. The research must contribute to scientific knowledge in the topic area and the proposal must enumerate the potential benefits of the proposed research. The proposal shall demonstrate an awareness of the state-of-the-art. The proposal should be well-prepared with supportive information that is self-explanatory.

Criterion II: Sound Technical Approach: How the proposed work or technology will meet or exceed the current tools in use at present. The merit of the technical approach over other competing (current) approaches should be clearly delineated. How the proposed technology will be transitioned into a sustainable *government* market and what the intended use, or concept of operations would be. All critical scientific and technical issues and risks are clearly identified, and the planned development approach and risk mitigation efforts are clearly defined and feasible.

Criterion III: Sound Management Approach: Presentation of a sound managerial approach to the proposed work, including a demonstrated understanding of the issues and challenges associated with achieving the goals of the topic, and a strategy to address those issues and challenges. A successful team will possess multidisciplinary expertise to address the complexity of the effort.

Criterion IV: Capability to Perform and History of Performance: Demonstration of a capability to perform the proposed work, including history, if applicable, of previous successful performance in developing related solutions and technologies. Specific considerations will include:

- The Offeror must possess clear and convincing qualifications and must have a proven record of performance and experience, including successful production of and authorship on peer

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reviewed publications related to projects associated with the technical areas being proposed, e.g., collection, extraction, and detection of select agent signatures from an environmental, complex background.

- The Offeror must have an understanding and knowledge of environmental collection and detection, assay development, and technical requirements associated with the specialized techniques and assays involved in the analysis and differentiation of select agents from near-neighbors and environmental microorganisms.
- The Offeror has an established collaboration in place to obtain and supply the necessary biological materials and strains to demonstrate and provide proof-of-concept results. Note: initial work need not include select agents, only non-virulent organisms are needed to demonstrate proof-of-concept.
- Offeror's team is sufficiently complete: Key personnel are identified with the required range of competencies to execute this effort and the team includes appropriate experience and publication record.

Criterion V: Cost Realism/Reasonableness: Presentation of accurate, well-founded and reasonable estimates of all costs related to performance of the proposed effort, including an appropriate allocation of labor resources. Members of the Review panel will be looking for overall *best* value to the government.

12. Foreign Concerns: Foreign persons are advised that their participation may be subject to Export Control restrictions in accordance with OBAA 14-003 Section 8.3. Any such restrictions shall be reviewed on an individual award basis.

13. iDURC Requirements: The performer and any proposed sub-performer(s) working under any award resulting from this BAA Call shall conduct all research involving agents and toxins identified in sections III.1 and 6.2.1 of the USG Policy for Oversight of Dual Use Research of Concern and USG Policy for the Institutional Oversight of Dual Use Research of Concern, respectively, in accordance with both policies referenced above and in accordance with any additional requirements set forth in related DHS policies and instructions. Each performer and any sub-performer(s) planning to perform research involving agents and toxins identified in sections III.1 and 6.2.1 of the USG DURC policies under this award must attest at the time of seeking funding that they are in compliance with all aspects of the Policies.

14. Questions: Any questions concerning this call must be submitted via email to the Contracting Officer at Michael.Jones@hq.dhs.gov no later than **April 10, 2017 3:00 PM EST** in the following format:

Question #	Reference	Contractors' Question
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1	General (if there is no specific document reference)	
2	(Example) OBAA 14-003, page 15, Section 5.2, first paragraph, second sentence	
3	(Example) OBAA 14-003/Call 0020, page 2, Section 9, first sentence	

Please include “Questions for OBAA 14-003/ Call 0020” in the subject line. All questions and responses will be posted on the Federal Business Opportunities website <http://www.fbo.gov> and <https://baa2.st.dhs.gov> . Questions will only be accepted or answered electronically.