

**Department of Homeland Security (DHS) Science and Technology Directorate
(S&T) Chemical and Biological Defense Division (CBD) BAA 14-003/Call 0014**

1. **Announcement Number:** BAA 14-003/Call 0014
2. **FBO Solicitation Number:** HSHQDC-14-R-B0009
3. **Solicitation Open/Close Dates:**
 - White Paper Closing Date – 07 January 2016 3:00 PM EST
 - Notification to Submit Full Proposals – 1 February 2016
 - Full Proposal Due Date – 8 March 2016 12:00 PM EST

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

Note: This Call will be conducted in accordance with the Two-Phased Evaluation Process as described under Section 1.6 of the OBAA. The OBAA Solicitation HSHQDC-14-R-B00009 was posted on Federal Business Opportunities on June 16, 2014 and can be found at:

https://www.fbo.gov/index?s=opportunity&mode=form&id=3935288433485a6ee877134ac7d2a8a9&tab=core&_cview=1

4. Research Opportunity Description:

Chemical and Biological Research and Development CBD.05—Bioforensics and Chemical Forensics: Research and development of next generation and novel technologies to characterize biological and chemical threat agents for source attribution in support of FBI and NBFAC requirements in a criminal investigation. These include novel technologies to characterize the organism, the agent, or the sample matrix.

4.1.. DHS S&T: Bioforensics Research and Development (R&D) Whole Genome Approach to Microbial Forensics

Background

The U.S. Department of Homeland Security (DHS) is committed to using cutting-edge technologies and scientific talent in its quest 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 Homeland Security Act of 2002 (Public Law 107-296) states that DHS S&T will “support basic and applied homeland security research to promote revolutionary changes in technologies; advance the development, testing and evaluation, and deployment of

critical homeland security technologies; and accelerate the prototyping and deployment of technologies that would address homeland security vulnerabilities.” Pursuant to this mission, the Chemical Biological Division (CBD) seeks technologies to prevent and defend against a chemical and biological attack. In addition, the division is charged with pursuing research to improve response and restoration, conduct threat risk assessments, and invest in bioforensics research and development. The focus of this Broad Agency Announcement (BAA) is in the area of bioforensics research.

The threat of terrorist or criminal use of pathogenic organisms and their toxins remains of great concern in the United States. There are vulnerabilities and needs to perform microbial forensic analyses for attribution purposes in a rigorous scientific manner. As part of the effort to deter biological terrorism and strengthen the law enforcement response to such an act, Homeland Security Presidential Directive (HSPD) 10, “Biodefense for the 21st Century” established a dedicated central microbial forensic laboratory known as the National Bioforensics Analysis Center (NBFAC), as part of the Department of Homeland Security to provide bioforensics analysis of evidence associated with the event. The NBFAC operates in partnership with the Federal Bureau of Investigation (FBI), the lead investigative agency in acts of terrorism. This BAA seeks research in the following technical focus areas (TFAs) to support the missions of the NBFAC and FBI for evidentiary analysis and interpretation of results to support a criminal investigation. The ultimate goal of this joint mission is the capture, indictment, and prosecution of the perpetrator(s) of the biocrime or terrorist attack.

The NBFAC has instituted a robust, operational molecular biology program with enhanced capabilities to conduct genomic analysis of biological threat agents. The Bioforensics Research and Development Program supports NBFAC operational threat agent identification and characterization through investments in microbial forensics research and next generation technologies to include molecular biology, genomic comparison techniques, genotyping assays and physical/chemical analysis of sample matrix to better understand the origin, evolutionary history, production method and dissemination mechanism associated with the malicious use of biological agents.

4.1.1. Description of White Paper Technical Topic Areas

Pursuant to this mission, the Bioforensics R&D Program seeks products and research in three technical topic areas:

- 1) Identify and sequence near neighbors of *Francisella tularensis*
- 2) Metagenomics analysis of complex biological samples
- 3) High confidence metagenomics analysis of complex samples

An Offeror may submit a White Paper to one, two, or three technical topic areas. Whether an approach is applicable to all or multiple technical topic areas, each technical area shall comprise of its own White Paper. In other words, do not co-mingle an approach applicable to multiple technical topic areas into a single White Paper submittal.

4.1.1.1. *Technical Topic Area (TTA)1: Identify and sequence near neighbors of Francisella tularensis*

DHS S&T seeks proposals to identify and sequence near neighbors of *Francisella tularensis*. The goal of TTA-1 is to develop data that will support an increased specificity of molecular assays for the identification of pathogenic *Francisella tularensis* strains at the exclusion of near neighbors. The plan should identify those isolates that are available and include a plan to sequence them, as well as strategies to isolate and sequence near neighbors from environmental isolates.

4.1.1.2. *Technical Topic Area 2: Metagenomics analysis of complex biological samples*

DHS S&T seeks proposals to develop methods that will be transitioned to operational laboratories for sample prep methods that will support metagenomic analysis of complex biological samples. TTA-2 will be focused on the development of methods for sample preparation of complex samples containing mixtures of eukaryotic (plant, animal and fungal), prokaryotic, and viral DNA and RNA to support whole genome sequencing. It is the goal of DHS that the methods developed will provide for a non-biased isolation DNA and RNA to support downstream analysis of whole genome sequencing platforms to include, but not limited to, Miseq, Hiseq and Pac Bio. The end product should provide DHS with protocols that include quantitative limits for the isolation of eukaryotic (plant, animal and fungal), prokaryotic, and viral DNA and RNA in complex backgrounds.

4.1.1.3 *Technical Topic Area 3: High confidence metagenomics analysis of complex samples*

DHS S&T seeks proposals to provide a foundation for high confidence metagenomic analysis of complex samples that will be transitioned to operational laboratories. TTA-3 is focused on the development of informatics and statistical tools needed to identify and characterize complex biological mixtures of eukaryotic (plant, animal and fungal), prokaryotic, and viral DNA and RNA, excluding clinical samples. The input data would be from genome sequencing platforms that include but are not limited to Miseq, Hiseq, and Pac Bio. There is no limitation on computational support needed to achieve this task. It is anticipated that the final product will provide DHS with the tools needed to identify the constituents (based on the DNA and RNA) of complex biological samples and provide robust confidence levels for the identification each biological agent. DHS will not entertain proposals that are based on 16 S ribosomal DNA methods.

5. **Number of Selections:** It is anticipated that multiple selections will be made depending on the quality of the White Papers and availability of funds.
6. **Anticipated Ceiling:** Although subject to official fiscal appropriation and availability, it is anticipated that approximately \$2.631 million of Fiscal Year (FY) 2016 funds will be available for any resultant awards under this BAA Call. **The Government will reserve the**

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right to incrementally fund any resultant contracts awarded from this BAA 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 12 months from the date of contract award. However, Offerors will be able to propose a base year 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 will reserve the right to award Fixed Price or Interagency Agreements (IAs) to appropriate parties should the situation warrant.
8. **Anticipated Award Dates:**
The 3rd Quarter of Fiscal Year 2016 is when the government anticipates making any resultant contract awards under this Call for those White Papers that 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:** Offerors shall submit their White Papers in accordance with BAA 14-003, Section 5.2 - Application and Submission Process.
10. **Evaluation Criteria:** The evaluation of Proposals will be accomplished through a peer review process using the following criteria, which are listed in descending order of relative importance.

Criterion I: Sound technical and managerial approach to the proposed work, including a demonstrated understanding of the critical technology or engineering challenges required for achieving the goals of the TTA.

Criterion II: Potential of the technology/solution for meeting the TTA goals provided in BAA 14-003 resulting in the best ideas and concepts.

Criterion III: Qualitative assessment of the commercialization experience and strategy to determine the likelihood that the offeror will be able to deploy a technology and/or solution(s) that can be transitioned effectively to the user community either through commercialization of the technology or through other means.

Criterion IV: Capability to perform proposed work and history of performance of the Team in developing related technologies.

Criterion V: Each offeror's cost/price proposal will be evaluated for reasonableness and completeness of the proposed contract cost.

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Evaluation of Full Proposals will be based on an assessment of the overall best value to the government based on the aforementioned criteria. Awards will be made based upon Full Proposal evaluation, funds availability, and other programmatic considerations, including awards to lesser rated proposals where orthogonal or alternative approaches and technologies are deemed to be more technically advantageous. Once the proposal evaluation process is complete, Offerors will be notified of selection or non-selection for an award. Offerors not selected for an award may request feedback regarding the evaluation findings of submitted proposals. A written request to the Contracting Officer must be received within 3 calendar days of notification of non-selection.

- 11. Foreign Concerns:** Foreign persons are advised that their participation may be subject to Export Control restrictions. Any such restrictions shall be reviewed on an individual award basis.
- 12. Proprietary Information:** The Government will be utilizing non-federal employees for both subject matter expertise and administrative assistance in accordance with Section 6.2 of the OBAA. As a reminder, it is the sole responsibility of the offeror to initiate and submit the completed company-to-company agreement for this BAA Call. The company-to-company agreement is due at the time of the proposal due date. If the company-to-company agreement is not received with the proposal, the proposal will not be further evaluated for award.

The list below contains Points of Contact (POC) within each Government support company who can facilitate a company-to-company agreement.

Company: Noblis
POC: Alvin Smith – Alvin.Smith@noblis.org

- 13. Questions:** Any questions concerning this call must be submitted via email to the Contract Specialist at Jigisha.patel@hq.dhs.gov and copy the Contracting Officer at Michael.Jones@hq.dhs.gov no later than **17 December, 2015 11:00 AM EST** in the following format:

Question #	Reference	Contractors' Question
1	General (if there is no specific document reference)	
2	(Example) BAA 14-003, page 15, Section 5.2, first paragraph, second sentence	
3	(Example) BAA 14-003/Call 0014, page 2, Section 9, first sentence	

Please include “Questions for BAA 14-003/ Call 0014” in the subject line. All questions and responses will be posted on the Federal Business Opportunities website

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<http://www.fbo.gov> and <https://baa2.st.dhs.gov> . Questions will only be accepted or answered electronically.