



Broad Agency Announcement

RadioBio

Defense Sciences Office

HR001117S0021

February 15, 2017

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PART I: OVERVIEW INFORMATION

- **Federal Agency Name:** Defense Advanced Research Projects Agency (DARPA), Defense Sciences Office (DSO)
- **Funding Opportunity Title:** RadioBio
- **Announcement Type:** Initial Announcement
- **Funding Opportunity Number:** HR001117S0021
- **Catalog of Federal Domestic Assistance (CFDA) Number(s):** 12.910 Research and Technology Development
- **Dates** (All times listed herein are Eastern Time.)
 - Posting Date: February 15, 2017
 - Proposers Day: February 21, 2017. See Section VIII.C.
 - Abstract Due Date: March 7, 2017, 4:00 p.m.
 - FAQ Submission Deadline: April 5, 2017, 4:00 p.m. See Section VIII.A.
 - Full Proposal Due Date: April 12, 2017, 4:00 p.m.
- **Anticipated Individual Awards:** Multiple awards are anticipated.
- **Types of Instruments that May be Awarded:** Procurement contracts, cooperative agreements or other transactions.
- **Agency contacts**
 - **Technical POC:** Michael Fiddy, Program Manager, DARPA/DSO
 - **BAA Email Address:** RadioBioBAA@darpa.mil
 - **BAA Mailing Address:** DARPA/DSO, ATTN: HR001117S0021, 675 North Randolph Street, Arlington, VA 22203-2114
- **DARPA/DSO Opportunities Website:** <http://www.darpa.mil/work-with-us/opportunities>
- **Teaming Information:** See Section VIII.B for information on teaming opportunities.
- **Frequently Asked Questions (FAQ):** FAQs for this solicitation may be viewed on the DSO Opportunities Website. See Section VIII.A for further information.

PART II: FULL TEXT OF ANNOUNCEMENT

I. Funding Opportunity Description

This Broad Agency Announcement (BAA) constitutes a public notice of a competitive funding opportunity as described in Federal Acquisition Regulation (FAR) 6.102(d)(2) and 35.016 as well as 2 CFR § 200.203. Any resultant negotiations and/or awards will follow all laws and regulations applicable to the specific award instrument(s) available under this BAA, e.g., FAR 15.4 for procurement contracts.

A. Introduction and Background

The Defense Sciences Office (DSO) at the Defense Advanced Research Projects Agency (DARPA) is soliciting innovative research proposals that investigate electromagnetic signaling in biosystems. The RadioBio program aims to definitively establish whether purposeful signaling via electromagnetic waves between biological systems exists and, if it does, determine the mechanisms involved and the information being transferred. If electromagnetic communications between biosystems exist, then systematic study of the phenomenon may reveal new knowledge. New applications and capabilities in biology may result from this program, in addition to potential new strategies for dealing with communications in a cluttered electromagnetic environment. The RadioBio program will determine the validity of electromagnetic biosignaling claims and, where evidence exists, learn how the structure and function of these natural “antennas” are capable of generating and receiving information in a noisy, cluttered electromagnetic environment.

Over the last 100 years, biologists have studied communication between cells and a wide variety of biosystems. Chemical signaling between cells has been well studied and is accepted as an essential component of many biological processes. Nevertheless, biosystems are composed of physical entities, many of which are charged and in motion, and therefore generating electromagnetic waves. Within a single cell, distinct biological structures exist over a huge range of spatial dimensions (nanometers to meters) and a similarly large range of phenomenological time scales (picoseconds to minutes). These spatial and temporal scales, combined with the physical diversity of individual biological structures, make it inevitable that a broad spectrum of electromagnetic waves must interact with biosystems. In addition, numerous biological structures are structurally similar to artificial resonant structures and antennas and may respond similarly to electromagnetic radiation.

Some of the consequences of these interactions are well known, including vision, photosynthesis, bioluminescence, neural networks, and magnetic navigation. Very limited information exists regarding kHz–THz electromagnetic interactions between biosystems. Several theoretical papers, some from the past 10 years, argue that a wide variety of electromagnetic interactions are feasible, including THz interactions with DNA, THz emissions from cell membranes, kHz emissions from cells. At the same time, numerous experiments have shown preliminary evidence for the influence of electromagnetic fields on cells and tissues from Hz to PHz. Furthermore, specific biostructures have been hypothesized to act as switches, diodes, transformers, and amplifiers. However, previously published results have not definitely determined if electromagnetic signaling between biosystems exists. In addition, many

experiments have failed to study effects in a parametric and quantitative way, experimentally test quantitative theoretical predictions, or provide adequate controls for systematic errors.

For the purposes of the RadioBio program, any experiment that definitively determines if electromagnetic wave signaling exists must be predictive, quantitative, parametric, and controlled:

- **Predictive:** Specific quantitative theoretical predictions must be made and then tested (which will require modeling/simulating biosystems as transmit/receive antennas, modeling/simulating the surrounding EM environment, etc.). This is in contrast to *observational* research, in which X effect is observed to occur after probing with Y electromagnetic fields – this type of research is not appropriate for the RadioBio program.
- **Quantitative:** Models must predict absolute, numeric measures of field strengths, ranges, bandwidths, channel capacities, etc.
- **Parametric:** Models must predict and experiments must test a continuum of responses as key parameters are varied, in order to reveal and understand underlying mechanisms.
- **Controlled:** Experiments must carefully control for a wide range of systematic effects related to both biological sample preparation and antenna measurements. In addition, adequate verification of results requires a particular model of electromagnetic communication to be tested in different environments, with different biological systems, and at different length and time scales.

B. Program Description/Scope

All RadioBio teams must propose specific electromagnetic signaling mechanisms. Through modeling and simulation, teams must quantify these hypotheses by clearly defining the biosystems and biosystem components that affect the communications channel, the electromagnetic spatial/spectral/temporal/frequency modes that mediate the communication, and the likely sources of background/clutter/noise that degrade the communication. These models must then be used to make quantitative, parametric predictions in multiple biosystems and multiple environments, which, if experimentally verified, would definitively prove the existence of the electromagnetic signaling channel.

DARPA anticipates that cross-disciplinary teams will be necessary to accomplish these goals. More specifically, it is expected that successful teams will include demonstrated and dedicated technical expertise in the following core areas:

- **Theory – Bio-electromagnetics:** In order to define and refine core hypotheses, a team must include experts who understand the complex interactions between the biosystems being studied, as well as effects from the biosystems environment that are not directly involved. Team members must understand the biological ramifications of the proposed communications channels as well as alternate (e.g., chemical) communications channels that could provide an alternate explanation for observed effects. Finally, teams must be able to produce complex models and simulations of these systems, either classical or quantum mechanical, as appropriate.

- **Theory – Antenna Design:** Teams must have the ability to model complex antenna systems, using either classical or quantum tools as needed, but without using many of the assumptions common to antenna design. Biosystem antennas will likely span the near and far field, be smaller than a single wavelength, be contained in non-uniform arrays, be contained in complex aqueous and charged environments, and have structures that are moving and changing on the same timescales relevant for electromagnetic emission and detection.
- **Experiment – Biosystem Preparation:** Teams must demonstrate the ability to prepare all required biosystems on multiple scales and environments. Teams must demonstrate a deep understanding of the potential systematic errors and potential variations between different biosystem preparations as well as a quantitative understanding of the systematic errors such preparations will introduce into measurements.
- **Experiment – Electromagnetic Measurements:** Teams must demonstrate the ability to produce sources and detectors with sufficient bandwidth, stability, efficiency, noise, and wavelengths to test proposed hypotheses. In particular, it is essential that team members understand both the effects of electromagnetic background/clutter and their effect on experimental precision and repeatability.

While the scope of the program includes the entire electromagnetic spectrum, from low frequency electromagnetic waves through to PHz, DARPA’s interest in new research means that preference may be given to proposals focusing on the kHz to THz range where less is known. A specific requirement for proposals is that an electromagnetic wave information channel is unambiguously identified in a biosystem, in the sense that a transmitted signal results in a specific biological consequence and that this behavior is reproducible with respect to event and frequency used. Similarly, a predictive model for the transmit/receive antenna or biological “circuitry” is required, as is quantitative experimental verification of the model. Experiments must be clearly described, with particular attention paid to controls and systematic effects. In order to show reproducibility and repeatability, a model’s predictions must be verified in multiple systems and multiple environments. Proposed research may investigate electromagnetic exchanges between similar or dissimilar biosystems.

In order to be eligible for funding, proposals must include:

- A clear description of the classes of hypotheses to be studied, including the hypothesized purpose of the communication channel and the biological consequence of a received electromagnetic signal
- A list of biosystems to be studied, with justification that these biosystems will be sufficient to test the proposed hypotheses
- The anticipated electromagnetic frequency range to be studied
- The hypothesized mode structure of the electromagnetic fields involved, including spatial/spectral/temporal/frequency components
- A clear description of the modeling strategy for the biological environments and their interaction with electromagnetic waves, including hypothesized mechanisms for emission, modulation, and detection (may be described by classical antenna theories or quantum processes)
- A clear description of the antenna modeling strategy, including how the proposers will address the near/far field, time-varying antennas, non-uniform arrays of biological

sources and detectors, source and detector size as they relate to the wavelength of the electromagnetic fields, and the aqueous charged environment of, for example, a single cell

- A clear argument that the proposed electromagnetic sources and detectors have sufficient bandwidth, stability, tenability, and spectral/temporal/spatial mode structure sufficient to test the proposed hypotheses
- A clear argument that the theoretical and experimental plan presented will allow the unambiguous testing of the proposed hypotheses
- A clear argument that the experimental plan will be predictive, parametric, quantitative, and controlled
- A description of anticipated systematic sources of noise, clutter, and background (both biological and electromagnetic), and anticipated mitigation strategies

The following are not appropriate for submission to the RadioBio BAA and will render a proposal non-selectable:¹

- Observational studies, which propose to collect evidence that electromagnetic waves create biological changes, but which do not include a predictive, quantitative, parametric theoretical model
- Studies which do not clearly describe controls for systematic errors and effects
- Hypotheses that cannot be tested in multiple systems and environments
- Poor experimental controls or lack of quantitative metrics.

C. Program Structure

The program will be structured in two 24-month phases with teams performing in two Technical Areas (TAs): TA1-Hypothesis Testing, and TA2-Theory Support. Descriptions of the phases and technical areas are provided in the following sections. Also, see Section C.3 for a graphic depicting the notional program schedule.

1. Phase Descriptions

Phase 1 (24 Months): Discover Bio-EM Communications

The goal of Phase 1 will be to definitively determine if purposeful electromagnetic signaling exists in biological systems. Phase 1 will be divided into two sub-phases, 1A and 1B, each 12 months in duration.

Phase 1A (12 months): During the first 12 months of the program, teams will clearly describe their hypothesized bio-electromagnetic communications channels and demonstrate the theoretical and experimental capabilities needed to unambiguously test their hypotheses in predictive, quantitative, parametric, and controlled experiments.

¹ See Section V.B for information on the proposal selection process.

Phase 1B (12 months): During the last 12 months of Phase 1, teams will test their hypotheses, definitively determining if purposeful electromagnetic communication between biosystems occurs. If it does, teams will determine what information is being transmitted and how it is being encoded.

Required Metrics: All teams must propose a list of metrics appropriate to their effort. All metrics must be described in terms of: (1) the precision with which the metric can be theoretically predicted; (2) the precision with which the metric can be experimentally measured; and (3) the accuracy with which the theoretical prediction will match the experimental prediction. All proposed metrics must be predictive, quantitative, parametric, and controlled. Proposals should give specific metrics and associated precision/accuracy targets for 6, 12, 18, 24, 36, and 48 months into the program. Proposals should specify all metrics necessary to show that their proposed class of hypotheses can be definitively tested.

Phase 2 (24 Months): Exploit Communications Channel

The goal of Phase 2 is to apply the knowledge gained from Phase 1 by designing and implementing engineered communication systems in model systems. The potential test beds to demonstrate the learned design principles include but are not limited to sensing or regulation of biological functions. Proposals must identify specific potential applications for their hypothesized communications channels and detail how their activities in Phase 2 – if successful – will lead to potential real-world applications. Successful proposals will define how communications will be implemented and how variables will be controlled. Because the design principles will not be known until the conclusion of Phase 2, proposers should discuss prior efforts or team member capabilities that will enable rapid implementation of the lessons learned in Phase 1. Intimate knowledge of a model system will be a key consideration.

Required Metrics: In addition to the precision/accuracy metrics described above, proposers should provide specific, quantitative metrics for their proposed Phase 2 efforts. These metrics should be sufficiently stringent that if reached, the proposed new application based on a biological electromagnetic communications channel would be immediately realizable and broadly implementable.

2. Technical Area Descriptions and Milestones

As mentioned above, all submissions will fall into one of two Technical Areas, Hypothesis Testing or Theory Support. Proposers may submit to both TAs; however, each TA must be addressed in a separate submission.

TA1: Hypothesis Testing

This is the primary focus of the RadioBio program. Teams responding to this TA must propose, model, and experimentally test specific hypothesized channels for electromagnetic communication in biological systems. All teams proposing to TA1 must demonstrate expertise in the following four core areas of expertise (see C. Program Description / Scope for a detailed description of these four elements):

- Theory – Bio-electromagnetics

- Theory – Antennas
- Experiment – Biological System Preparation
- Experiment – Electromagnetic Measurements

All teams proposing to TA1 must show they are capable of addressing all program milestones and program goals without any additional support. However, they must also demonstrate that their team structure is capable of accommodating additional theoretical support if provided (see TA2).

Required Milestones: All proposals to TA1 must address the following required milestones in the statement of work and schedule.

Phase	Month	Milestone	Description
Phase 1A	6	Define Hypotheses	All teams must clearly identify their hypothesized communications channels as well as what specific predictions and experimental tests must be undertaken to definitively demonstrate that these communications channels exist. Each hypothesis must include the specific quantitative, parametric predictions that will be experimentally tested, as well as the specific systematic effects that will be controlled for.
	12	Demonstrate All Tools Needed to Test Hypotheses	Teams must demonstrate all theoretical and experimental tools necessary to definitively test their hypotheses. At this point, these tools do not need to be combined into a cohesive experiment, but all crucial elements must be present and tested.
Phase 1B	18	Complete First Experimental Tests of Hypotheses	All teams should have combined all key elements and made the first complete tests of theoretical predictions.
	24	Complete Verification and Validation of Experimental Results	In order to definitively demonstrate that a communications channel exists, the effect will need to be verified using several different biological systems, at several different scales, in several different environments. By the end of Phase 1, all required verification and validation experiments must be completed
Phase 2	30	Identify All Necessary Tools	Teams must identify all theoretical and experimental tools necessary to exploit an electromagnetic communications channel for either biological sensing or regulation of a biological process.
	36	Demonstrate All Necessary Tools	Teams must demonstrate all basic technical capabilities, both theoretical and experimental, needed to exploit their effect of choice.

	42	Successfully Exploit an Electromagnetic Communications Channel	All teams must successfully demonstrate biological sensing or regulation as a result of a biological electromagnetic communications channel.
	48	Successfully Demonstrate New Sensing/Regulation Application	Teams must show that they can, in principle, transfer a robust procedure to others who can replicate new sensing or regulation capabilities.

TA2: Theory Support

A team, with a strong track record in, for example, antenna design may alternately propose to provide theoretical support for the program. In this case, a proposing team should demonstrate that they can provide a specific theoretical capability that will be useful to the overall goals of RadioBio. TA2 performers will model how the structure and function of biosystem structures, identified as natural antennas, are capable of generating and receiving information in what is likely to be a noisy spectral environment. Models will provide quantitative and parametric descriptions and predictions. This support may guide experiments towards definitively establishing whether purposeful communication via electromagnetic waves between biological systems and model what mechanisms are involved and what information is being transferred.

Proposals to TA2 must clearly:

- Provide precision metrics for systems they plan on modeling / simulating (they are not required to provide experimental precision metrics or accuracy metrics)
- Clearly describe what systems and effects they are capable of modeling, including how those results would be quantitative, predictive, and parametric
- Clearly describe the systematic effects and cluttered environments for which their modeling / simulations would be relevant

Proposals to TA2 will only be considered eligible for funding if their specific proposed capabilities are seen to support the broader RadioBio portfolio.

3. Schedule

Proposers should provide a technical and programmatic strategy that conforms to the entire program schedule and presents an aggressive plan to fully address all program goals, metrics, milestones and deliverables. Proposals should be structured with Phase 1 as a base period and Phase 2 as an option. The task structure must be consistent across the proposed schedule, Statement of Work, and cost volume. All proposals must include metrics appropriate for demonstrating progress over the course of the program. Subject to performance, funds availability, and other program considerations, DARPA anticipates only carrying the most successful performers forward through the entire 48-month program. Performers who have made insufficient progress or whose approaches are unlikely to reach the final program goals will not move forward into the next phase (option period).

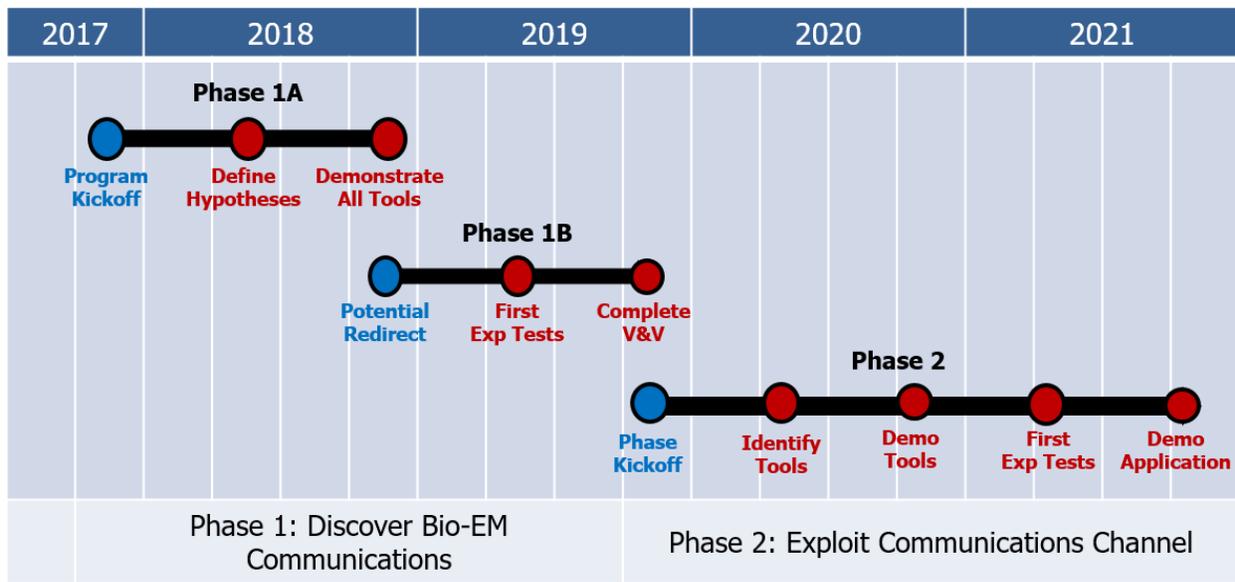


Figure 1-Notional RadioBio Program Schedule

A target start date of September 2017 may be assumed for planning purposes. Schedules will be synchronized across performers, as required, and monitored/revised as necessary throughout the program.

4. Meetings and Travel

All proposals must include the following meetings and travel in the proposed schedule and costs:

- To foster collaboration between teams, and disseminate program developments, a two-day Principal Investigator (PI) meeting will be held approximately every six months, starting with a kickoff meeting in September 2017, with locations split between the East and West Coasts of the United States (US). For budgeting purposes, plan for eight two-day meetings over the course of 48 months: four meetings in the Washington, D.C. area and four meetings in California.
- Regular teleconference meetings will be scheduled with the Government team for progress reporting as well as problems identification and mitigation.
- Proposers should also anticipate at least one site visit per phase by the DARPA Program Manager during which they will have the opportunity to demonstrate progress towards agreed-upon milestones.

D. Other Program Objectives and Considerations

1. Collaboration

Throughout the course of the program, it is likely to be necessary for all performers to share relevant information regarding their research and development to support the larger program goals. DARPA expects all program performers to work collaboratively with one another to realize the program objectives outlined herein, so proposers should carefully review the goals for the entire program in order to fully understand the context of each program component and objective, performer category, and milestones within the overall program structure. All

proposals should describe plans for ensuring transparency of their processes to enable interactions with other program performers.

2. Intellectual Property

There is an emphasis on creating and leveraging open source technologies and architectures, since data sharing and collaboration key aspects of this program. Therefore, intellectual property rights asserted by proposers are strongly encouraged to be aligned with open source regimes. See Section VI.B.4 for more information related to intellectual property.

3. Data Management Plan (DMP)

This BAA requires a Data Management Plan (DMP) be included as part of the proposal submission. DARPA/DSO's view of what constitutes the scope of applicable data products to be covered in a DMP is quite broad, potentially encompassing all digital activity related to a project. DARPA's approach to an effective and practical DMP is predicated with two goals:

First, data are increasingly the key product of research and engineering endeavors. To ensure the reproducibility of results and the accessibility of program accomplishments to future users, we require proposers document the necessary and sufficient scope of data that may be applicable to these goals. Performers will be expected to document both the proprietary and non-proprietary products of the program (including raw unprocessed data, rarified data sets, test data, experimental designs, software source code and executables, build scripts, process sequence, programmatic communication and other collaboration activities, as well as other data) to ensure the retention and potential reusability of this information.

Second, when possible, DARPA may also share some or all of the program-generated data with the broader research community as open data (with permission to access, reuse, and redistribute under appropriate licensing terms) to the extent permitted by applicable law and regulations (e.g., privacy, security, rights in data, and export control). The complete scope of program-generated data described above may go considerably beyond the scope of data to be made public. Hence, it is expected that as part of a DMP proposers delineate their specific data products that are suitable for public release and how they intend to capture and represent this information. In this way, it is DARPA's intention to enable reproducibility of results and establish (or contribute to) digital collections that can advance this and other scientific fields. Note that this provision is not meant to require disclosure of otherwise proprietary internal component or process intellectual property, but to ensure all performers can meet the overall program objectives.

A DMP should include enough detail to ensure that the data products delivered to DARPA (or made public) are adequate for use by an independent third party in recreation and verification of the scientific results. For example, proposed DMPs should address the following:

- Plans for data capture and sharing, including the extent and specific mechanisms to be used during the period of performance for the program;
- Any data management standards and/or community best practices that may apply;
- A data inventory, with rough estimates of data kinds and assets; formats; sizes (e.g., KB, MB, GB, TB), etc. Kinds of data might include:

- Data sets: experimental, test, and measurement data;
- Design of experiments and simulations
- Models or simulations (computational or mathematical);
- Recordings of various physical phenomena (including images, videos, sensor data, etc.)
- Proposer’s access to (and proposed use of) institutional, organizational, or scientific community repositories and archives.

With this approach to DMPs, performers are only asked to explicitly document program data, how much there will be and how they intend to manage it as they execute the program. As this is effort that is required to execute the program, DARPA does not expect the existence of a DMP to produce additional cost burden on performers for data management requirements during or after the period of performance.

4. Deliverables

All performers will be expected to provide, at a minimum, the following deliverables:

- Comprehensive quarterly technical reports due within 10 days of the end of the given quarter, describing progress made on the specific milestones as laid out in the SOW.
- A phase completion report submitted within 30 days of the end of each phase, summarizing the research done.
- Other negotiated deliverables specific to the objectives of the individual efforts. These may include reports, experimental protocols, publications, models, modeling data and results.
- Reporting as outlined in Section VI.C.

II. Award Information

A. General Award Information

Multiple awards are anticipated. The level of funding for individual awards made under this BAA will depend on the quality of the proposals received and the availability of funds. Awards will be made to proposers² whose proposals are determined to be the most advantageous to the Government, all evaluation factors and the availability of funding considered. See Section V for further information on DARPA's process for evaluating and selecting proposals for award.

The Government reserves the right to:

- select for negotiation all, some, one, or none of the proposals received in response to this solicitation;
- make awards without discussions with proposers;
- conduct discussions with proposers if it is later determined to be necessary;

² As used throughout this BAA, “proposer” refers to the lead organization on a submission to this BAA. The proposer is responsible for ensuring that all information required by a BAA--from all team members--is submitted in accordance with the BAA. “Awardee” refers to anyone who might receive a prime award from the Government, including recipients of procurement contracts, cooperative agreements, or other transactions. “Subawardee” refers to anyone who might receive a subaward from a prime awardee (e.g., subawardee, consultant, etc.).

- segregate portions of resulting awards into pre-priced options;
- accept proposals in their entirety or select only portions of proposals for award;
- fund awards in increments;
- request additional documentation once the award instrument has been determined (e.g., representations and certifications); and
- remove proposers from award consideration should the parties fail to reach agreement on award terms within a reasonable time or the proposer fails to provide requested additional information in a timely manner.

Proposals identified for negotiation may result in a procurement contract, cooperative agreement, or other transaction (OT), depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors.

Proposers looking for innovative, commercial-like contractual arrangements are encouraged to consider requesting Other Transactions. To understand the flexibility and options associated with Other Transactions, consult www.darpa.mil/work-with-us/contract-management#OtherTransactions.

In all cases, the Government contracting officer shall have sole discretion to select award instrument type, regardless of instrument type proposed, and to negotiate all instrument terms and conditions with selectees. DARPA will apply publication or other restrictions, as necessary, if it determines that the research resulting from the proposed effort will present a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense. Any award resulting from such a determination will include a requirement for DARPA permission before publishing any information or results on the program. For more information on publication restrictions, see the section below on Fundamental Research.

B. Fundamental Research

It is DoD policy that the publication of products of fundamental research will remain unrestricted to the maximum extent possible. National Security Decision Directive (NSDD) 189 defines fundamental research as follows:

‘Fundamental research’ means basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reasons.

As of the date of publication of this BAA, the Government expects that program goals as described herein may be met by proposers intending to perform fundamental research and does not anticipate applying publication restrictions of any kind to individual awards for fundamental research that may result from this BAA. Notwithstanding this statement of expectation, the Government is not prohibited from considering and selecting research proposals that, while perhaps not qualifying as fundamental research under the foregoing definition, still meet the

BAA criteria for submissions. If proposals are selected for award that offer other than a fundamental research solution, the Government will either work with the proposer to modify the proposed statement of work to bring the research back into line with fundamental research or else the proposer will agree to restrictions in order to receive an award.

Proposers should indicate in their proposal whether they believe the scope of the research included in their proposal is fundamental or not. While proposers should clearly explain the intended results of their research, the Government shall have sole discretion to determine whether the proposed research shall be considered fundamental. Appropriate clauses will be included in resultant awards for non-fundamental research to prescribe publication requirements and other restrictions, as appropriate. This clause can be found at www.darpa.mil/work-with-us/additional-baa.

For certain research projects, it may be possible that although the research to be performed by a potential awardee is restricted research, their subawardee's effort may be fundamental research. In those cases, it is the awardee's responsibility to explain in their proposal why its subawardee's effort is fundamental research.

III. Eligibility Information

A. Eligible Applicants

All responsible sources capable of satisfying the Government's needs may submit a proposal for DARPA's consideration.

1. Federally Funded Research and Development Centers (FFRDCs) and Government Entities

a. FFRDCs

FFRDCs are subject to applicable direct competition limitations and cannot propose to this BAA in any capacity unless they meet the following conditions: (1) FFRDCs must clearly demonstrate that the proposed work is not otherwise available from the private sector. (2) FFRDCs must provide a letter on official letterhead from their sponsoring organization citing the specific authority establishing their eligibility to propose to Government solicitations and compete with industry, and their compliance with the associated FFRDC sponsor agreement's terms and conditions. This information is required for FFRDCs proposing to be awardees or subawardees.

b. Government Entities

Government Entities (e.g., Government/National laboratories, military educational institutions, etc.) are subject to applicable direct competition limitations. Government entities must clearly demonstrate that the work is not otherwise available from the private sector and provide written documentation citing the specific statutory authority and contractual authority, if relevant, establishing their ability to propose to Government solicitations. This information is required for Government Entities proposing to be awardees or subawardees.

c. Authority and Eligibility

At the present time, DARPA does not consider 15 U.S.C. § 3710a to be sufficient legal authority to show eligibility. While 10 U.S.C. § 2539b may be the appropriate statutory starting point for some entities, specific supporting regulatory guidance, together with evidence of agency approval, will still be required to fully establish eligibility. DARPA will consider FFRDC and Government entity eligibility submissions on a case-by-case basis; however, the burden to prove eligibility for all team members rests solely with the proposer.

2. Foreign Participation

Non-U.S. organizations and/or individuals may participate to the extent that such participants comply with any necessary nondisclosure agreements, security regulations, export control laws, and other governing statutes applicable under the circumstances. For classified submissions, this includes mitigating any Foreign Ownership Control and Influence (FOCI) issues prior to transmitting the submission to DARPA. Additional information on these subjects can be found at http://www.dss.mil/isp/foci/foci_faqs.html.

B. Organizational Conflicts of Interest

FAR 9.5 Requirements

In accordance with FAR 9.5, proposers are required to identify and disclose all facts relevant to potential OCIs involving the proposer's organization and *any* proposed team member (subawardee, consultant). Under this Section, the proposer is responsible for providing this disclosure with each proposal submitted to the BAA. The disclosure must include the proposer's, and as applicable, proposed team member's OCI mitigation plan. The OCI mitigation plan must include a description of the actions the proposer has taken, or intends to take, to prevent the existence of conflicting roles that might bias the proposer's judgment and to prevent the proposer from having unfair competitive advantage. The OCI mitigation plan will specifically discuss the disclosed OCI in the context of each of the OCI limitations outlined in FAR 9.505-1 through FAR 9.505-4.

Agency Supplemental OCI Policy

In addition, DARPA has a supplemental OCI policy that prohibits contractors/performers from concurrently providing Scientific Engineering Technical Assistance (SETA), Advisory and Assistance Services (A&AS) or similar support services and being a technical performer. Therefore, as part of the FAR 9.5 disclosure requirement above, a proposer must affirm whether the proposer or *any* proposed team member (subawardee, consultant) is providing SETA, A&AS, or similar support to any DARPA office(s) under: (a) a current award or subaward; or (b) a past award or subaward that ended within one calendar year prior to the proposal's submission date.

If SETA, A&AS, or similar support is being or was provided to any DARPA office(s), the proposal must include:

- The name of the DARPA office receiving the support;
- The prime contract number;
- Identification of proposed team member (subawardee, consultant) providing the support; and

- An OCI mitigation plan in accordance with FAR 9.5.

Government Procedures

In accordance with FAR 9.503, 9.504 and 9.506, the Government will evaluate OCI mitigation plans to avoid, neutralize or mitigate potential OCI issues before award and to determine whether it is in the Government's interest to grant a waiver. The Government will only evaluate OCI mitigation plans for proposals that are determined selectable under the BAA evaluation criteria and funding availability.

The Government may require proposers to provide additional information to assist the Government in evaluating the proposer's OCI mitigation plan.

If the Government determines that a proposer failed to fully disclose an OCI; or failed to provide the affirmation of DARPA support as described above; or failed to reasonably provide additional information requested by the Government to assist in evaluating the proposer's OCI mitigation plan, the Government may reject the proposal and withdraw it from consideration for award.

C. Cost Sharing/Matching

Cost sharing is not required; however, it will be carefully considered where there is an applicable statutory condition relating to the selected funding instrument (e.g., OTs under the authority of 10 U.S.C. § 2371).

IV. Application and Submission Information

Prior to submitting a full proposal, proposers are *strongly encouraged* to first submit an abstract as described below. This process allows a proposer to ascertain whether the proposed concept is: (1) applicable to the RadioBio BAA and (2) currently of interest. For the purposes of this BAA, applicability is defined as follows:

- The proposed concept is applicable to the technical areas described herein.
- The proposed concept investigates an innovative approach that enables revolutionary advances, i.e., will not primarily result in evolutionary improvements to the existing state of practice.
- The proposed work has not already been completed (i.e., the research element is complete but manufacturing/fabrication funds are required).
- The proposer has not already received funding or a positive funding decision for the proposed concept (whether from DARPA or another Government agency).

Abstracts and full proposals that are not found to be applicable to the RadioBio BAA as defined above may be deemed non-conforming³ and removed from consideration. All abstracts and full proposals must provide sufficient information to assess the validity/feasibility of their claims as well as comply with the requirements outlined herein for submission formatting, content and transmission to DARPA. Abstracts and full proposals that fail to do so may be deemed non-

³ "Conforming" is defined as having been submitted in accordance with the requirements outlined herein.

conforming and removed from consideration. Proposers will be notified of non-conforming determinations via letter.

A. Address to Request Application Package

This document contains all information required to submit a response to this solicitation. No additional forms, kits, or other materials are needed except as referenced herein. No request for proposal or additional solicitation regarding this opportunity will be issued, nor is additional information available except as provided at the Federal Business Opportunities website (<http://www.fbo.gov>), the Grants.gov website (<http://www.grants.gov/>), or referenced herein.

B. Content and Form of Application Submission

Various templates have been provided as attachments to the BAA posted at <http://www.fbo.gov>. *Use of these templates is mandatory for all submissions to this BAA.* Do not replicate any of these templates using personal or organizational letterhead or formatting (except as directed in the templates) or submit documents as un-editable image files. Document files must be in .pdf, .ppt, .pptx, .odx, .doc, .docx, .xls, or .xlsx formats. All submissions must be written in English and all pages shall be formatted for printing on 8-1/2 by 11-inch paper with 1-inch margins and font size not smaller than 12-point (8 or 10-point font may be used for figures, tables, and charts).

Complete submission packages are defined as follows:

- Abstracts consist of one document file as described in Section IV.B.1 below.
- Proposals consist of the following files, described in Section IV.B.2 below:
 - Volume 1 - Technical and Management Volume: one document file plus PowerPoint slides for the Executive Summary, and Schedule/Milestones;
 - Volume 2 - Cost Volume: one document file, one Cost Summary PowerPoint slide, one Excel spreadsheet and, if applicable, any proprietary subcontractor cost proposals; and
 - Volume 3 - Administrative and National Policy Requirements: one document file.

1. Abstract Information

As stated above, proposers are strongly encouraged to submit an abstract in advance of a full proposal to minimize effort and reduce the potential expense of preparing an out of scope proposal. The abstract provides a synopsis of the proposed project by briefly answering the following questions:

- What is the proposed work attempting to accomplish or do?
- How is it done today, and what are the limitations?
- Who will care and what will the impact be if the work is successful?
- How much will it cost, and how long will it take?

DARPA will respond to abstracts with a statement as to whether DARPA is interested in the idea. If DARPA does not recommend the proposer submit a full proposal, DARPA will provide

feedback to the proposer regarding the rationale for this decision. Regardless of DARPA's response to an abstract, proposers may submit a full proposal. DARPA will review all conforming full proposals using the published evaluation criteria and without regard to any comments resulting from the review of an abstract.

Proposers should note that a favorable response to an abstract is not a guarantee that a proposal based on the abstract will ultimately be selected for award negotiation.

While it is DARPA policy to attempt to reply to abstracts within thirty calendar days, proposers to this solicitation may anticipate a response within approximately two weeks. These official notifications will be sent via email to the Technical POC and/or Administrative POC identified on the abstract coversheet.

All abstracts must use the template provided as Attachment 1 to the BAA posted at www.fbo.gov. This template contains content descriptions and format instructions for abstract submissions.

2. Full Proposal Information

All complete proposal packages must include the parts listed above in Section IV.B. The following templates, which contain proposal content descriptions and instructions, have been provided as attachments to the BAA posted at www.fbo.gov. Use of these templates is mandatory for all proposal submissions to this BAA.

- Attachment 2: Proposal Template – Technical and Management Volume
- Attachment 3: Proposal Template – Cost Volume
- Attachment 4: Proposal Template – Administrative and National Policy Requirements
- Attachment 5: Proposal Template Slides
 - Slide 1: Executive Summary
 - Slide 2: Schedule and Milestones
 - Slide 3: Cost Summary

Proposals not meeting the format prescribed herein may not be reviewed.

3. Proprietary Information

Proposers are responsible for clearly identifying proprietary information. Submissions containing proprietary information must have the cover page and each page containing such information clearly marked with a label such as “Proprietary” or “Company Proprietary.” NOTE: “Confidential” is a classification marking used to control the dissemination of U.S. Government National Security Information as dictated in Executive Order 13526 and should not be used to identify proprietary business information. See Section V.B.1 for additional information.

4. Security Information

DARPA anticipates that submissions received under this BAA will be unclassified. However,

should a proposer wish to submit classified information, an *unclassified* email must be sent to the BAA mailbox requesting submission instructions from the DARPA/DSO Program Security Officer (PSO).

Security classification guidance and direction via a SCG and/or DD Form 254, “DoD Contract Security Classification Specification,” will not be provided at this time, since DARPA is soliciting ideas only. If a determination is made that the award instrument may result in access to classified information, a SCG and/or DD Form 254 will be issued by DARPA and attached as part of the award.

C. Submission Dates and Times

Proposers are warned that submission deadlines as outlined herein are in Eastern Time and will be strictly enforced. When planning a response to this solicitation, proposers should take into account that some parts of the submission process may take from one business day to one month to complete (e.g., registering for a DUNS number or TIN).

DARPA will acknowledge receipt of *complete* submissions via email and assign identifying numbers that should be used in all further correspondence regarding those submissions. If no confirmation is received within two business days, please contact the BAA Administrator at RadioBioBAA@darpa.mil to verify receipt.

1. Abstracts

Abstracts must be submitted per the instructions outlined herein *and received by DARPA* no later than the due date and time listed in Part One: Overview Information. Abstracts received after this time and date may not be reviewed.

2. Full Proposals

Full proposal packages--full proposal (Technical and Management Volume, Cost Volume, National and Administrative Requirements) and, as applicable, proprietary subawardee cost proposals, classified appendices to unclassified proposals-- must be submitted per the instructions outlined herein *and received by DARPA* no later than the due date and time listed in Part One: Overview Information. Proposals received after this time and date may not be reviewed.

D. Funding Restrictions

Not applicable.

E. Other Submission Requirements

1. Unclassified Submission Instructions

Proposers must submit all parts of their submission package using the same method; submissions cannot be sent in part by one method and in part by another method nor should duplicate submissions be sent by multiple methods. Email submissions will not be accepted. Failure to

comply with the submission procedures outlined herein may result in the submission being deemed non-conforming and withdrawn from consideration.

a. Abstracts

DARPA/DSO will employ an electronic upload submission system (<https://baa.darpa.mil/>) for all UNCLASSIFIED abstracts sent in response to this solicitation. *Abstracts must not be submitted via Grants.gov.*

First time users of the DARPA BAA Submission website must complete a two-step account creation process. The first step consists of registering for an extranet account by going to the URL listed above and selecting the “Account Request” link. Upon completion of the online form, proposers will receive two separate emails; one will contain a user name and the second will provide a temporary password. Once both emails have been received, the second step requires proposers to go back to the submission website and log in using that user name and password. After accessing the extranet, proposers may then create a user account for the DARPA BAA Submission website by selecting the “Register your Organization” link at the top of the page. Once the user account is created, proposers will be able to see a list of solicitations open for submissions, view submission instructions, and upload/finalize their abstract.

Proposers who already have an account on the DARPA BAA Submission website may simply log in at <https://baa.darpa.mil/>, select this solicitation from the list of open DARPA solicitations and proceed with their abstract submission. Note: proposers who have created a DARPA BAA Submission website account to submit to another DARPA Technical Office’s solicitations do not need to create a new account to submit to this solicitation.

All abstracts submitted electronically through the DARPA BAA Submission website must meet the following requirements: (1) uploaded as a zip file (.zip or .zipx extension); (2) only contain the document(s) requested herein; (3) only contain unclassified information; and (4) must not exceed 100 MB in size. Only one zip file will be accepted per abstract and abstracts not uploaded as zip files will be rejected by DARPA.

Technical support for the DARPA BAA Submission website is available during regular business hours, Monday – Friday, 9:00 a.m. – 5:00 p.m. Requests for technical support must be emailed to BAAT_Support@darpa.mil with a copy to RadioBioBAA@darpa.mil. Questions regarding submission contents, format, deadlines, etc. should be emailed to RadioBioBAA@darpa.mil. Questions/requests for support sent to any other email address may result in delayed/no response.

Since proposers may encounter heavy traffic on the web server, DARPA discourages waiting until the day abstracts are due to request an account and/or upload the submission.

Note: Proposers submitting an abstract via the DARPA BAA Submission site MUST (1) click the “Finalize” button in order for the submission to upload AND (2) do so with sufficient time for the upload to complete prior to the deadline. Failure to do so will result in a late submission.

b. Proposals Requesting a Procurement Contract or Other Transaction

Proposers requesting procurement contracts or other transactions may submit full proposals

through ONE of the following methods: (1) electronic upload (DARPA-preferred); or (2) direct mail/hand-carry.

i. Electronic Upload

DARPA/DSO encourages proposers to submit UNCLASSIFIED proposals via the DARPA BAA Submission website at <https://baa.darpa.mil/>.

First time users of the DARPA BAA Submission website must complete a two-step account creation process. The first step consists of registering for an extranet account by going to the URL listed above and selecting the “Account Request” link. Upon completion of the online form, proposers will receive two separate emails; one will contain a user name and the second will provide a temporary password. Once both emails have been received, the second step requires proposers to go back to the submission website and log in using that user name and password. After accessing the extranet, proposers may then create a user account for the DARPA BAA Submission website by selecting the “Register your Organization” link at the top of the page. Once the user account is created, proposers will be able to see a list of solicitations open for submissions, view submission instructions, and upload/finalize their proposal.

Proposers who already have an account on the DARPA BAA Submission website may simply log in at <https://baa.darpa.mil/>, select this solicitation from the list of open DARPA solicitations and proceed with their proposal submission. *Note: proposers who have created a DARPA BAA Submission website account to submit to another DARPA Technical Office’s solicitations do not need to create a new account to submit to this solicitation.*

All full proposals submitted electronically through the DARPA BAA Submission website must meet the following requirements: (1) uploaded as a zip file (.zip or .zipx extension); (2) only contain the document(s) requested herein; (3) only contain unclassified information; and (4) must not exceed 100 MB in size. Only one zip file will be accepted per full proposal and full proposals not uploaded as zip files will be rejected by DARPA.

Technical support for the DARPA BAA Submission website is available during regular business hours, Monday – Friday, 9:00 a.m. – 5:00 p.m. Requests for technical support must be emailed to BAAT_Support@darpa.mil with a copy to RadioBioBAA@darpa.mil. Questions regarding submission contents, format, deadlines, etc. should be emailed to RadioBioBAA@darpa.mil. Questions/requests for support sent to any other email address may result in delayed/no response.

Since proposers may encounter heavy traffic on the web server, DARPA discourages waiting until the day proposals are due to request an account and/or upload the submission. Note: Proposers submitting a proposal via the DARPA BAA Submission site MUST (1) click the “Finalize” button in order for the submission to upload AND (2) do so with sufficient time for the upload to complete prior to the deadline. Failure to do so will result in a late submission.

ii. Direct Mail/Hand-carry

Proposers electing to submit procurement contract or other transaction proposals via direct mail or hand-carried must provide one paper copy and one electronic copy on CD or DVD of the full proposal package. All parts of the proposal package must be mailed or hand-carried in a single

delivery to the address noted in Section VII below.

c. Proposals Requesting a Cooperative Agreement

Proposers requesting cooperative agreements may only submit proposals through ONE of the following methods: (1) electronic upload at Grants.gov (DARPA-preferred); or (2) direct mail/hand-carry to DARPA.

i. Electronic Upload

DARPA encourages cooperative agreement proposers to submit their proposals via electronic upload at <http://www.grants.gov/web/grants/applicants/apply-for-grants.html>. Proposers electing to use this method must complete a one-time registration process on Grants.gov before a proposal can be electronically submitted. *If proposers have not previously registered, this process can take up to four weeks so registration should be done in sufficient time to ensure it does not impact a proposer's ability to meet required submission deadlines.* Registration requirements and instructions are outlined at <http://www.grants.gov/web/grants/register.html>.

Carefully follow the DARPA submission instructions provided with the solicitation application package on Grants.gov. Only the required forms listed therein (e.g., SF-424 and Attachments form) should be included in the submission. *Note: Grants.gov does not accept zipped or encrypted proposals.*

Once Grants.gov has received an uploaded proposal submission, Grants.gov will send two email messages to notify proposers that: (1) the proposal has been received by Grants.gov; and (2) the proposal has been either validated or rejected by the system. *It may take up to two business days to receive these emails.* If the proposal is validated, then the proposer has successfully submitted their proposal. If the proposal is rejected, the submission must be corrected, resubmitted and revalidated before DARPA can retrieve it. If the solicitation is no longer open, the rejected proposal cannot be resubmitted. Once the proposal is retrieved by DARPA, Grants.gov will send a third email to notify the proposer. DARPA will send a final confirmation email as described in Section IV.C.

To avoid missing deadlines, Grants.gov recommends that proposers submit their proposals to Grants.gov 24-48 hours in advance of the proposal due date to provide sufficient time to complete the registration and submission process, receive email notifications and correct errors, as applicable.

Technical support for Grants.gov submissions may be reached at 1-800-518-4726 or support@grants.gov.

ii. Direct Mail/Hand-carry

Proposers electing to submit cooperative agreement proposals via direct mail or hand-carried must provide one paper copy and one electronic copy on CD or DVD of the full proposal package. Proposers must complete the SF 424 R&R form (Application for Federal Assistance, Research and Related) provided at Grants.gov as part of the opportunity application package for this BAA and include it in the proposal submission. All parts of the proposal package must be mailed or hand-carried to the address noted in Section VII below.

V. Application Review Information

A. Evaluation Criteria

Proposals will be evaluated using the following criteria listed in descending order of importance: Overall Scientific and Technical Merit; Potential Contribution and Relevance to the DARPA Mission; and Cost Realism.

- **Overall Scientific and Technical Merit**

The proposed technical approach is innovative, feasible, achievable, and complete.

The proposed technical team has the expertise and experience to accomplish the proposed tasks. Task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined such that a final outcome that achieves the goal can be expected as a result of award. The proposal identifies major technical risks and planned mitigation efforts are clearly defined and feasible. The proposed schedule aggressively pursues performance metrics in an efficient time frame that accurately accounts for the anticipated workload.

- **Potential Contribution and Relevance to the DARPA Mission**

The potential contributions of the proposed effort are relevant to the national technology base. Specifically, DARPA's mission is to make pivotal early technology investments that create or prevent strategic surprise for U.S. National Security.

The proposed intellectual property restrictions (if any) will not significantly impact DARPA's ability to transition the technology.

- **Cost Realism**

The proposed costs are realistic for the technical and management approach and accurately reflect the technical goals and objectives of the solicitation. The proposed costs are consistent with the proposer's Statement of Work and reflect a sufficient understanding of the costs and level of effort needed to successfully accomplish the proposed technical approach. The costs for the prime proposer and proposed subawardees are substantiated by the details provided in the proposal (e.g., the type and number of labor hours proposed per task, the types and quantities of materials, equipment and fabrication costs, travel and any other applicable costs and the basis for the estimates).

B. Review and Selection Process

DARPA will conduct a scientific/technical review of each conforming proposal. Conforming proposals comply with all requirements detailed in this BAA; proposals that fail to do so may be deemed non-conforming and may be removed from consideration. Proposals will not be evaluated against each other since they are not submitted in accordance with a common work statement. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons

The review process identifies proposals that meet the evaluation criteria described above and are, therefore, selectable for negotiation of awards by the Government. DARPA policy is to ensure

impartial, equitable, comprehensive proposal evaluations and to select proposals that meet DARPA technical, policy, and programmatic goals. Proposals that are determined selectable will not necessarily receive awards (see Section II). Selections may be made at any time during the period of solicitation. For evaluation purposes, a proposal is defined to be the document and supporting materials as described in Section IV.

1. Handling of Source Selection Information

DARPA policy is to treat all submissions as source selection information (FAR 2.101 and 3.104), and to only disclose their contents to authorized personnel. Restrictive notices notwithstanding, submissions may be handled by support contractors for administrative purposes and/or to assist with technical evaluation. All DARPA support contractors performing this role are expressly prohibited from performing DARPA-sponsored technical research and are bound by appropriate nondisclosure agreements. Subject to the restrictions set forth in FAR 37.203(d), DARPA may also request input on technical aspects of the proposals from other non-Government consultants/experts who are strictly bound by the appropriate non-disclosure requirements.

Submissions will not be returned. The original of each submission received will be retained at DARPA and all other non-required copies destroyed. A certification of destruction may be requested via email to the BAA mailbox, provided the formal request is received within 5 days after being notified of submission status.

C. Federal Awardee Performance and Integrity Information (FAPIS)

Following the review and selection process described above, but prior to making an award above the simplified acquisition threshold (FAR 2.101), DARPA is required⁴ to review and consider any information available through the designated integrity and performance system (currently FAPIS). Selectees have the opportunity to comment on any information about themselves entered in the database. DARPA will consider any comments and other information in FAPIS or other systems prior to making an award.

VI. Award Administration Information

A. Selection Notices

After proposal evaluations are complete, proposers will be notified as to whether their proposal was selected for award negotiation as a result of the review process. Notification will be sent by email to the Technical and Administrative POCs identified on the proposal cover sheet. If a proposal has been selected for award negotiation, the Government will initiate those negotiations following the notification.

B. Administrative and National Policy Requirements

1. Solicitation Provisions and Award Clauses, Terms and Conditions

Solicitation provisions relevant to DARPA BAAs are listed on the Additional BAA Content page

⁴ Per 41 U.S.C. 2313, as implemented by FAR 9.103 and 2 CFR § 200.205.

on DARPA's website at www.darpa.mil/work-with-us/additional-baa. This page also lists award clauses that, depending on their applicability, may be included in the terms and conditions of awards resultant from DARPA solicitations. This list is not exhaustive and the clauses, terms and conditions included in a resultant award will depend on the nature of the research effort, the specific award instrument, the type of awardee, and any applicable security or publication restrictions.

For terms and conditions specific to cooperative agreements, see the DoD General Research Terms and Conditions (latest version) at www.onr.navy.mil/Contracts-Grants/submit-proposal/grants-proposal/grants-terms-conditions.aspx and the supplemental DARPA-specific terms and conditions at www.darpa.mil/work-with-us/contract-management#GrantsCooperativeAgreements.

The above information serves to put potential proposers and awardees on notice of proposal requirements and award terms and conditions to which they may have to adhere.

2. System for Award Management (SAM) and Universal Identifier Requirements

All proposers must be registered in SAM unless exempt per FAR 4.1102. FAR 52.204-7, "System for Award Management" and FAR 52.204-13, "System for Award Management Maintenance" are incorporated into this BAA. See www.darpa.mil/work-with-us/additional-baa for further information.

NOTE: new registrations can take an average of 7-10 business days to process in SAM. SAM registration requires the following information:

- DUNS number
- TIN
- CAGE Code. If a proposer does not already have a CAGE code, one will be assigned during SAM registration.
- Electronic Funds Transfer information (e.g., proposer's bank account number, routing number, and bank phone or fax number).

3. Representations and Certifications

In accordance with FAR 4.1102 and 4.1201, proposers requesting a procurement contract must complete electronic annual representations and certifications at www.sam.gov/. In addition, resultant procurement contracts will require supplementary DARPA-specific representations and certifications. See www.darpa.mil/work-with-us/additional-baa for further information.

4. Intellectual Property

Proposers should note that the Government does not own the intellectual property or technical data/computer software developed under Government contracts. The Government acquires the right to use the technical data/computer software. Regardless of the scope of the Government's rights, awardees may freely use their same data/software for their own commercial purposes (unless restricted by U.S. export control laws or security classification). Therefore, technical data and computer software developed under this solicitation will remain the property of the

awardees, though DARPA will have, at a minimum, Government Purpose Rights (GPR) to technical data and computer software developed through DARPA sponsorship.

If proposers desire to use proprietary computer software or technical data or both as the basis of their proposed approach, in whole or in part, they should: (1) clearly identify such software/data and its proposed particular use(s); (2) explain how the Government will be able to reach its program goals (including transition) within the proprietary model offered; and (3) provide possible nonproprietary alternatives in any area that might present transition difficulties or increased risk or cost to the Government under the proposed proprietary solution. Proposers expecting to use, but not to deliver, commercial open source tools or other materials in implementing their approach may be required to indemnify the Government against legal liability arising from such use.

All references to "Unlimited Rights" or "Government Purpose Rights" are intended to refer to the definitions of those terms as set forth in the Defense Federal Acquisition Regulation Supplement (DFARS) 227.

a. Intellectual Property Representations

All proposers must provide a good faith representation of either ownership or possession of appropriate licensing rights to all other intellectual property to be used for the proposed project. Proposers must provide a short summary for each item asserted with less than unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research.

b. Patents

All proposers must include documentation proving ownership or possession of appropriate licensing rights to all patented inventions to be used for the proposed project. If a patent application has been filed for an invention, but it includes proprietary information and is not publicly available, a proposer must provide documentation that includes: the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and summary of the patent title, with either: (1) a representation of invention ownership; or (2) proof of possession of appropriate licensing rights in the invention (i.e., an agreement from the owner of the patent granting license to the proposer).

c. Procurement Contracts

- **Noncommercial Items (Technical Data and Computer Software):** Proposers requesting a procurement contract must list all noncommercial technical data and computer software that it plans to generate, develop, and/or deliver, in which the Government will acquire less than unlimited rights and to assert specific restrictions on those deliverables. In the event a proposer does not submit the list, the Government will assume that it has unlimited rights to all noncommercial technical data and computer software generated, developed, and/or delivered, unless it is substantiated that development of the noncommercial technical data and computer software occurred with mixed funding. If mixed funding is anticipated in the development of

noncommercial technical data and computer software generated, developed, and/or delivered, proposers should identify the data and software in question as subject to GPR. In accordance with DFARS 252.227-7013, “Rights in Technical Data - Noncommercial Items,” and DFARS 252.227-7014, “Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation,” the Government will automatically assume that any such GPR restriction is limited to a period of 5 years, at which time the Government will acquire unlimited rights unless the parties agree otherwise. The Government may use the list during the evaluation process to evaluate the impact of any identified restrictions and may request additional information from the proposer, as may be necessary, to evaluate the proposer’s assertions. Failure to provide full information may result in a determination that the proposal is non-conforming.

- **Commercial Items (Technical Data and Computer Software):** Proposers requesting a procurement contract must list all commercial technical data and commercial computer software that may be included in any noncommercial deliverables contemplated under the research project, and assert any applicable restrictions on the Government’s use of such commercial technical data and/or computer software. In the event a proposer does not submit the list, the Government will assume there are no restrictions on the Government’s use of such commercial items. The Government may use the list during the evaluation process to evaluate the impact of any identified restrictions and may request additional information from the proposer to evaluate the proposer’s assertions. Failure to provide full information may result in a determination that the proposal is non-conforming.

d. Other Types of Awards

Proposers requesting an award instrument other than a procurement contract shall follow the applicable rules and regulations governing those award instruments, but in all cases should appropriately identify any potential restrictions on the Government’s use of any intellectual property contemplated under those award instruments. This includes both noncommercial items and commercial items. The Government may use the list as part of the evaluation process to assess the impact of any identified restrictions, and may request additional information from the proposer, to evaluate the proposer’s assertions. Failure to provide full information may result in a determination that the proposal is non-conforming

5. Human Subjects Research (HSR)/Animal Use

Proposers that anticipate involving human subjects or animals in the proposed research must comply with the approval procedures detailed at www.darpa.mil/work-with-us/additional-baa, to include providing the information specified therein as required for proposal submission.

6. Controlled Unclassified Information (CUI) on Non-DoD Information Systems

All proposers and awardees will be subject to the DARPA requirements related to Controlled Unclassified Information on Non-DoD Information Systems as detailed at www.darpa.mil/work-with-us/additional-baa.

7. Electronic Invoicing and Payments

Awardees will be required to submit invoices for payment electronically via Wide Area Work Flow (WAWF) at <https://wawf.eb.mil>, unless an exception applies. Registration in WAWF is required prior to any award under this BAA.

8. Electronic and Information Technology

All electronic and information technology acquired or created through this BAA must satisfy the accessibility requirements of Section 508 of the Rehabilitation Act (29 U.S.C. § 749d) and FAR 39.2.

C. Reporting

1. Technical and Financial Reports

The number and types of technical and financial reports required under the contracted project will be specified in the award document, and will include, as a minimum, monthly financial status reports and a yearly status summary. A final report that summarizes the project and tasks will be required at the conclusion of the performance period for the award. The reports shall be prepared and submitted in accordance with the procedures contained in the award document.

2. Patent Reports and Notifications

All resultant awards will contain a mandatory requirement for patent reports and notifications to be submitted electronically through i-Edison (<https://public.era.nih.gov/iedison>).

VII. Agency Contacts

DARPA will use email for all technical and administrative correspondence regarding this solicitation.

- **Technical POC:** Michael Fiddy, Program Manager, DARPA/DSO
- **BAA Email Address:** RadioBioBAA@darpa.mil
- **BAA Mailing Address:** DARPA/DSO, ATTN: HR001117S0021, 675 North Randolph Street, Arlington, VA 22203-2114
- **DARPA/DSO Opportunities Website:** <http://www.darpa.mil/work-with-us/opportunities>

VIII. Other Information

A. Frequently Asked Questions (FAQs)

Administrative, technical, and contractual questions should be emailed to RadioBioBAA@darpa.mil. All questions must be in English and must include the name, email address, and the telephone number of a point of contact.

DARPA will attempt to answer questions in a timely manner; however, questions submitted

within 7 days of the proposal due date may not be answered. DARPA will post an FAQ list at <http://www.darpa.mil/work-with-us/opportunities>. The list will be updated on an ongoing basis until the BAA expiration date as stated in Part I.

B. Collaborative Efforts/Teaming

DARPA highly encourages teaming before proposal submission and, as such, will facilitate the formation of teams with the necessary expertise. Interested parties should submit a one-page profile including the following information:

- Contact information to include name, organization, email, telephone number, mailing address, organization website (if applicable).
- A brief description of the proposer's technical competencies.
- Desired expertise from other teams, if applicable.

All profiles must be emailed to RadioBioBAA@darpa.mil no later than 2:00 PM on February 24, 2017. Following the deadline, the consolidated teaming profiles will be emailed to the participants who submitted a valid profile. Specific content, communications, networking, and team formation are the sole responsibility of the participants. Neither DARPA nor the DoD endorses the information and organizations contained in the consolidated teaming profile document, nor does DARPA or the DoD exercise any responsibility for improper dissemination of the teaming profiles.

C. Proposers Day

The RadioBio Proposers Day will be held on February 21, 2017 via prerecorded webcast. Advance registration is required. See DARPA-SN-17-25 posted at www.fbo.gov for all details. Viewing the RadioBio Proposers Day webcast is voluntary and is not required to propose to this solicitation.