

I. OVERVIEW OF THE FUNDING OPPORTUNITY

Program Announcement for the Department of Defense

Defense Health Program

Congressionally Directed Medical Research Programs

Tick-Borne Disease Research Program

Therapeutic/Diagnostic Research Award

Announcement Type: Initial

Funding Opportunity Number: HT9425-23-TBDRP-TDRA

**Assistance Listing Number: 12.420 Military Medical
Research and Development**

SUBMISSION AND REVIEW DATES AND TIMES

- **Pre-Application Submission Deadline:** 5:00 p.m. Eastern time (ET), May 25, 2023
- **Invitation to Submit an Application:** July 2023
- **Application Submission Deadline:** 11:59 p.m. ET, August 24, 2023
- **End of Application Verification Period:** 5:00 p.m. ET, August 29, 2023
- **Peer Review:** October 2023
- **Programmatic Review:** January 2024

This program announcement must be read in conjunction with the General Application Instructions, version 802. The General Application Instructions document is available for downloading from the Grants.gov funding opportunity announcement by selecting the “Package” tab, clicking “Preview,” and then selecting “Download Instructions.”

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II. DETAILED INFORMATION ABOUT THE FUNDING OPPORTUNITY

II.A. Program Description

Applications to the Fiscal Year 2023 (FY23) Tick-Borne Research Program (TBDRP) are being solicited by the U.S. Army Medical Research Acquisition Activity (USAMRAA) using delegated authority provided by United States Code, Title 10, Section 4001 (10 USC 4001). The execution management agent for this program announcement is the Congressionally Directed Medical Research Programs (CDMRP) at the U.S. Army Medical Research and Development Command (USAMRDC). The TBDRP was initiated in 2016 to support innovative and impactful research that addresses fundamental issues and gaps in knowledge of tick-borne diseases. Appropriations for the TBDRP from FY16 through FY22 totaled \$41 million (M). The FY23 appropriation is \$7M.

The TBDRP's vision is to prevent the occurrence, better diagnose, and resolve or minimize the impact of Lyme disease and other tick-borne illnesses and conditions, with emphasis on burden of disease. The TBDRP's mission is to understand the pathogenesis of Lyme disease and other tick-borne illnesses and conditions; to deliver innovative solutions to prevent, diagnose, and treat their manifestations for the benefit of military Service Members and the American public; and to disseminate this knowledge.

The proposed research must be relevant to active-duty Service Members, Veterans, military beneficiaries, and/or the American public.

II.A.1. FY23 TBDRP Focus Areas

Applications submitted to the FY23 TBDRP should be focused on Lyme disease and/or other tick-borne diseases/conditions with emphasis on reducing public health burden. ***Particularly encouraged are applications focused on persistent Lyme disease, and other tick-borne diseases and conditions endemic to the United States (<https://www.cdc.gov/ticks/data-summary/index.html>).*** ***Proposed research must focus on directly impacting the health of the U.S. military (active-duty or Veteran), their beneficiaries, and/or the American public.***

Therapeutic/Diagnostic Research Award applications must respond to at least one of the following specific FY23 TBDRP Focus Areas:

- **Treatment**
 - Novel preclinical therapeutic strategies for tick-borne diseases, with priority given to Lyme disease and other tick-borne diseases endemic to the U.S. that have a documented need for additional therapeutic options
 - Pre-clinical evaluation of Food and Drug Administration (FDA)-approved or -cleared drugs to support additional intended use(s) in the treatment of tick-borne diseases

- **Diagnosis**

- Innovative approaches that provide diagnosis for a single or for multiple tick-borne pathogens in human samples, with priority given to direct detection assays
- Novel diagnostics capable of distinguishing active Lyme disease infection from previous exposure
- Approaches focused on the detection/diagnosis of maternal-to-fetal transmission of Lyme disease and/or other tick-borne infections, including the development of relevant animal models

Applications proposing the following will be considered non-responsive to this mechanism: studies related to mammalian meat allergy (allergic response to galactose-alpha-1,3-galactose [alpha-gal]), or studies related to Lyme arthritis.

*Applications proposing studies focused on prevention or pathophysiology are not within the scope of this funding opportunity; applicants should consider submitting under funding opportunity number **HT9425-23-TBDRP-IDA**.*

II.A.2. Award History

The TBDRP Therapeutic/Diagnostic Research Award mechanism was first offered in FY22. Since then, 25 Therapeutic/Diagnostic Research Award applications have been received, and 3 have been recommended for funding.

II.B. Award Information

The FY22 TBDRP Therapeutic/Diagnostic Research Award is intended to support hypothesis-driven therapeutic and diagnostic development research. Projects submitted under a Treatment Focus Area should be therapeutic evaluation studies designed to promote new ideas aimed at drug or treatment discovery that are still in the early/preclinical stages of development. Projects submitted under a Diagnosis Focus Area should propose diagnostic approaches that will be readily integrated into clinical settings. All research projects should have a translational potential and aim to improve patient care and/or the quality of life for military Service Members, Veterans, and their beneficiaries, as well as the American public living with Lyme disease and/or other tick-borne diseases and conditions.

The proposed studies are expected to be empirical in nature and product-driven. Applicants with limited tick-borne disease experience are strongly encouraged to collaborate with experienced tick-borne disease investigators. Applicants with substantial tick-borne disease experience are strongly encouraged to partner with experts in therapeutic and diagnostic assay development and transition, particularly those from the commercial sector. Examples of the types of research that may be supported by this award include, but are not limited to:

- Evaluation, maturation, and/or down-selection of potential therapeutic candidates in vitro and/or in vivo

- Design, development, and evaluation of proof-of-concept diagnostic assays or devices using in vitro or ex vivo samples
- High throughput screening and confirmation of candidate therapeutics obtained from screening or by other means
- Testing new therapeutic modalities (agents, delivery mechanisms) using established and accepted preclinical models
- Preliminary studies on formulation, stability and safety prior to Good Manufacturing Practice production methods and evaluation in advanced preclinical studies
- Investigational New Drug application-enabling studies leading to the development of pharmacologic agents, including compound characterization, absorption, distribution, metabolism, and excretion studies, and dose/response and toxicology studies to demonstrate safety and efficacy in relevant model systems
- Investigational Device Exemption application-enabling studies leading to the development of devices, including prototype development and device characterization, to demonstrate safety and efficacy using relevant model systems or samples
- Optimization and improvement of potential evidence-based treatments or therapeutics for easy administration outside of a clinical setting
- Studies aimed at improving diagnostic assay sensitivity, specificity and/or implementation in standard clinical settings

Research involving human subjects and human anatomical substances is permitted; however, clinical trials are not allowed under this program announcement.

Leveraging existing resources, maximizing statistical power, and using validated specimens from Lyme and other tick-borne disease biorepositories and databases are encouraged, but not required. Investigators are strongly encouraged to incorporate the following components into their study design where appropriate: authentication of proposed cell lines; statistical rigor of in vitro cellular studies and preclinical animal experiments; and validation in well-pedigreed cohorts of uniformly documented patients. Studies utilizing data derived from large patient studies that include long-term health records, biospecimen repositories, pre-existing research, and/or studies that apply state-of-the art genomic and/or proteomic analysis, bioinformatics, and/or mathematical models to such data are also encouraged. The criteria defining the inclusion/exclusion of curated biospecimens or data in biorepositories or databases must be described to demonstrate the validity of their use in the proposed studies.

Department of Defense (DOD) and U.S. Department of Veterans Affairs (VA)

Collaboration and Alignment Encouraged: Relevance to the healthcare needs of the Armed Forces and Veterans, as well as their family members, caregivers, or clinicians, is a key feature of this award. Therefore, applicants are encouraged to integrate and/or align their research projects with DOD and/or VA research laboratories and programs. Collaboration with the DOD and/or VA is also encouraged. A list of websites that may be useful in identifying additional

information about ongoing DOD and VA areas of research interest or potential opportunities for collaboration can be found in Appendix 2.

A Career Development Option is available to eligible early-career investigators who propose to conduct impactful research under the mentorship of an experienced tick-borne disease researcher. *The Therapeutic/Diagnostic Research Award – Career Development Option has a lower direct cost limit than the Therapeutic/Diagnostic Research Award; however, preliminary data are not required. Applications submitted under the Therapeutic/Diagnostic Research Award – Career Development Option will be reviewed via separate, career development-specific evaluation criteria by a separate, dedicated peer review panel.* The following are key aspects of the Career Development Option:

- **Principal Investigator (PI):** The PI must be an early-career research scientist, physician scientist, or other qualified clinical scientist within 10 years of completing their terminal degree (excluding time spent in residency or on family medical leave). The PI's record of accomplishments and the proposed research will be evaluated regarding their potential for contributing to the field of tick-borne disease research. Because career development is the focus of this award, the PI's institution must demonstrate a commitment to the PI through a minimum of 50% level of time and effort during the period of performance to conduct tick-borne disease research under this award, although more protected time is highly desirable.
- **Mentorship:** The mentor(s) must be experienced tick-borne disease researcher(s), as demonstrated by a recent (last 5 years) history of funding and publications in tick-borne disease research and should ideally have experience mentoring other independent scientists. Collectively, the PI/mentorship team should have demonstrated experience in the field (pathogen/disease and associated methods/technologies) of the proposed studies. The mentor(s) must hold a position at or above the level of Associate Professor (or equivalent). In addition, the mentor(s) must demonstrate a commitment to developing the PI's career in tick-borne disease research and should remain engaged for the entire duration of the project. The mentor(s) and PI may be at different organizations; however, a clear indication of how the mentor(s) will communicate with and facilitate the PI's career development should be provided in the Career Development Plan, as described below. Additional mentors who provide complementary expertise and may be at different institutions are welcomed.
- **Career Development Plan and Environment:** A Career Development Plan is required and should be prepared by the PI with appropriate guidance from the mentor(s). The plan should outline how the PI will gain experience in tick-borne disease research and engage with the tick-borne disease scientific and advocacy communities (as applicable). A clearly articulated strategy for acquiring the necessary skills, competence, and expertise to establish a career at the forefront of tick-borne disease research should be included, as well as a plan for how the mentor(s) will engage with the PI to contribute to the PI's career development as a tick-borne disease researcher and to the success of the proposed research for the duration of the project.

Preliminary Data: Inclusion of preliminary data to support the rationale for the proposed studies are *required* for this mechanism *unless* applying under the Therapeutic/Diagnostic Research Award – Career Development Option.

The types of awards made under the program announcement will be assistance agreements. An assistance agreement is appropriate when the federal government transfers a “thing of value” to a “state, local government,” or “other recipient” to carry out a public purpose of support or stimulation authorized by a law of the United States instead of acquiring property or service for the direct benefit and use of the U.S. government. An assistance agreement can take the form of a grant or cooperative agreement. The level of involvement on the part of the DOD during project performance is the key factor in determining whether to award a grant or cooperative agreement. If “no substantial involvement” on the part of the funding agency is anticipated, a grant award will be made (31 USC 6304). Conversely, if substantial involvement on the part of the funding agency is anticipated, a cooperative agreement will be made (31 USC 6305), and the award will identify the specific substantial involvement. Substantial involvement may include, but is not limited to, collaboration, participation, or intervention in the research to be performed under the award. The award type, along with the start date, will be determined during the negotiation process.

The anticipated direct costs budgeted for the entire period of performance for an FY23 TBDRP Therapeutic/Diagnostic Research Award should not exceed **\$825,000**.

The anticipated direct costs budgeted for the entire period of performance for an FY23 TBDRP Therapeutic/Diagnostic Research Award – Career Development Option will not exceed **\$495,000**.

Refer to [Section II.D.5, Funding Restrictions](#), for detailed funding information.

Awards will be made no later than September 30, 2024. For additional information refer to [Section II.F.1, Federal Award Notices](#).

The CDMRP expects to allot approximately \$4.2M to fund approximately two Therapeutic/Diagnostic Research Award and two Therapeutic/Diagnostic Research Award-Career Development Option Award applications. Funding of applications received is contingent upon the availability of federal funds for this program as well as the number of applications received, the quality and merit of the applications as evaluated by scientific and programmatic review, and the requirements of the government. Funds to be obligated on any award resulting from this funding opportunity will be available for use for a limited time period based on the fiscal year of the funds. It is anticipated that awards made from this FY23 funding opportunity will be funded with FY23 funds, which will expire for use on September 30, 2029.

Research Involving Human Data, Human Anatomical Substances, Human Subjects, or Human Cadavers: All DOD-funded research involving new and ongoing research with human data, human anatomical substances, human subjects, or human cadavers must be reviewed and approved by the USAMRDC Office of Human and Animal Research Oversight (OHARO), Office of Human Research Oversight (OHRO), prior to research implementation. This administrative review requirement is in addition to the local Institutional Review Board (IRB) or Ethics Committee (EC) review. Local IRB/EC approval at the time of application submission is **not** required; however local IRB/EC approval is necessary prior to OHRO review. Allow up to 3 months to complete the OHRO regulatory review and approval process following submission of

all required and complete documents to the OHRO. Refer to the General Application Instructions, Appendix 1, and the OHARO web page https://mrhc.health.mil/index.cfm/collaborate/research_protections/hrpo for additional information.

As of January 20, 2020, U.S. institutions engaged in non-exempt cooperative research *must* rely on a single IRB to review and approve the portion of the research conducted at domestic sites in accordance with Code of Federal Regulations, Title 45, Part 46.114(b) (45 CFR 46.114[b]). If the proposed, non-exempt research involves more than one U.S.-based institution, a written plan for single IRB review arrangements must be provided at the time of application submission or award negotiation. The lead institution responsible for developing the master protocol and master consent form should be identified and should be the single point of contact for regulatory submissions and requirements.

Note: Applications proposing research involving human subjects and/or human anatomical substances will be required to submit additional application materials.

A clinical trial is defined as a research study in which one or more human subjects are prospectively assigned to one or more interventions (which may include a placebo or another control) to evaluate the effects of the interventions on biomedical or behavioral health-related outcomes.

Studies that do not seek to measure safety, effectiveness, and/or efficacy outcome(s) of an intervention are not considered clinical trials.

Clinical research encompasses research with patient samples, data, and interaction with patients that may or may not be considered a clinical trial. ***For the purposes of this funding opportunity, research that meets the definition of a clinical trial is distinct from clinical research.*** Clinical research is observational in nature and includes: (1) Research that does not seek to evaluate the effects of interventions. Research conducted with human subjects (or on material of human origin such as data, tissues, specimens, and cognitive phenomena) for which an investigator (or colleague) directly interacts with human subjects but does not seek to assess the effects of an intervention, qualifies as clinical research. Patient-oriented research may include but is not limited to: (a) mechanisms of human disease, (b) diagnostic or detection studies (e.g., biomarker or imaging), (c) health disparity studies, and (d) development of new technologies.

(2) Epidemiologic and behavioral studies that do not seek to study the safety, effectiveness, and/or efficacy outcomes of an intervention. (3) Outcomes research and health services research that do not fit under the definition of clinical trial. Excluded from the definition of clinical research are in vitro studies that utilize human tissues that cannot be linked to a living individual.

Note: Studies that meet the requirements for exemption under [§46.104\(d\)\(4\) of the Common Rule](#) are not considered clinical research as defined by CDMRP. Exemption category 4 refers to secondary research for which consent is not required.

Use of DOD or Department of Veterans Affairs (VA) Resources: If the proposed research involves access to active-duty military and/or VA patient populations and/or DOD or VA resources or databases, the application must describe the access at the time of submission and include a plan for maintaining access as needed throughout the proposed research. Refer to

[Section II.D.2.b.ii, Full Application Submission Components](#), for detailed information. Refer to the General Application Instructions, Appendix 1, for additional information.

Research Involving Animals: All research funded by the FY23 TBDRP Therapeutic/Diagnostic Research award mechanism involving new and ongoing research with animals must be reviewed and approved by the USAMRDC OHARO Animal Care and Use Review Office (ACURO), in addition to the local Institutional Animal Care and Use Committee (IACUC) of record. IACUC approval at the time of submission is *not* required. ***Allow at least 3 to 4 months for ACURO regulatory review and approval processes for animal studies.*** Refer to the General Application Instructions, Appendix 1, for additional information.

II.C. Eligibility Information

II.C.1. Eligible Applicants

II.C.1.a. Organization: All organizations, including foreign organizations, foreign public entities, and international organizations, are eligible to apply.

Government Agencies Within the United States: Local, state, and federal government agencies are eligible to the extent that applications do not overlap with their fully funded internal programs. Such agencies are required to explain how their applications do not overlap with their internal programs.

As applications for this program announcement may be submitted by extramural and intramural organizations, these terms are defined below.

Extramural Organization: An eligible non-DOD organization. Examples of extramural organizations include academic institutions, biotechnology companies, foundations, federal government organizations other than the DOD, and research institutes.

Intramural DOD Organization: A DOD laboratory, DOD military treatment facility, and/or DOD activity embedded within a civilian medical center. ***Intramural Submission: An application submitted by a DOD organization for an intramural investigator working within a DOD laboratory or military treatment facility or in a DOD activity embedded within a civilian medical center.***

The USAMRAA makes awards to eligible organizations, not to individuals.

II.C.1.b. Principal Investigator

For the Therapeutic/Diagnostic Research Award:

Independent investigators at or above the level of Assistant Professor (or equivalent) may be named by the organization as the PI on the application.

For the Therapeutic/Diagnostic Research Award – Career Development Option:

- **PI**
 - The PI must be an early-career research scientist, physician scientist, or other qualified clinical scientist within 10 years of completing their terminal degree at the time of application submission deadline (excluding time spent in residency or on family medical leave) and exhibit a strong desire to pursue a career in tick-borne disease research. Time spent as a postdoctoral fellow is not excluded.
 - Institutional commitment to the PI's independent career must be demonstrated, including confirmation of laboratory space and a minimum of 50% level of time and effort during the period of performance for the PI to conduct tick-borne disease research under this award.
- **Mentor**
 - The mentor(s) must hold a position at or above the level of Associate Professor (or equivalent).
 - The mentor(s) must be experienced researcher(s), as demonstrated by a recent (last 5 years) history of funding and publications in tick-borne disease research, and should ideally have experience mentoring other independent scientists. Collectively, the PI/mentorship team should have demonstrated experience in the field (pathogen/disease and associated methods/technologies) of the proposed studies. The mentor(s) must demonstrate a commitment to developing the PI's career in tick-borne disease research.

The PI and the mentor(s) do not need to be located within the same organization.

An eligible PI, regardless of ethnicity, nationality, or citizenship status, must be employed by or affiliated with an eligible organization.

The CDMRP strongly encourages all PIs to participate in a digital identifier initiative through Open Researcher and Contributor ID, Inc. (ORCID). Registration for a unique ORCID identifier can be done online at <https://orcid.org/>.

II.C.2. Cost Sharing

Cost sharing/matching is not an eligibility requirement.

II.C.3. Other

Organizations must be able to access **.gov** and **.mil** websites in order to fulfill the financial and technical deliverable requirements of the award and submit invoices for payment.

For general information on required qualifications for award recipients, refer to the General Application Instructions, Appendix 3.

Refer to [Section II.H.2, Administrative Actions](#), for a list of administrative actions that may be taken if a pre-application or application does not meet the administrative, eligibility, or ethical requirements defined in this program announcement.

II.D. Application and Submission Information

Submission of applications that are essentially identical or propose essentially the same research project to different funding opportunities within the same program and fiscal year is prohibited and will result in administrative withdrawal of the duplicative application(s).

Inclusion of classified research data within the application and/or proposing research of which the anticipated outcomes may be classified or deemed sensitive to national security concerns may result in application withdrawal. Refer to the General Application Instructions Appendix 2, Section E.

II.D.1. eBRAP and Grants.gov

The electronic Biomedical Research Application Portal (eBRAP) (<https://ebrap.org>) is a secure web-based system that allows PIs to submit their pre-applications, view and verify extramural full applications submitted to Grants.gov (<https://grants.gov>), receive communications from the CDMRP, and submit documentation during award negotiations and throughout the period of performance. eBRAP also allows intramural organizations to submit full applications following pre-application submission.

Grants.gov is a federal system required to be utilized by agencies to receive and process extramural grant applications. Full applications may only be submitted to Grants.gov after submission of a pre-application through eBRAP.

Contact information for the eBRAP Help Desk and the Grants.gov Contact Center can be found in [Section II.G, Federal Awarding Agency Contacts](#).

Extramural Submission:

- Pre-application content and forms must be accessed and submitted at eBRAP.org.
- Full application packages must be accessed and submitted at Grants.gov.

Intramural DOD Submission:

- Pre-application content and forms must be accessed and submitted at eBRAP.org.
- Full application packages must be accessed and submitted at eBRAP.org.

Note: Applications from an intramural DOD organization or from an extramural federal government organization may be submitted to Grants.gov through a research foundation.

II.D.2. Content and Form of the Application Submission

Submission is a two-step process requiring both *pre-application* (eBRAP.org) and *full application* (eBRAP.org or Grants.gov) as indicated below. The submission process should be started early to avoid missing deadlines. There are no grace periods. Full application submission guidelines differ for extramural (Grants.gov) and intramural (eBRAP.org) organizations (refer to [Table 1, Full Application Guidelines](#)).

The application title, eBRAP log number, and all information for the PI, Business Official(s), performing organization, and contracting organization must be consistent throughout the entire pre-application and full application submission process. Inconsistencies may delay application processing and limit or negate the ability to view, modify, and verify the application in eBRAP. If any changes need to be made, the applicant should contact the eBRAP Help Desk at help@eBRAP.org or 301-682-5507 prior to the application submission deadline.

II.D.2.a. Step 1: Pre-Application Submission Content

During the pre-application process, eBRAP assigns each submission a unique log number. This unique eBRAP log number is required during the full application submission process.

To begin the pre-application process, first select whether the submitting organization is extramural or intramural, then confirm your selection or cancel. **Incorrect selection of extramural or intramural submission type will delay processing.**

If an error has been made in the selection of extramural versus intramural and the pre-application submission deadline has passed, the PI or Business Official must contact the eBRAP Help Desk at help@eBRAP.org or 301-682-5507 to request a change in designation.

All pre-application components must be submitted by the PI through eBRAP (<https://eBRAP.org>). Because the invitation to submit an application is based on the contents of the pre-application, investigators should not change the title or research objectives after the pre-application is submitted.

When starting the pre-application, PIs should ensure that they have selected the appropriate application category and option (as applicable):

- **Therapeutic/Diagnostic Research Award:** For applications proposing research that does not involve human subjects and/or human anatomical substances
- **Therapeutic/Diagnostic Research Award, involving Human Subjects/Sample Acquisition:** For applications proposing research that involves human subjects and/or human anatomical substances, but that does not constitute a clinical trial
- **Therapeutic/Diagnostic Research Award – Career Development Option:** For applications submitted under the Career Development Option (for additional information refer to [Section II.B, Award Information](#)) that propose research that does not involve human subjects and/or human anatomical substances

- **Therapeutic/Diagnostic Research Award – Career Development Option, involving Human Subjects/Sample Acquisition:** For applications submitted under the Career Development Option (for additional information refer to [Section II.B, Award Information](#)) that propose research that involves human subjects and/or human anatomical substances, but that does not constitute a clinical trial

The applicant organization and associated PI identified in the pre-application should be the same as those intended for the subsequent application submission. If any changes are necessary after submission of the pre-application, the applicant must contact the eBRAP Help Desk at help@eBRAP.org or 301-682-5507.

For Career Development Option submissions, no change in PI will be allowed after the pre-application deadline. If any other changes are necessary after submission of the pre-application, the PI must contact the eBRAP Help Desk at help@eBRAP.org or 301-682-5507.

PIs with an ORCID identifier should enter that information in the appropriate field in the “My Profile” tab in the “Account Information” section of eBRAP.

The pre-application consists of the following components, which are organized in eBRAP by separate tabs (refer to the General Application Instructions, Section II.B, for additional information on pre-application submission):

- **Tab 1 – Application Information**

Submission of application information includes assignment of primary and secondary research classification codes, which may be found at <https://ebrap.org/eBRAP/public/Program.htm>. Applicants are strongly encouraged to review and confirm the codes prior to making their selection.

- **Tab 2 – Application Contacts**

Enter contact information for the PI. Enter the organization’s Business Official responsible for sponsored program administration (the “person to be contacted on matters involving this application” in Block 5 of the Grants.gov SF424 Research & Related Form). The Business Official must be either selected from the eBRAP list or invited in order for the pre-application to be submitted.

Select the performing organization (site at which the PI will perform the proposed work) and the contracting organization (organization submitting on behalf of the PI, which corresponds to Block 5 on the Grants.gov SF424 Research & Related Form), and click on “Add Organizations to this Pre-application.” The organization(s) must be either selected from the eBRAP drop-down list or invited in order for the pre-application to be submitted.

It is recommended that PIs identify an Alternate Submitter in the event that assistance with pre-application submission is needed.

- **Tab 3 – Collaborators and Key Personnel**

Enter the name, organization, and role of all collaborators and key personnel associated with the application.

[FY23 TBDRP Programmatic Panel members](#) should not be involved in any pre-application or application. For questions related to panel members and pre-applications or applications, refer to [Section II.H.2.c, Withdrawal](#), or contact the eBRAP Help Desk at help@eBRAP.org or 301-682-5507.

- **Tab 4 – Conflicts of Interest**

List all individuals other than collaborators and key personnel who may have a conflict of interest in the review of the application (including those with whom the PI has a personal or professional relationship).

- **Tab 5 – Pre-Application Files**

Note: Upload documents as individual PDF files unless otherwise noted. eBRAP will not allow a file to be uploaded if the number of pages exceeds the limit specified below.

- **Preproposal Narrative (three-page limit):** The Preproposal Narrative page limit applies to text and non-text elements (e.g., figures, tables, graphs, photographs, diagrams, chemical structures, drawings) used to describe the project. Inclusion of URLs (uniform resource locators) that provide additional information to expand the Preproposal Narrative and could confer an unfair competitive advantage is prohibited and may result in administrative withdrawal of the pre-application.

The Preproposal Narrative should include the following:

- **Research:** State a clear hypothesis for the project that is supported through a strong scientific rationale, referenced literature, and preliminary data (*not required for the Therapeutic/Diagnostic Research Award – Career Development Option*). Describe the study type (e.g., concept development, animal validation, human validation), project specific aims, and scientific approach.
- **Relevance:** Summarize the relevance of the proposed project to the Treatment or Diagnosis Focus Areas. *Applications proposing the following will be considered non-responsive to this mechanism: studies related to mammalian meat allergy (allergic response to galactose-alpha-1,3-galactose [alpha-gal]), or studies related to Lyme arthritis.*
- **Impact:** Describe the immediate and long-range outcomes of the proposed study and their impact on Lyme disease and/or other tick-borne disease research, patient care, and/or quality of life for military Service Members, their beneficiaries, and the American public. Describe how the proposed research will advance the potential evidence-based treatment, therapeutic, or diagnostic toward dissemination and clinical implementation.

- **Mentor (required only for the Therapeutic/Diagnostic Research Award – Career Development Option):** Provide the name and institution of the mentor(s) and describe how planned interactions with the PI demonstrate a commitment to the PI’s career development as a tick-borne disease researcher and to the success of the proposed research for the duration of the project.
- **Pre-Application Supporting Documentation:** The items to be included as supporting documentation for the pre-application *must be uploaded as individual files* and are limited to the following:
 - **References Cited (one-page limit):** List the references cited (including URLs if available) in the Preproposal Narrative using a standard reference format that includes the full citation (i.e., author[s], year published, reference title, and reference source, including volume, chapter, page numbers, and publisher, as appropriate).
 - **List of Abbreviations, Acronyms, and Symbols:** Provide a list of abbreviations, acronyms, and symbols used in the Preproposal Narrative.
 - **Key Personnel Biographical Sketches (six-page limit per individual):** *All biographical sketches should be uploaded as a single combined file.* Biographical sketches should be used to demonstrate background and expertise through education, positions, publications, and previous work accomplished.

- **Tab 6 – Submit Pre-Application**

This tab must be completed for the pre-application to be accepted and processed.

Pre-Application Screening

- **Pre-Application Screening Criteria**

To determine the technical merits of the pre-application and the relevance to the mission of the Defense Health Program (DHP) and the TBDRP, pre-applications will be screened based on the following criteria:

- **Research:** How well a clear hypothesis for the project is stated with support from a strong scientific rationale, referenced literature, and preliminary data (*not required for the Therapeutic/Diagnostic Research Award – Career Development Option*), and how well the study type, specific aims, and scientific approach are described.
- **Relevance:** To what degree the proposed project is relevant to the Treatment or Diagnostics Focus Area(s) being addressed. *Applications proposing the following will be considered non-responsive to this mechanism: studies related to mammalian meat allergy (allergic response to galactose-alpha-1,3-galactose [alpha-gal]), or studies related to Lyme arthritis.*
- **Impact:** The extent to which the anticipated research outcomes will advance knowledge and/or technology toward improved patient care and/or quality of life for individuals with

Lyme disease and/or other tick-borne diseases/conditions. The extent to which the proposed research will advance the potential evidence-based treatment, therapeutic, or diagnostic toward dissemination and clinical implementation.

- **Mentor (applicable only to the Therapeutic/Diagnostic Research Award – Career Development Option):** To what degree planned interactions with the PI demonstrate a commitment to the PI’s career development as a tick-borne disease researcher and to the success of the proposed research for the duration of the project.

- **Notification of Pre-Application Screening Results**

Following the pre-application screening, PIs will be notified as to whether they are invited to submit applications; however, they will not receive feedback (e.g., a critique of strengths and weaknesses) on their pre-application. The estimated timeframe for notification of invitation to submit an application is indicated in [Section I, Overview of the Funding Opportunity](#). Invitations to submit a full application are based on the Pre-Application Screening Criteria listed above.

II.D.2.b. Step 2: Full Application Submission Content

Applications will not be accepted unless notification of invitation has been received.

The CDMRP cannot make allowances/exceptions to its policies for submission problems encountered by the applicant organization using system-to-system interfaces with Grants.gov.

Each application submission must include the completed full application package for this program announcement. The full application package is submitted by the Authorized Organizational Representative through Grants.gov (<https://grants.gov/>) for extramural organizations or through eBRAP (<https://ebrap.org/>) for intramural organizations. See Table 1 below for more specific guidelines.

II.D.2.b.i. Full Application Guidelines

Extramural organizations must submit full applications through Grants.gov. Applicants must create a Grants.gov Workspace for submission, which allows the application components to be completed online and routed through the applicant organization for review prior to submission. Applicants may choose to download and save individual PDF forms rather than filling out webforms in Workspace. A compatible version of Adobe Reader **must** be used to view, complete, and submit an application package consisting of PDF forms. If more than one person is entering text into an application package, the **same version** of Adobe Reader software should be used by each person. Check the version number of the Adobe software on each user’s computer to make sure the versions match. Using different versions of Adobe Reader may cause submission and/or save errors – even if each version is individually compatible with Grants.gov. Refer to the General Application Instructions, Section III, and the “Apply For Grants” page of Grants.gov (<https://www.grants.gov/web/grants/applicants/apply-for-grants.html>) for further information about the Grants.gov Workspace submission process. Submissions of extramural applications through eBRAP may be withdrawn.

Do not password protect any files of the application package, including the Project Narrative.

Table 1. Full Application Submission Guidelines

Extramural Submissions	Intramural DOD Submissions
Application Package Location	
<p>Download application package components for HT9425-23-TBDRP-TDRA from Grants.gov (https://grants.gov) and create a Grants.gov Workspace. Workspace allows online completion of the application components and routing of the application package through the applicant organization for review prior to submission.</p>	<p>Download application package components for HT9425-23-TBDRP-TDRA from eBRAP (https://ebrap.org).</p>
Full Application Package Components	
<p>SF424 Research & Related Application for Federal Assistance Form: Refer to the General Application Instructions, Section III.A.1, for detailed information.</p>	<p>Tab 1 – Summary: Provide a summary of the application information.</p> <p>Tab 2 – Application Contacts: This tab will be pre-populated by eBRAP; add Authorized Organizational Representative.</p>
<p>Descriptions of each required file can be found under Full Application Submission Components:</p> <ul style="list-style-type: none"> • Attachments • Research & Related Personal Data • Research & Related Senior/Key Person Profile (Expanded) • Research & Related Budget • Project/Performance Site Location(s) Form • Research & Related Subaward Budget Attachment(s) Form 	<p>Tab 3 – Full Application Files: Upload files under each Application Component in eBRAP. Descriptions of each required file can be found under Full Application Submission Components:</p> <ul style="list-style-type: none"> • Attachments • Key Personnel • Budget • Performance Sites <p>Tab 4 – Application and Budget Data: Review and edit proposed project start date, proposed end date, and budget data pre-populated from the Budget Form.</p>
Application Package Submission	
<p>Create a Grants.gov Workspace. Add participants (investigators and Business Officials) to Workspace, complete all required forms, and check for errors before submission.</p> <p>Submit a Grants.gov Workspace Package. An application may be submitted through Workspace by clicking the “Sign and Submit” button on the “Manage Workspace” page, under the “Forms” tab. Grants.gov recommends submission of the application package at least</p>	<p>Submit package components to eBRAP (https://ebrap.org).</p> <p>Tab 5 – Submit/Request Approval Full Application: After all components are uploaded and prior to the full application submission deadline, enter your password in the space provided next to “Enter Your Password Here” and press the “Submit Full Application” button. eBRAP will notify your Resource Manager/ Comptroller/Task Area Manager or equivalent</p>

Extramural Submissions	Intramural DOD Submissions
<p>24-48 hours prior to the close date to allow time to correct any potential technical issues that may disrupt the application submission.</p> <p><i>Note:</i> If either the Project Narrative or the budget fails eBRAP validation or needs to be modified, an updated Grants.gov application package must be submitted via Grants.gov as a “Changed/Corrected Application” with the previous Grants.gov Tracking ID <i>prior to</i> the application submission deadline. <i>Do not password protect any files of the application package, including the Project Narrative.</i></p>	<p>Business Official by email. <i>Do not password protect any files of the application package, including the Project Narrative.</i></p>
<u>Application Verification Period</u>	
<p>The full application package submitted to Grants.gov may be viewed and modified in eBRAP until the end of the application verification period. During the application verification period, the full application package may be modified <i>with the exception of the Project Narrative and Research & Related Budget Form.</i></p>	<p>After eBRAP has processed the full application, the organizational Resource Manager/Comptroller/ Task Area Manager or equivalent Business Official and PI will receive email notification of this status and will be able to view and modify application components in eBRAP. During the application verification period, the full application package may be modified <i>with the exception of the Project Narrative and Research & Related Budget Form.</i> Your Resource Manager/ Comptroller/Task Area Manager or equivalent Business Official should log into eBRAP to review and to approve prior to the application verification deadline.</p>
Further Information	
<p>Tracking a Grants.gov Workspace Package. After successfully submitting a Workspace package, a Grants.gov Tracking Number is automatically assigned to the package. The number will be listed on the “Confirmation” page that is generated after submission.</p> <p>Refer to the General Application Instructions, Section III, for further information regarding Grants.gov requirements.</p>	<p>Refer to the General Application Instructions, Section IV, for further information regarding eBRAP requirements.</p>

The full application package must be submitted using the unique eBRAP log number to avoid delays in application processing.

II.D.2.b.ii. Full Application Submission Components

- **Extramural Applications Only**

SF424 Research & Related Application for Federal Assistance Form: Refer to the General Application Instructions, Section III.A.1, for detailed information.

- **Extramural and Intramural Applications**

Attachments:

Each attachment to the full application components must be uploaded as an individual file in the format specified and in accordance with the formatting guidelines listed in the General Application Instructions, Appendix 4.

For all attachments, ensure that the file names are consistent with the guidance. Attachments will be rejected if the file names are longer than 50 characters or have incorrect file names that contain characters other than the following: A-Z, a-z, 0-9, underscore, hyphen, space, and period. In addition, there are file size limits that may apply in some circumstances. Individual attachments may not exceed 20 megabytes (MB), and the file size for the entire full application package may not exceed 200 MB.

- **Attachment 1: Project Narrative (12-page limit): Upload as “ProjectNarrative.pdf”.** The page limit of the Project Narrative applies to text and non-text elements (e.g., figures, tables, graphs, photographs, diagrams, chemical structures, drawings) used to describe the project. Inclusion of URLs that provide additional information to expand the Project Narrative and could confer an unfair competitive advantage is prohibited and may result in administrative withdrawal of the application.

Outline for applications submitted under the Therapeutic/Diagnostic Research Award:

- **Background/Rationale:** Describe the problem, question, or knowledge gap that is related to at least one of the [FY23 TBDRP Focus Areas](#) in Treatment or Diagnosis and that will be addressed by the proposed research. Present a strong scientific rationale behind the proposed work. Describe previous experience most pertinent to the proposed research. ***Preliminary data are required under the Therapeutic/Diagnostic Research Award.*** Include relevant literature citations and/or preliminary data to support the study’s feasibility. Any unpublished preliminary data provided should be from the laboratory of the PI or member(s) of the collaborating team.
- **Hypotheses/Objectives:** State the hypotheses/study questions and overall objective(s) to be reached.
- **Specific Aims:** Concisely explain the project’s specific aims in support of the hypothesis/objectives. If this application is part of a larger study, present only tasks that this award would fund. Avoid interdependency of Specific Aims. Proposed

studies should not be dependent upon the successful outcomes, products, or samples from other ongoing research efforts.

- **Research Strategy:** Describe the experimental design, methods, estimated sample size(s), and analyses, including appropriate controls, in sufficient detail for evaluation of feasibility.
 - Describe the features of any novel screening assay, experimental model, or other tools that will be used to evaluate the putative therapeutic or diagnostic and provide a justification for why this is the most appropriate approach/model to support the proposed studies.
 - Describe how the proposed treatment/therapeutic will provide an advancement beyond the current standard of care or provide a potential treatment/therapy where one does not currently exist.
 - Describe how the proposed diagnostic approach will be more sensitive and specific than current assays, help define patient populations, differentiate disease states, and/or assess efficacy of potential therapeutics (if applicable).
 - Clearly describe how data will be collected, handled, and analyzed in a manner that is consistent with the study objectives.
 - Describe what aspects of the study the PI and other key personnel will be responsible for and what level of effort they will put forth to ensure successful conduct of the proposed work.
 - Address potential problems and provide approaches to mitigate these concerns, including interdependency of aims or dependency on successful outcomes, products, or samples from other ongoing research efforts.
 - Details of research involving human subjects or human biological substances will be required in [Attachment 8](#), as applicable. ***This award cannot be used to conduct clinical trials.***
 - Details of research involving animals will be required in [Attachment 9](#), as applicable.
 - If cell lines are to be used, describe how the choice of proposed cell line(s) is justified and relevant to human biology and natural tick-borne disease transmission. Include information about authentication of proposed cell lines. Describe the statistical rigor of in vitro cellular studies.
- **Collaboration (if applicable):** Describe how the specific contributions of collaborators will complement the PI's ability to perform the proposed work, enhance the project's innovation or impact in the tick-borne disease research field, and/or promote collaboration among fields or with commercial partners.

***Outline for applications submitted under the Therapeutic/Diagnostic Research Award
– Career Development Option:***

- **PI:** Describe the PI’s potential for a career at the forefront of tick-borne disease research, including qualifications and achievements that make the PI an ideal candidate for this award. Discuss how the PI’s record of accomplishments (within or outside the field of tick-borne diseases) and letters of support demonstrate their potential for advancement as a productive, independent investigator in tick-borne disease research. Describe the PI’s career goals as a tick-borne disease researcher and/or clinician and how the PI’s career goals demonstrate a strong personal commitment to advancing an independent career at the forefront of tick-borne disease research. Discuss how the proposed research project itself is appropriate for advancing the PI’s independent career at the forefront of tick-borne disease research. Describe the appropriateness of the level of effort of the PI for successful conduct of the proposed research.
- **Mentor:** Describe the qualifications of the mentor(s), including recent (last 5 years) history of funding and publications in tick-borne disease research, as well as a description of their mentoring history (if applicable). Collectively, the PI/mentorship team should have demonstrated experience in the field (pathogen/disease and associated methods/technologies) of the proposed studies. Describe the track record of the mentor(s) in mentoring early-career investigators to indicate the potential for successful mentorship and development of the PI’s independent career in tick-borne disease research. Describe how the mentor(s) demonstrate a commitment to the PI’s career development as a tick-borne disease researcher and to the success of the proposed research for the duration of the project through proposed direction and oversight. Clearly outline plans for regular, sustained interactions and communications between the PI and mentor(s).
- **Research**
 - **Background:** Describe the problem, question, or knowledge gap that is related to at least one of the [FY23 TBDRP Focus Areas](#) in Treatment or Diagnosis and that will be addressed by the proposed research. Describe the previous experience of the PI and mentor(s) that are most pertinent to the proposed research. Include relevant literature citations and/or preliminary data (if applicable) to support the study’s feasibility. Although ***preliminary data are not required under the Therapeutic/Diagnostic Research Award – Career Development Option***, preliminary data may be from the laboratory of the PI, mentor(s), or member(s) of the collaborating team or from the appropriate literature.
 - **Hypothesis/Objectives:** State the hypothesis/study questions and overall objective(s) to be reached.
 - **Specific Aims:** Concisely explain the project’s specific aims in support of the hypothesis/objectives. If this application is part of a larger study, present only the tasks that this award would fund. Avoid interdependency of Specific Aims.

Proposed studies should not depend on the successful outcomes, products, or samples from other ongoing research efforts.

- Strategy: Describe the experimental design, methods, estimated sample size(s), and analyses, including appropriate controls, in sufficient detail for evaluation of feasibility. Clearly describe how data will be collected, handled, and analyzed in a manner that is consistent with the study objectives. Describe what aspects of the study the PI and other key personnel will be responsible for and what level of effort they will put forth to ensure successful conduct of the proposed work.
 - Describe the features of any novel screening assay, experimental model, or other tools that will be used to evaluate the putative therapeutic or diagnostic and provide a justification for why this is the most appropriate approach/model to support the proposed studies.
 - Describe how the proposed treatment/therapeutic will provide an advancement beyond the current standard of care or provide a potential treatment/therapy where one does not currently exist.
 - Describe how the proposed diagnostic approach will be more sensitive and specific than current assays, help define patient populations, differentiate disease states, and/or assess efficacy of potential therapeutics (if applicable).
 - Address potential problems and provide approaches to mitigate these concerns, including the interdependency of aims or dependency on successful outcomes, products, or samples from other ongoing research efforts.
 - Details of research involving human subjects or human biological substances will be required in [Attachment 8](#), as applicable. ***This award cannot be used to conduct clinical trials.***
 - Details of research involving animals will be required in [Attachment 9](#), as applicable.
 - If cell lines are to be used, describe how the choice of proposed cell line(s) is justified and relevant to human biology and natural tick-borne disease transmission. Include information about authentication of proposed cell lines. Describe the statistical rigor of in vitro cellular studies.
- **Attachment 2: Supporting Documentation: Combine and upload as a single file named “Support.pdf”.** Start each document on a new page. If documents are scanned to PDF, the lowest resolution (100 to 150 dpi) should be used. The Supporting Documentation attachment should not include additional information such as figures, tables, graphs, photographs, diagrams, chemical structures, or drawings. These items should be included in the Project Narrative.

There are no page limits for any of these components unless otherwise noted. Include only those components described below; inclusion of items not requested or viewed as

an extension of the Project Narrative will result in the removal of those items or may result in administrative withdrawal of the application.

- **References Cited:** List the references cited (including URLs, if available) in the Project Narrative using a standard reference format that includes the full citation (i.e., author[s], year published, title of reference, source of reference, volume, chapter, page numbers, and publisher, as appropriate).
- **List of Abbreviations, Acronyms, and Symbols:** Provide a list of abbreviations, acronyms, and symbols.
- **Facilities, Existing Equipment, and Other Resources:** Describe the facilities and equipment available for performance of the proposed project and any additional facilities or equipment proposed for acquisition at no cost to the award. Indicate whether government-furnished facilities or equipment are proposed for use. If so, reference should be made to the original or present government award under which the facilities or equipment items are now accountable. There is no form for this information.
- **Publications and/or Patents:** Include a list of relevant publication URLs and/or patent abstracts. If articles are not publicly available, then copies of up to five published manuscripts may be included in Attachment 2. Extra items will not be reviewed.
- **Letters of Organizational Support:** Provide a letter (or letters, if applicable) signed by the Department Chair or appropriate organization official, confirming the laboratory space, equipment, and other resources available for the project. Letters of support not requested in the program announcement, such as those from members of Congress, do not impact application review or funding decisions.
- **Letters of Collaboration (if applicable):** Provide a signed letter from each collaborating individual or organization demonstrating that the PI has the support or resources necessary for the proposed work. If an investigator at an intramural organization is named as a collaborator on an application submitted through an extramural organization, the application must include a letter from the collaborator’s Commander or Commanding Officer at the intramural organization that authorizes the collaborator’s involvement.
- **Intellectual Property:** Information can be found in the 2 CFR 200.315, “Intangible Property.”
 - **Intellectual and Material Property Plan (if applicable):** Provide a plan for resolving intellectual and material property issues among participating organizations.
- **Data and Research Resources Sharing Plan:** Describe how data and resources generated during the performance of the project will be shared with the research community. Refer to the General Application Instructions, Appendix 2, Section K,

for more information about the CDMRP expectations for making data and research resources publicly available.

- **Data Management Plan** (2-page limit): Describe the data management plan in accordance with Section 3.c. Enclosure 3, [DoD Instructions 3200.12](#).
 - For Extramural Applications: Refer to General Application Instructions, Section III.A.2, Attachments Form, Attachment 2, Supporting Documentation, for more detailed information.
 - For Intramural Applications: Refer to General Application Instructions, Section IV.A.1, Application Component – Attachments, Attachment 2, Supporting Documentation, for more detailed information.
- **Use of DOD Resources (if applicable)**: Provide a letter of support signed by the lowest-ranking person with approval authority confirming access to active-duty military populations and/or DOD resources or databases.
- **Use of VA Resources (if applicable)**: Provide a letter of support from the VA Facility Director(s) or individual designated by the VA Facility Director(s), such as the Associate Chief of Staff for Research and Development (ACOS/R&D) or Clinical Service Chief, confirming access to VA patients, resources, and/or VA research space. For VA PIs, if the VA non-profit corporation is not identified as the applicant institution for administering the funds, include a letter from the VA ACOS/R&D confirming this arrangement and identifying the institution that will administer the funds associated with the proposed research.
- **Inclusion Enrollment (if applicable)**: Provide an anticipated enrollment table(s) for the inclusion of women and minorities appropriate to the objectives of the study with the proposed enrollment distributed on the basis of sex/gender, race, and ethnicity. The Public Health Service (PHS) Inclusion Enrollment Report is a three-page fillable PDF form, which can be downloaded from eBRAP at <https://ebrap.org/eBRAP/public/Program.htm>.
- **Quad Chart**: Provide a Quad Chart for the proposed project. The format for the quad chart is available on the eBRAP “Funding Opportunities & Forms” web page at (<https://ebrap.org/eBRAP/public/Program.htm>).
- **Attachment 3: Technical Abstract (one-page limit): Upload as “TechAbs.pdf”**. The technical abstract is used by all reviewers. Abstracts of all funded research projects will be posted publicly. **Do not include proprietary or confidential information**. Use only characters available on a standard QWERTY keyboard. Spell out all Greek letters, other non-English letters, and symbols. Graphics are not allowed.

Reviewers rely on the technical abstract for appropriate description of the project’s key aspects, therefore clarity and completeness within the space limits of the technical abstract are highly important. Technical abstracts should be written using the outline below.

- **Background:** Present the ideas and logical reasoning behind the proposed work as it relates to the [FY23 TBDRP Focus Areas](#) in Treatment or Diagnosis.
 - **Hypothesis/Objective:** State the hypothesis to be tested or the objective to be reached. Provide evidence or rationale that supports the hypothesis/objective.
 - **Specific Aims:** State the specific aims of the study.
 - **Study Design:** Briefly describe the study design, including appropriate controls, and describe how it is novel and/or an improvement over current approaches.
 - **Impact:** Describe the impact of the proposed study on Lyme disease and/or other tick-borne disease /conditions research, and on patient care and quality of life for military Service Members and the American public.
 - **Career Development (*required only for applications submitted under the Therapeutic/Diagnostic Research Award – Career Development Option*):** Describe the PI’s career goals in tick-borne disease research and how the proposed research and Career Development Plan support those goals.
- **Attachment 4: Lay Abstract (one-page limit): Upload as “LayAbs.pdf”.** The lay abstract is used by all reviewers. Abstracts of all funded research projects will be posted publicly. ***Do not include proprietary or confidential information. Do not duplicate the technical abstract.*** Use only characters available on a standard QWERTY keyboard. Spell out all Greek letters, other non-English letters, and symbols. Graphics are not allowed.
- Describe the rationale, scientific objective, and aims for the proposed project in a manner that will be ***readily understood by readers without a background in science or medicine.***
 - State the [FY23 TBDRP Focus Area\(s\)](#) the project addresses.
 - Describe the ultimate applicability of the research.
 - What is the project’s potential impact on reducing the public health burden, including the potential effect of the proposed research on the health and welfare of military Service Members and the American public?
 - What are the potential clinical applications, benefits, and risks?
 - What is the projected time it may take to achieve a patient-related outcome?
 - If the research is too basic for immediate clinical applicability, describe the interim outcomes.
 - What are the likely contributions of the study to advancing the field of Lyme disease and/or other tick-borne disease research?

Career Development (required only for applications submitted under the Therapeutic/Diagnostic Research Award – Career Development Option): Describe the PI’s career goals in tick-borne disease research and how the proposed research and Career Development Plan support those goals.

- **Attachment 5: Statement of Work (six-page limit): Upload as “SOW.pdf”.** The suggested SOW format and examples specific to different types of research projects are available on the eBRAP “Funding Opportunities & Forms” web page (<https://ebrap.org/eBRAP/public/Program.htm>). Recommended strategies for assembling the SOW can be found at <https://ebrap.org/eBRAP/public/Program.htm>.

For the Therapeutic/Diagnostic Research Award mechanism, refer to the “**Suggested SOW Strategy Generic Research**” document for guidance on preparing the SOW and use the blank SOW format titled “**Suggested SOW Format**”. The SOW must be in PDF format prior to attaching.

- **Attachment 6: Impact Statement (one-page limit): Upload as “Impact.pdf”.** Explain in detail how the proposed project will address a critical problem in Lyme disease and/or other tick-borne diseases/conditions and/or will impact the [FY22 TBDRP Focus Area\(s\)](#) being addressed as follows:
 - **Public Health Burden:** Describe the burden of illness for the disease(s) or condition(s) to be studied, including current evidence-based public health information on mortality, morbidity, and economic impact. Describe how the proposed research will ultimately reduce the burden of Lyme disease and/or other tick-borne illnesses and their effect on public health. Describe how the research is focused on tick-borne diseases and conditions endemic to the United States, and/or involves persistent Lyme disease.
 - **Military Relevance:** Describe how the proposed research is relevant to and will specifically impact the healthcare needs and welfare of military Service Members, Veterans, and their beneficiaries in a way that is consistent with the program’s goals.

The following resources include data on tick-borne diseases in the military and can be used in developing the Impact Statement:

- Medical Surveillance Monthly Report Feb 2021 (Vol 28, No 2) (<https://www.health.mil/MSMRArchives>)
- Medical Surveillance Monthly Report May 2022 (Vol 29, No 5) (<https://www.health.mil/MSMRArchives>)
- **Short-Term Impact:** Detail the anticipated short-term outcome(s)/product(s) (intellectual and/or tangible) that can be directly attributed to the proposed research.
- **Long-Term Impact:** Explain the anticipated long-term advancements over current knowledge, technology, and/or practice, ultimately contributing to the field of Lyme disease and/or other tick-borne diseases/conditions research, patient care, and/or

quality of life. Describe how the proposed research will advance the potential evidence-based treatment, therapeutic, or diagnostic toward dissemination and clinical implementation.

- **Attachment 7: Transition Plan** (*not required for applications submitted under the Therapeutic/Diagnostic Research Award – Career Development Option*) (three-page limit): Upload as “Transition.pdf”. Describe/discuss the methods and strategies proposed to move the anticipated outcomes(s) of this project to the next phase of development (clinical trials, commercialization, and/or delivery to the civilian or military market) or use after successful completion of the award. Project outcomes may be tangible products and/or intellectual products (e.g., proposed development or modification of Clinical Practice Guidelines and recommendations; provide training materials, patient brochures, and other clinical support tools; scientific journal publications; models; simulations; and applications). *Applicants are encouraged to work with their organization’s Technology Transfer Office (or equivalent) to develop the transition plan. PIs are encouraged to explore developing relationships with industry and/or other funding agencies to facilitate moving the product into the next phase of development.* The post-award transition plan should include the components listed below, as appropriate and applicable to the proposed research.
 - Describe how the proposed research will prepare the candidate therapeutic, treatment, or diagnostic for transition to the next level of development, regulatory submission/approval, and subsequent incorporation into clinical practice.
 - Describe how the next level of development and/or commercialization is realistic and achievable.
 - Describe the collaborations and other resources that will be used to provide continuity of development.
 - Describe the funding strategy to transition the anticipated outcome(s) of the project to the next level of development and/or commercialization (e.g., specific potential commercial/industry partners, specific funding opportunities to be sought).
 - A brief schedule and milestones for transitioning the anticipated outcome(s) of the project to the next level of development (e.g., clinical studies, clinical trials, transition to industry, delivery to the military or civilian market, incorporation into clinical practice, and/or approval by the FDA).
 - Ownership rights/access to the intellectual property necessary for the development and/or commercialization of products or technologies to be supported with this award and the government’s ability to access such products or technologies in the future.
 - A risk analysis for cost, schedule, manufacturability, and sustainability.
- **Attachment 8: Human Subjects/Sample Acquisition and Safety Procedures** (*if applicable; required for applications submitted under categories involving Human Subjects/Sample Acquisition*) (no page limit): Upload as “HumSubProc.pdf”. If the

proposed study involves human subjects, human biological samples, or correlated data the applicant is required to submit a summary describing the human research that will be conducted. ***Proposed studies should not rely on samples, reagents, or tools that are contingent upon completion of other ongoing efforts outside the scope of this proposal.***

- Describe the study population (i.e., nature, approximate number, and pertinent demographic characteristics) and the methods for sample acquisition and/or human subjects recruitment. Explain how well the sample population is designed to achieve the study objectives, including relevance of the population and endpoints/outcome measures to be used.
- Describe the informed consent process and include relevant draft process documents and consent forms. It is recommended that informed consent allows for the use of samples for future studies.
- Describe the strategy for the inclusion of women and minorities appropriate to the objectives of the study, including a description of the composition of the proposed study population in terms of sex/gender, racial, and ethnic group, and an accompanying rationale for the selection of subjects. Studies utilizing human biospecimens or datasets that cannot be linked to a specific individual, gender, ethnicity, or race (typically classified as exempt from IRB review) are exempt from this requirement.
- Include a discussion of the screening procedures and risk/benefit considerations.
- Provide sufficient evidence to support availability of and access to populations/samples required for the study, and document the experience of the PI and/or key collaborators in recruiting human subjects/acquiring human samples for similar projects.
- Address any potential barriers to accrual, including access to the proposed study samples/populations, and present contingency plans for addressing potential delays.
- Include a description of the potential ethical issues raised by the proposed study and provide a detailed plan for how those issues will be addressed.
- Describe how the study will take into consideration patient-centered outcomes, patient values and preferences among treatment alternatives, and shared decision-making in encounters between physicians and patients.
- If retrospectively collected human biological samples or correlated data from biorepositories or databases will be used, describe how those curated samples or data are representative of well-pedigreed cohorts of uniformly documented patients by providing their defining inclusion/exclusion criteria.
- Describe how the subject-to-group assignments process will be conducted (e.g., randomization, block randomization, stratified randomization, age-matched controls, alternate group, or other procedures), if applicable.

- Provide a statistical plan and sample size estimate for each study arm, including power analysis calculations to demonstrate that the sample size is appropriate to meet the objectives of the study given the constraints of the award mechanism.
- Describe how data will be handled, including the rules for stopping data collection, criteria for inclusion and exclusion of data, how outliers will be defined and managed, and identification of the primary endpoint(s).
- Describe the types of specimens or data to be collected and evaluated, and include information about specimen storage and maintenance (i.e., location, duration, special handling conditions).
- **Attachment 9: Animal Research Plan (if applicable) (three-page limit): Upload as “AnimalResPlan.pdf”.** If the proposed study involves animals, the applicant is required to submit a summary describing the animal research that will be conducted; however, applicants should not submit a verbatim replica of the protocol(s) to be submitted to the IACUC as the Animal Research Plan. ***Proposed studies should not rely on samples, reagents, or tools that are contingent upon completion of other ongoing efforts outside the scope of this proposal.*** Applicants should not submit a verbatim replica of the protocol(s) to be submitted to the IACUC as the Animal Research Plan. In accordance with the ARRIVE 2.0 guidelines (<https://arriveguidelines.org/arrive-guidelines>), the Animal Research Plan should address the following points for each proposed animal study:
 - Briefly describe the research objective(s) of the animal study. Explain how and justify why the animal species, strain, and model(s) being used can address the scientific objectives and, where appropriate, the relevance of the model and endpoints/outcome measures to human biology and natural tick-borne disease transmission. Include relevant preliminary data to support testing the study hypothesis in this animal model. If dogs or cats are proposed, provide the source of the animals.
 - Summarize the procedures to be conducted. Describe the interventions to minimize discomfort, distress, pain, and injury. These include analgesia, anesthesia, sedation, palliative care, and humane endpoints. Identify methods of euthanasia. If the method is not consistent with the American Veterinary Medical Association Guidelines for the Euthanasia of Animals, provide justification.
 - Describe how the study will be controlled. Identify age, sex, and total number of animals by species to be used.
 - Describe the randomization and blinding/masking procedures for the study, and any other measures to be taken to minimize the effects of subjective bias during animal treatment and assessment of the results. If randomization and/or blinding/masking will not be utilized, provide justification.

- Provide a statistical plan and power analysis calculations to demonstrate that the sample size is appropriate to meet the objectives of the study given the constraints of the award mechanism.
- Describe how data will be handled, including rules for stopping data collection, criteria for inclusion and exclusion of data, how outliers will be defined and handled, statistical methods for data analysis, and identification of the primary endpoint(s).
- **Attachment 10: Career Development Plan** (*required only for applications submitted under the Therapeutic/Diagnostic Research Award – Career Development Option or Therapeutic/Diagnostic Research Award – Career Development Option, involving Human Subjects/Sample Acquisition*) (three-page limit): Upload as “CareerDev.pdf”. The Career Development Plan attachment should be prepared by the PI with appropriate guidance from the mentor(s).
 - Provide a signed cover letter from the mentor(s) indicating a recommendation, support, and planned interactions with the PI for the proposed work. The mentor(s) should plan to be involved for the entire period of performance; therefore, the cover letter should address the ability of the mentor(s) to dedicate time to engage with the PI throughout the award. The cover letter from the mentor(s) should specifically detail plans for individualized interaction and the modality and frequency of the interactions between the mentor(s) and the PI to facilitate the PI’s career development. Include information on the record of the mentor in preparing early-career investigators for careers in tick-borne disease research.
 - Clearly describe and outline the individualized Career Development Plan.
 - Highlight the unique features of this Career Development Plan as it pertains specifically to tick-borne disease research.
 - Indicate specifically how the individualized Career Development Plan will provide the PI with an opportunity to acquire the necessary skills, competence, and expertise to establish/advance their independent career in tick-borne disease research, as well as how the mentor(s) will contribute to the PI’s career development as a tick-borne disease researcher and to the success of the proposed research for the duration of the project. Outline how the PI will gain experience in tick-borne disease research and engage with the tick-borne disease scientific and advocacy communities (as applicable), for example via workshops, seminars, etc.
 - Describe how the Career Development Plan is supported by the mentorship provided by the proposed mentor(s) and the research environment, including other tick-borne disease researchers at the PI’s institution and/or potential collaborations with tick-borne disease investigators at other institutions.
- **Attachment 11: Letter of Eligibility** (*required only for applications submitted under the Therapeutic/Diagnostic Research Award – Career Development Option or Therapeutic/Diagnostic Research Award – Career Development Option, involving Human Subjects/Sample Acquisition*) (one-page limit): Upload as “Eligibility.pdf”.

Provide a letter signed by the PI and the Department Chair, Dean, or equivalent official to verify that the eligibility requirements have been met. The letter should verify that the PI is an early-career research or physician scientist within 10 years of completing their terminal degree (excluding time spent in residency or on family medical leave; refer to [Section II.C, Eligibility Information](#)). Include the institutional commitment of laboratory space and a minimum of 50% level of time and effort during the period of performance for the PI to conduct tick-borne disease research under this award.

- **Attachment 12: Representations, if applicable (extramural submissions only): Upload as “RequiredReps.pdf”.** All extramural applicants must complete and submit the Required Representations template available on eBRAP (<https://ebrap.org/eBRAP/public/Program.htm>). For more information, see the General Application Instructions, Appendix 5, Section B, Representations.
- **Attachment 13: Suggested Collaborating DOD Military Facility Budget Format, if applicable: Upload as “MFBudget.pdf”.** If a military facility (Military Health System facility, research laboratory, medical treatment facility, dental treatment facility, or a DOD activity embedded with a civilian medical center) will be a collaborator in performance of the project, complete a separate budget, using “Suggested Collaborating DOD Military Facility Budget Format”, available for download on the eBRAP “Funding Opportunities & Forms” web page <https://ebrap.org/eBRAP/public/Program.htm>, including a budget justification, for each military facility as instructed. The costs per year should be included on the Grants.gov Research & Related Budget Form under subaward costs. Refer to the General Application Instructions, Section III.A.8, for detailed information.

- **Extramural and Intramural Applications**

To evaluate compliance with Title IX of the Education Amendments of 1972 (20 USC 1681[a] et seq.), the DOD is collecting certain demographic and career information to be able to assess the success rates of women who are proposed for key roles in applications in science, technology, engineering, and/or mathematics (STEM) disciplines. To enable this assessment, each application must include the following forms completed as indicated.

Research & Related Personal Data: For extramural submissions (via Grants.gov), refer to the General Application Instructions, Section III.A.3, and for intramural submissions (via eBRAP), refer to the General Application Instructions, Section IV.A.2, for detailed information.

Research & Related Senior/Key Person Profile (Expanded): For extramural submissions (via Grants.gov), refer to the General Application Instructions, Section III.A.4, and for intramural submissions (via eBRAP), refer to the General Application Instructions, Section IV.A.3, for detailed information.

- **PI Biographical Sketch (six-page limit):** Upload as “Biosketch_LastName.pdf”. The suggested biographical sketch format is available on the “Funding Opportunities & Forms” web page (<https://ebrap.org/eBRAP/public/Program.htm>) in eBRAP. The

National Institutes of Health Biographical Sketch may also be used. All biographical sketches should be submitted in uneditable PDF format.

- PI Previous/Current/Pending Support (no page limit): Upload as “Support_LastName.pdf”.
 - For extramural submissions, refer to the General Application Instructions, Section III.A.4, for detailed information.
 - For intramural submissions, refer to the General Application Instructions, Section IV.A.3, for detailed information.
- Key Personnel Biographical Sketches (six-page limit each): Upload as “Biosketch_LastName.pdf”.
 - ***For the Therapeutic/Diagnostic Research Award – Career Development Option:*** Include biographical sketch of mentor(s).
- Key Personnel Previous/Current/Pending Support (no page limit): Upload as “Support_LastName.pdf”.
 - For extramural submissions, refer to the General Application Instructions, Section III.A.4, for detailed information.
 - For intramural submissions, refer to the General Application Instructions, Section IV.A.3, for detailed information.
 - ***For the Therapeutic/Diagnostic Research Award – Career Development Option:*** Include previous/current/pending support of mentor(s).

Research & Related Budget: For extramural submissions (via Grants.gov), refer to the General Application Instructions, Section III.A.5, and for intramural submissions (via eBRAP), refer to the General Application Instructions, Section IV.A.4, for detailed information.

Budget Justification (no page limit): Upload as “BudgetJustification.pdf”. The budget justification for the entire period of performance must be uploaded to the Research & Related Budget after completion of the budget for Period 1.

Project/Performance Site Location(s) Form: For extramural submissions (via Grants.gov), refer to the General Application Instructions, Section III.A.6, and for intramural submissions (via eBRAP), refer to the General Application Instructions, Section IV.A.5, for detailed information.

- **Extramural Applications Only**

Research & Related Subaward Budget Attachment(s) Form (if applicable): Refer to the General Application Instructions, Section III.A.7, for detailed information.

- **Extramural Subaward:** Complete the Research & Related Subaward Budget Form through Grants.gov. (Refer to the General Application Instructions, Section III.A.7, for detailed information.) Verify subaward budget(s) and budget justification forms are present in eBRAP during the application verification period. If these components are missing, upload them to eBRAP before the end of the application verification period.
- **Intramural DOD Collaborator(s):** Complete the “Suggested Collaborating DOD Military Facility Budget Format” and upload to Grants.gov attachment form as [Attachment 13](#). (Refer to the General Application Instructions, Section IV.A.4, for detailed information.) Each Intramural DOD Collaborator should include costs per year on the Grants.gov Research & Related Budget Form under subaward costs.

II.D.3. Unique Entity Identifier (UEI) and System for Award Management (SAM)

The applicant organization must be registered as an entity in SAM (<https://www.sam.gov/SAM/>) and receive confirmation of an “Active” status before submitting an application through Grants.gov. ***As of April 2022, all federal awards including, but not limited to, contracts, grants, and cooperative agreements will use the UEI generated through SAM.gov.*** Refer to the General Application Instructions, Section III, for further information regarding Grants.gov requirements.

II.D.4. Submission Dates and Times

All submission dates and times are indicated in [Section I, Overview of the Funding Opportunity](#). Pre-application and application submissions are required. The pre-application and application submission process should be started early to avoid missing deadlines. There are no grace periods. Failure to meet either of these deadlines will result in submission rejection.

Applicant Verification of Full Application Submission in eBRAP

For Both Extramural and Intramural Applicants: eBRAP allows an organization’s representatives and PIs to view and modify the full application submissions associated with them. Following retrieval and processing of the full application, eBRAP will notify the organizational representatives and PI by email to log into eBRAP to review, modify, and verify the full application submission. eBRAP will validate full application files against the specific program announcement requirements, and discrepancies will be noted in an email to the PI and in the “Full Application Files” tab in eBRAP. eBRAP does not confirm the accuracy of file content. Application viewing, modification, and verification in eBRAP are strongly recommended, but not required. It is the applicant’s responsibility to review all application components and ensure proper ordering as specified in the program announcement. ***If either the Project Narrative or the budget fails eBRAP validation or needs to be modified, an updated full application package must be submitted prior to the application submission deadline. The Project Narrative and Research & Related Budget Form cannot be changed after the application submission deadline.*** Other application components may be changed until the end of the application verification period. Verify that subaward budget(s) and budget justification forms are present in eBRAP during the application verification period. If these components are

missing, upload them to eBRAP before the end of the application verification period. After the end of the application verification period, the full application cannot be modified.

Extramural Submission: The full application package submitted to Grants.gov may be viewed and modified in eBRAP until the end of the application verification period. During the application verification period, the full application package, ***with the exception of the Project Narrative and Budget Form***, may be modified.

Intramural DOD Submission: After eBRAP has processed the full application, the organizational Resource Manager/Comptroller/Task Area Manager or equivalent Business Official and PI will receive email notification of the status and will be able to view and modify application components in eBRAP. During the application verification period, the full application package, ***with the exception of the Project Narrative and Budget Form***, may be modified. The Resource Manager/Comptroller/Task Area Manager or equivalent Business Official should log into eBRAP to review and to approve the application package prior to the application verification deadline.

For All Submissions: Verify that subaward budget(s) with budget justification are present in eBRAP during the application verification period. If these components are missing, upload them to eBRAP before the end of the application verification period.

II.D.5. Funding Restrictions

The maximum period of performance is **3** years.

Therapeutic/Diagnostic Research Award: The application's direct costs budgeted for the entire period of performance should not exceed **\$825,000**. If indirect cost rates have been negotiated, indirect costs are to be budgeted in accordance with the organization's negotiated rate.

Therapeutic/Diagnostic Research Award – Career Development Option: The anticipated direct costs budgeted for the entire period of performance should not exceed **\$495,000**. If indirect cost rates have been negotiated, indirect costs are to be budgeted in accordance with the organization's negotiated rate.

All direct and indirect costs of any subaward or contract or intramural collaborator must be included in the total direct costs of the primary award.

For this award mechanism, direct costs may be requested for (not all-inclusive):

- Travel in support of multidisciplinary collaborations.
- Costs for one investigator to travel to one scientific/technical meeting per year. The intent of travel costs to scientific/technical meetings is to present project information or disseminate project results from the FY23 TBDRP Therapeutic/Diagnostic Research Award.

Must not be requested for:

- Clinical trial costs
- Mentor registration and/or travel costs
- Mentor salary

For extramural awards with an intragovernmental component, direct transfer of funds from an extramural award recipient to a DOD or other federal agency is not allowed except under very limited circumstances. Funding to intramural DOD and other federal agencies will be managed through a direct funds transfer. Intramural applicants are responsible for coordinating through their agency's procedures the use of contractual or assistance funding awards or other appropriate agreements to support extramural collaborators.

Refer to the General Application Instructions, Section III.A.5, for budget regulations and instructions for the Research & Related Budget. *For federal agencies or organizations collaborating with federal agencies, budget restrictions apply as are noted in the General Application Instructions, Section III.A.5.*

II.D.6. Other Submission Requirements

Refer to the General Application Instructions, Appendix 4, for detailed formatting guidelines.

II.E. Application Review Information

II.E.1. Criteria

II.E.1.a. Peer Review

To determine technical merit, all applications will be evaluated according to the following **scored criteria**, which are of equal importance:

- **Impact**
 - To what extent the proposed project will address a critical problem in Lyme disease and/or other tick-borne diseases/conditions and/or will impact the [FY23 TBDRP Focus Areas](#) in Treatment or Diagnosis.
 - To what extent the proposed research will ultimately reduce the burden of Lyme disease and/or other tick-borne illnesses and their effect on public health.
 - How the research is focused on tick-borne diseases and conditions endemic to the United States, and/or involves persistent Lyme disease.
 - To what extent the proposed research is relevant to and will specifically impact the healthcare needs and welfare of military Service Members, Veterans, and their beneficiaries in a way that is consistent with the program's goals.

- How the anticipated short-term outcome(s)/products(s) (intellectual and/or tangible) can be directly attributed to the proposed research.
- How the anticipated long-term advancement over current knowledge, technology, and/or practice that would ultimately contribute to the field of Lyme disease and/or other tick-borne diseases/conditions research, patient care, and/or quality of life can be directly attributed to the proposed research.
- To what extent the proposed research will advance the potential evidence-based treatment, therapeutic, or diagnostic toward dissemination and clinical implementation.
- **Research Strategy and Feasibility**
 - How the background/rationale describes a problem, question, or knowledge gap that is related to at least one of the [FY23 TBDRP Focus Areas](#) in Treatment or Diagnosis and how it will be addressed by the proposed research.
 - How well the application presents a strong scientific rationale behind the proposed work and includes relevant literature citations and/or preliminary data to support the study's feasibility. ***Preliminary data are not required under the Therapeutic/Diagnostic Research Award – Career Development Option.***
 - How well the application states appropriate hypotheses/study questions and overall objective(s) to be reached, along with specific aims in support of the hypothesis/objectives.
 - How well the application describes the experimental design, methods, estimated sample size(s), and analyses, including appropriate controls, in sufficient detail for evaluation of feasibility.
 - How well the novel screening assay, experimental model, or other tools for evaluating the putative therapeutic or diagnostic are justified and appropriate to support the proposed studies.
 - How the proposed treatment/therapeutic will provide an advancement beyond the current standard of care or provide a potential treatment/therapy where one does not currently exist.
 - How the proposed diagnostic approach will be more sensitive and specific than current assays, help define patient populations, differentiate disease states, and/or assess the efficacy of potential therapeutics (if applicable).
 - How well the application acknowledges potential problems and provides approaches to mitigate those concerns, including interdependency of aims or dependency on successful outcomes, products, or samples from other ongoing research efforts.

- For research involving cell line(s) and/or animals:
 - How well the choice of proposed cell line(s) and/or animal model(s) and the associated endpoints/outcome measures are justified and relevant to human biology and natural tick-borne disease transmission and supported by relevant preliminary data.
 - How well the statistical rigor of in vitro cellular studies and preclinical animal experiments is demonstrated.
 - If animal studies are proposed, whether they will be conducted in accordance with the ARRIVE 2.0 guidelines (<https://arriveguidelines.org/arrive-guidelines>).
 - Whether the method of euthanasia and the interventions to minimize discomfort, distress, pain, and injury described in the Animal Research Plan are appropriate, as applicable.
 - Whether the Animal Research Plan includes a statistical plan and power analysis calculations to demonstrate that the sample size is appropriate to meet the objectives of the study given the constraints of the award mechanism, as applicable.
 - To what extent the primary endpoint(s) identified in the Animal Research Plan are appropriate, as applicable.
- **Human Subjects/Sample Acquisition and Safety Procedures (*for applications submitted under categories involving Human Subjects/Sample Acquisition*)**
 - The degree to which the study population and associated endpoints/outcome measures, the methods for sample acquisition and/or human subjects recruitment, the informed consent process, and the screening procedures are justified and relevant to achieve the study objectives.
 - Whether there is sufficient evidence provided to support availability of and access to samples/populations required for the study and documentation of the experience of the PI and/or key collaborators in recruiting human subjects/acquiring human samples for similar projects.
 - Whether the strategy for the inclusion of women and minorities and distribution of proposed enrollment are appropriate for the proposed research.
 - How well the application addresses any potential barriers to accrual, including access to the proposed study samples/populations, and presents adequate contingency plans for addressing potential delays. How well the application identifies potential ethical issues raised by the proposed study and provides a detailed plan for how those issues will be addressed.

- How well the study takes into consideration patient-centered outcomes, patient values and preferences among treatment alternatives, and shared decision-making in encounters between physicians and patients.
- If retrospectively collected human biological samples or correlated data from biorepositories or databases will be used, whether the curated samples or data are representative of well-pedigreed cohorts of uniformly documented patients as demonstrated by their defining inclusion/exclusion criteria.
- Whether there is sufficient information provided regarding the subject-to-group assignments process (if applicable).
- Whether the application includes an appropriate statistical plan and sample size estimate for each study arm, including power analysis calculations to demonstrate that the sample size is appropriate to meet the objectives of the study, given the constraints of the award mechanism.
- Whether the application describes how data will be handled, including the rules for stopping data collection, criteria for inclusion and exclusion of data, how outliers will be defined and managed, and identification of primary endpoints.
- How well the types of specimens or data to be collected and evaluated, as well as specimen storage and maintenance, are described.
- **Transition Plan (*applicable only to the Therapeutic/Diagnostic Research Award*)**
 - How the proposed research will prepare the candidate therapeutic, treatment, or diagnostic for transition to the next level of development, regulatory submission/approval, and subsequent incorporation into clinical practice.
 - Whether the identified next level of development and/or commercialization is realistic and achievable.
 - Whether the proposed collaborations and other resources described to provide continuity of development are achievable.
 - Whether the funding strategy described to transition the anticipated outcome(s) of the project to the next level of development and/or commercialization is reasonable and achievable.
 - Whether the schedule and milestones for transitioning the anticipated outcome(s) of the project to the next level of development (clinical studies, clinical trials, transition to industry, delivery to the market, incorporation into clinical practice, and/or approval by the FDA) are achievable.
 - How well the application identifies ownership rights/access to the intellectual property necessary for the development and/or commercialization of products or technologies to

be supported by this award and describes the government's ability to access such products or technologies in the future.

- Whether the potential risk analysis for cost, schedule, manufacturability, and sustainability is realistic and reasonable.
- **Personnel (*applicable only to the Therapeutic/Diagnostic Research Award*)**
 - Based on the PI and Key Personnel Biographical Sketches, to what degree the research team's background is appropriate with respect to its ability to perform the proposed work, including whether there is evidence of sufficient expertise (as applicable).
 - To what degree the levels of effort of the PI and other key personnel are appropriate to ensure successful conduct of the proposed work.
 - How well the specific contributions of collaborators will complement the PI's ability to perform the proposed work, enhance the project's innovation or impact in the tick-borne disease research field, and/or promote collaboration among fields or with commercial partners (if applicable).
- **PI (*applicable only to the Therapeutic/Diagnostic Research Award – Career Development Option*)**
 - Whether the PI meets the eligibility requirements.
 - To what extent the PI's record of accomplishments (within or outside the field of tick-borne diseases) and letters of support demonstrate their potential for advancement as a productive, independent investigator in tick-borne disease research.
 - To what degree the PI's career goals demonstrate a strong personal commitment to advancing an independent career at the forefront of tick-borne disease research.
- **Career Development Plan and Environment (*applicable only to the Therapeutic/Diagnostic Research Award – Career Development Option*)**
 - How well the PI has outlined a detailed, individualized Career Development Plan that will provide the PI with the opportunity to acquire the necessary skills, competence, and expertise to effectively establish/advance their independent career in tick-borne disease research.
 - To what degree the proposed Career Development Plan outlines how the PI will gain experience in tick-borne disease research and engage with the tick-borne disease scientific and advocacy communities (as applicable), for example via workshops, seminars, etc.
 - To what degree the mentor(s) demonstrate a commitment to the PI's career development as a tick-borne disease researcher and to the success of the proposed research for the duration of the project through proposed direction and oversight, and how well plans for

regular, sustained interactions and communication between the PI and mentor(s) are clearly outlined.

- How well the application describes the qualifications of the mentor(s), including recent (last 5 years) history of funding and publications in tick-borne disease research, as well as a description of their mentoring history (if applicable), and whether, collectively, the PI/mentorship team has demonstrated experience in the field (pathogen/disease and associated methods/technologies) of the proposed studies.
- To what degree the track record of the mentor(s) in mentoring early-career investigators indicates the potential for successful mentorship and development of the PI's independent career in tick-borne disease research.
- Appropriateness of the levels of effort of the PI, mentor(s), and other key personnel for successful conduct of the proposed research.
- To what extent the Career Development Plan is supported by the mentorship provided by the proposed mentor(s) and the research environment, including other tick-borne disease researchers at the PI's institution and/or potential collaborations with tick-borne disease investigators at other institutions.
- Whether there is a clear institutional commitment to allow protection of a minimum of 50% level of time and effort during the period of performance for the PI to conduct tick-borne disease research under this award.
- To what degree the research project itself is appropriate for advancing the PI's independent career at the forefront of tick-borne disease research.

In addition, the following **unscored criteria** will also contribute to the overall evaluation of the application:

- **Environment**

- To what extent the quality and level of institutional support are appropriate for the proposed research project.
- How well the research requirements are supported by the availability and accessibility to facilities and resources (including collaborative arrangements).
- If applicable, to what degree the intellectual and material property plan is appropriate

- **Budget**

- Whether the **direct** costs exceed the allowable direct costs as published in the program announcement.
- Whether the budget is appropriate for the proposed research.

- **Application Presentation**

- To what extent the writing, clarity, and presentation of the application components influence the review.

II.E.1.b. Programmatic Review

To make funding recommendations and select the application(s) that, individually or collectively, will best achieve the program objectives, the following criteria are used by programmatic reviewers:

- Ratings and evaluations of the peer reviewers
- Relevance to the mission of the DHP and FY23 TBDRP, as evidenced by the following:
 - Adherence to the intent of the award mechanism
 - Programmatic relevance in relation to the FY23 TBDRP Focus Areas related to tick-borne disease Treatment or Diagnosis
 - Relative impact, including impact of public health burden and burden on military Service Members and their beneficiaries
 - Program portfolio composition

II.E.2. Application Review and Selection Process

All applications are evaluated by scientists, clinicians, and consumers in a two-tier review process. The first tier is **peer review**, the evaluation of applications against established criteria to determine technical merit, where each application is assessed for its own merit, independent of other applications. The second tier is **programmatic review**, a comparison-based process in which applications with high scientific and technical merit are further evaluated for programmatic relevance. Final recommendations for funding are made to the Commanding General, USAMRDC. *The highest-scoring applications from the first tier of review are not automatically recommended for funding. Funding recommendations depend on various factors as described in [Section II.E.1.b, Programmatic Review](#).* Additional information about the two-tier process used by the CDMRP can be found at <https://cdmrp.health.mil/about/2tierRevProcess>. An information paper describing the funding recommendations and review process for the award mechanisms for the TBDRP will be provided to the PI[(s)] and posted on the CDMRP website.

All CDMRP review processes are conducted confidentially to maintain the integrity of the merit-based selection process. Panel members sign a statement declaring that application and evaluation information will not be disclosed outside the panel. Violations of confidentiality can result in the dissolving of a panel(s) and other corrective actions. In addition, personnel at the applicant or collaborating organizations are prohibited from contacting persons involved in the review and approval process to gain protected evaluation information or to influence the evaluation process. Violations of these prohibitions will result in the administrative withdrawal

of the organization's application. Violations by panel members or applicants that compromise the confidentiality of the review and approval process may also result in suspension or debarment from federal awards. Furthermore, the unauthorized disclosure of confidential information of one party to another third party is a crime in accordance with 18 USC 1905.

II.E.3. Integrity and Performance Information

Prior to making an assistance agreement award where the federal share is expected to exceed the simplified acquisition threshold, as defined in 2 CFR 200.1, over the period of performance, the federal awarding agency is required to review and consider any information about the applicant that is available in the Federal Awardee Performance and Integrity Information System (FAPIIS).

An applicant organization may review FAPIIS, accessible through SAM, and submit comments to FAPIIS on any information about the organization that a federal awarding agency previously entered and is currently available in FAPIIS.

The federal awarding agency will consider any comments by the applicant, in addition to other information in the designated integrity and performance system, in making a judgment about the applicant's integrity, business ethics, and record of performance under federal awards when determining a recipient's qualification prior to award, according to the qualification standards of the Department of Defense Grant and Agreement Regulations (DoDGARs), Section 22.415.

II.E.4. Anticipated Announcement and Federal Award Dates

All application review dates and times are indicated in [Section I, Overview of the Funding Opportunity](#).

Each PI and organization will receive email notification of posting of the funding recommendation in eBRAP. Each PI will receive a peer review summary statement on the strengths and weaknesses of the application.

II.F. Federal Award Administration Information

II.F.1. Federal Award Notices

Awards supported with FY23 funds are anticipated to be made no later than September 30, 2024. Refer to the General Application Instructions, Appendix 2, for additional award administration information.

After email notification of application review results through eBRAP, and if selected for funding, a representative from the USAMRAA will contact the Business Official authorized to negotiate on behalf of the PI's organization.

Pre-Award Costs: An institution of higher education, hospital, or non-profit organization may, at its own risk and without the government's prior approval, incur obligations and expenditures

to cover costs up to 90 days before the beginning date of the initial budget period of a new award. Refer to the General Application Instructions, Section III.A.5.

Only an appointed USAMRAA Grants Officer may obligate the government to the expenditure of funds. No commitment on the part of the government should be inferred from discussions with any other individual. **The award document signed by the Grants Officer is the official authorizing document.**

Federal Government Organizations: Funding made to federal government organizations (to include intramural DOD organizations) will be executed through the Military Interdepartmental Purchase Request (MIPR) or Funding Authorization Document (FAD) process. Transfer of funds is contingent upon appropriate safety and administrative approvals. Intramural applicants and collaborators are reminded to coordinate receipt and commitment of funds through their respective Resource Manager/Task Area Manager/Comptroller or equivalent Business Official.

II.F.1.a. PI Changes and Award Transfers

For the Therapeutic/Diagnostic Research Award: Changes in PI or organization will be allowed at the discretion of the USAMRAA Grants Officer, provided the intent of the award mechanism is met.

For the Therapeutic/Diagnostic Research Award – Career Development Option: Changes in PI are not allowed, except under extenuating circumstances that will be evaluated on a case-by-case basis and at the discretion of the Grants Officer. Changes in organization will be allowed at the discretion of the USAMRAA Grants Officer, provided the intent of the award mechanism and option is met.

An organizational transfer of an award will not be allowed in the last year of the (original) period of performance or any extension thereof.

Refer to the General Application Instructions, Appendix 2, Section B, for general information on organization or PI changes.

II.F.2. Administrative and National Policy Requirements

Applicable requirements in the DoDGARs found in 32 CFR, Chapter I, Subchapter C, and 2 CFR, Chapter XI, apply to grants and cooperative agreements resulting from this program announcement.

Refer to the General Application Instructions, Appendix 2, for general information regarding administrative requirements.

Refer to the General Application Instructions, Appendix 5, for general information regarding national policy requirements.

Refer to full text of the latest [DoD R&D General Terms and Conditions](#) and the [USAMRAA General Research Terms and Conditions: Addendum to the DoD R&D General Terms and Conditions](#) for further information.

Certification Regarding Disclosure of Funding Sources. The proposing entity must comply with Section 223(a) of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, which requires that the PI, Partnering PIs (if applicable), and all key personnel:

- Certify that the current and pending support provided on the application is current, accurate, and complete;
- Agree to update such disclosure at the request of the agency prior to the award of support and at any subsequent time the agency determines appropriate during the term of the award; and
- Have been made aware of the requirements under Section 223(a)(1) of this Act.

False, fictitious, or fraudulent statements or claims may result in criminal, civil, or administrative penalties (18 USC 1001).

II.F.3. Reporting

Refer to the General Application Instructions, Appendix 2, Section A, for general information on reporting requirements. ***If there are technical reporting requirement delinquencies for any existing USAMRAA-sponsored awards at the applicant organization, no new awards will be issued to the applicant organization until all delinquent reports have been submitted.***

Annual progress reports with quad charts, as well as a final progress report with quad chart will be required.

The Award Terms and Conditions will specify if additional and/or more frequent reporting is required.

PHS Inclusion Enrollment Reporting Requirement (***only required for clinical research studies***): Enrollment reporting on the basis of sex/gender, race, and/or ethnicity will be required with each annual and final progress report. The PHS Inclusion Enrollment Report is available on the “Funding Opportunities & Forms” web page (<https://ebrap.org/eBRAP/public/Program.htm>) in eBRAP.

Awards resulting from this program announcement may entail additional reporting requirements related to recipient integrity and performance matters. Recipient organizations that have federal contract, grant, and cooperative agreement awards with a cumulative total value greater than \$10M are required to provide information to FAPIIS about certain civil, criminal, and administrative proceedings that reached final disposition within the most recent 5-year period and that were connected with performance of a federal award. These recipients are required to disclose, semiannually, information about criminal, civil, and administrative proceedings as specified in the applicable Representations (see General Application Instructions, Appendix 5, Section B).

II.G. Federal Awarding Agency Contacts

II.G.1. eBRAP Help Desk

Questions related to program announcement content or submission requirements as well as questions related to the pre-application or intramural application submission through eBRAP should be directed to the eBRAP Help Desk, which is available Monday through Friday from 8:00 a.m. to 5:00 p.m. ET (closed on most U.S. federal holidays). Response times may vary depending upon the volume of inquiries.

Phone: 301-682-5507

Email: help@eBRAP.org

II.G.2. Grants.gov Contact Center

Questions related to extramural application submission through Grants.gov portal should be directed to the Grants.gov Contact Center, which is available 24 hours a day, 7 days a week (closed on U.S. federal holidays). Note that the eBRAP Help Desk is unable to provide technical assistance with Grants.gov submission.

Phone: 800-518-4726; International 1-606-545-5035

Email: support@grants.gov

Sign up on Grants.gov for “send me change notification emails” by following the link on the “Synopsis” page for the program announcement or by responding to the prompt provided by Grants.gov when first downloading the Grants.gov application package. If the Grants.gov application package is updated or changed, the original version of the application package may not be accepted by Grants.gov.

II.H. Other Information

II.H.1. Program Announcement and General Application Instructions Versions

Questions related to this program announcement should refer to the program name, the program announcement name, and the program announcement version code 802a. The program announcement numeric version code will match the General Application Instructions version code 802.

II.H.2. Administrative Actions

After receipt of pre-applications or applications, the following administrative actions may occur:

II.H.2.a. Rejection

The following will result in administrative rejection of the pre-application:

- Preproposal Narrative exceeds page limit.
- Preproposal Narrative is missing.

The following will result in administrative rejection of the application:

- For applications involving human subjects or human samples, the Human Subject/Sample Acquisition and Safety Procedures ([Attachment 8](#)) is missing.
- For applications involving animals, the Animal Research Plan ([Attachment 9](#)) is missing.
- Submission of an application for which a letter of invitation was not received.
- Project Narrative exceeds page limit.
- Project Narrative is missing.
- Budget is missing.

II.H.2.b. Modification

- Pages exceeding the specific limits will be removed prior to review for all documents other than the Preproposal Narrative and Project Narrative.
- Documents not requested will be removed.

II.H.2.c. Withdrawal

The following may result in administrative withdrawal of the pre-application or application:

- An FY23 TBDRP Programmatic Panel member is named as being involved in the research proposed or is found to have assisted in the pre-application or application processes including, but not limited to, concept design, application development, budget preparation, and the development of any supporting documentation. *A list of the FY23 TBDRP Programmatic Panel members can be found at <https://cdmrp.health.mil/tbdrp/panels/panels23>.*
- The application fails to conform to this program announcement description.
- Inclusion of URLs, with the exception of links in References Cited and Publication and/or Patent Abstract sections.
- Page size is larger than 8.5 inches x 11.0 inches (approximately 21.59 cm x 27.94 cm).
- To preserve the integrity of its peer and programmatic review processes, the CDMRP discourages inclusion of any employee of its review contractors having any role in the

preparation, research or other duties for submitted applications. For FY23, the identities of the peer review contractor and the programmatic review contractor may be found at the CDMRP website (<https://cdmrp.health.mil/about/2tierRevProcess>). Applications that include names of personnel from either of these companies may be administratively withdrawn.

- Personnel from applicant or collaborating organizations are found to have contacted persons involved in the review or approval process to gain protected evaluation information or to influence the evaluation process.
- Applications from extramural organizations, including non-DOD federal agencies, received through eBRAP may be withdrawn.
- Applications submitted by an intramural DOD organization may be withdrawn if the intramural organization cannot coordinate the use of contractual, assistance, or other appropriate agreements to provide funds to extramural collaborators.
- Application includes research data that are classified and/or proposes research of which the anticipated outcomes are classified or deemed sensitive to national security will be considered for application withdrawal.
- The application fails to address at least one of the FY22 TBDRP Focus Areas in Treatment or Diagnosis.
- Submission of the same research project to different funding opportunities within the same program and fiscal year.
- Submission of the same research project to both the Therapeutic/Diagnostic Research Award and the Therapeutic/Diagnostic Research Award – Career Development Option.
- The invited application proposes a different research project than that described in the pre-application.
- A clinical trial is proposed.
- The PI does not meet the eligibility criteria.

II.H.2.d. Withhold

Applications that appear to involve research misconduct will be administratively withheld from further consideration pending organizational investigation. The organization will be required to provide the findings of the investigation to the USAMRAA Grants Officer for a determination of the final disposition of the application.

II.H.3. Application Submission Checklist

Application Components	Action	Completed
SF424 Research & Related Application for Federal Assistance (extramural submissions only)	Complete form as instructed	
Summary (Tab 1) and Application Contacts (Tab 2) (intramural submissions only)	Complete tabs as instructed	
Attachments	Project Narrative: Upload as Attachment 1 with file name "ProjectNarrative.pdf"	
	Supporting Documentation: Upload as Attachment 2 with file name "Support.pdf"	
	Technical Abstract: Upload as Attachment 3 with file name "TechAbs.pdf"	
	Lay Abstract: Upload as Attachment 4 with file name "LayAbs.pdf"	
	Statement of Work: Upload as Attachment 5 with file name "SOW.pdf"	
	Impact Statement: Upload as Attachment 6 with file name "Impact.pdf"	
	Transition Plan: Upload as Attachment 7 with file name "Transition.pdf"	
	Human Subjects/Sample Acquisition Safety Procedures: Upload as Attachment 8 with file name "HumSubProc.pdf", if applicable	
	Animal Research Plan: Upload as Attachment 9 with file name "AnimalResPlan.pdf", if applicable	
	Career Development Plan: Upload as Attachment 10 with file name "CareerDev.pdf", if applicable	
	Letter of Eligibility: Upload as Attachment 11 with file name "Eligibility.pdf", if applicable	
	Representations (extramural submissions only): Upload as Attachment 12 with file name "RequiredReps.pdf"	
	Suggested Collaborating DOD Military Facility Budget Format: Upload as Attachment 13 with file name "MFBudget.pdf" if applicable	
Research & Related Personal Data	Complete form as instructed	

Application Components	Action	Completed
Research & Related Senior/Key Person Profile (Expanded)	Attach PI Biographical Sketch (Biosketch_LastName.pdf) to the appropriate field	
	Attach PI Previous/Current/Pending Support (Support_LastName.pdf) to the appropriate field	
	Attach Biographical Sketch (Biosketch_LastName.pdf) for each senior/key person to the appropriate field	
	Attach Previous/Current/Pending (Support_LastName.pdf) for each senior/key person to the appropriate field	
Research & Related Budget (extramural submissions only)	Complete as instructed. Attach Budget Justification (BudgetJustification.pdf) to the appropriate field	
Budget (intramural submissions only)	Suggested DOD Military Budget Format, including justification	
Project/Performance Site Location(s) Form	Complete form as instructed	
Research & Related Subaward Budget Attachment(s) Form, if applicable	Complete form as instructed	

APPENDIX 1: ACRONYM LIST

ACOS/R&D	Associate Chief of Staff for Research and Development
ACURO	Animal Care and Use Review Office
ADME	Absorption, Distribution, Metabolism, and Excretion
ARRIVE	Animal Research: Reporting <i>In Vivo</i> Experiments
CDMRP	Congressionally Directed Medical Research Programs
CFR	Code of Federal Regulations
DHP	Defense Health Program
DOD	Department of Defense
DoDGARs	Department of Defense Grant and Agreement Regulations
eBRAP	Electronic Biomedical Research Application Portal
EC	Ethics Committee
ET	Eastern Time
FAD	Funding Authorization Document
FAPIIS	Federal Awardee Performance and Integrity Information System
FDA	Food and Drug Administration
FY	Fiscal Year
IACUC	Institutional Animal Care and Use Committee
IRB	Institutional Review Board
M	Million
MB	Megabytes
MIPR	Military Interdepartmental Purchase Request
OHARO	Office of Human and Animal Research Oversight (previously Office of Research Protections)
OHRO	Office of Human Research Oversight (previously Human Research Protection Office)
ORCID	Open Researcher and Contributor ID, Inc.
PDF	Portable Document Format
PHS	Public Health Service
PI	Principal Investigator
SAM	System for Award Management
SOW	Statement of Work
STEM	Science, Technology, Engineering, and/or Mathematics
TBDRP	Tick-Borne Disease Research Program
URL	Uniform Resource Locator
UEI	Unique Entity Identifier
USAMRAA	U.S. Army Medical Research Acquisition Activity

USAMRDC	U.S. Army Medical Research and Development Command
USC	United States Code
VA	U.S. Department of Veterans Affairs

APPENDIX 2: DOD AND VA WEBSITES

PIs are encouraged to integrate and/or align their research projects with DOD and/or VA research laboratories and programs. Collaboration with DOD and/or VA investigators is also encouraged. Below is a list of websites that may be useful in identifying additional information about DOD and VA areas of research interest, ongoing research, or potential opportunities for collaboration.

Air Force Office of Scientific Research

<https://www.afrl.af.mil/AFOSR/>

Air Force Research Laboratory

<https://www.afrl.af.mil/>

Armed Forces Health Surveillance Division

<https://www.health.mil/Military-Health-Topics/Health-Readiness/AFHSD>

Armed Forces Pest Management Board

<https://www.acq.osd.mil/eie/afpmb/>

Armed Forces Radiobiology Research Institute

<https://afri.usuhs.edu/home>

Combat Casualty Care Research Program

<https://cccrp.health.mil/Pages/default.aspx>

Congressionally Directed Medical Research Programs

<https://cdmrp.health.mil>

Defense Advanced Research Projects Agency

<https://www.darpa.mil/>

Defense Health Agency

<https://health.mil/dha>

Defense Suicide Prevention Office

<https://www.dspo.mil/>

Defense Technical Information Center

<https://www.dtic.mil>

Defense Threat Reduction Agency

<https://www.dtra.mil/>

Military Health System Research Symposium

<https://mhsrs.amedd.army.mil/SitePages/Home.aspx>

Military Infectious Diseases Research Program

<https://midrp.health.mil>

Military Operational Medicine Research Program

<https://momrp.health.mil>

Naval Health Research Center

<https://med.navy.afpims.mil/>

Navy Bureau of Medicine and Surgery

<https://www.med.navy.mil/>

Navy and Marine Corps Public Health Center

<https://www.med.navy.mil/Navy-Marine-Corps-Public-Health-Center>

Naval Medical Research Center

<https://www.med.navy.mil/Naval-Medical-Research-Center/>

Office of Naval Research

<https://www.nre.navy.mil/>

Office of the Under Secretary of Defense for Acquisition, Technology and Logistics

<https://www.acq.osd.mil/>

Telemedicine and Advanced Technology Research Center

<https://www.tatrc.org/www/>

Uniformed Services University of the Health Sciences

<https://www.usuhs.edu/research>

U.S. Air Force 59th Medical Wing

<https://www.59mdw.af.mil/>

U.S. Army Aeromedical Research Laboratory

<https://www.usaarl.army.mil/>

U.S. Army Combat Capabilities Development Command

<https://www.army.mil/devcom>

U.S. Army Institute of Surgical Research

<https://usaisr.health.mil/>

U.S. Army Medical Materiel Development Activity

<https://usamma.health.mil/>

U.S. Army Medical Research and
Development Command
<https://mrdc.health.mil/>

U.S. Army Medical Research Institute of
Infectious Diseases
<https://usamriid.health.mil/>

U.S. Army Research Institute of
Environmental Medicine
<https://usariem.health.mil/>

U.S. Army Research Laboratory
<https://www.arl.army.mil>

U.S. Army Sharp, Ready and Resilient
Directorate
<https://www.armyresilience.army.mil/sharp/index.html>

U.S. Department of Defense Blast Injury
Research Program
<https://blastinjuryresearch.health.mil/>

U.S. Department of Defense Sexual Assault
Prevention and Response Office
<https://www.sapr.mil>

U.S. Department of Veterans Affairs, Office
of Research and Development
<https://www.research.va.gov>

U.S. Naval Research Laboratory
<https://www.nrl.navy.mil>

Walter Reed Army Institute of Research
<https://wrair.health.mil/>