

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

Idea Development Award

Announcement Type: Initial

Funding Opportunity Number: W81XWH-20-TBDRP-IDA

**Catalog of Federal Domestic Assistance 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 27, 2020
- **Invitation to Submit an Application:** July 8, 2020
- **Application Submission Deadline:** 11:59 p.m. ET, August 27, 2020
- **End of Application Verification Period:** 5:00 p.m. ET, September 1, 2020
- **Peer Review:** October 2020
- **Programmatic Review:** January 2021

This Program Announcement must be read in conjunction with the General Application Instructions, version 501. 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 2020 (FY20) Tick-Borne Disease Research Program (TBDRP) are being solicited for the Defense Health Agency (DHA) J9, Research and Development Directorate, by the U.S. Army Medical Research Acquisition Activity (USAMRAA) using delegated authority provided by United States Code, Title 10, Section 2358 (10 USC 2358). As directed by the Office of the Assistant Secretary of Defense for Health Affairs (OASD[HA]), the DHA manages the Defense Health Program (DHP) Research, Development, Test, and Evaluation (RDT&E) appropriation. The execution management agent for this Program Announcement is the Congressionally Directed Medical Research Programs (CDMRP). The TBDRP was initiated in 2016 to support innovative and impactful research that addresses fundamental issues and gaps in knowledge of tick-borne diseases (TBDs). Appropriations for the TBDRP from FY16 through FY19 totaled \$20 million (M). The FY20 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, with emphasis on burden of disease. The TBDRP's mission is to understand the pathogenesis of Lyme disease and other tick-borne illnesses and 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. FY20 TBDRP Focus Areas

Applications focused on TBDs prevalent in the United States (<https://www.cdc.gov/ticks/data-summary/index.html>), of concern to military personnel and their beneficiaries in the U.S. and overseas, and/or involving understudied patient populations, are encouraged.

A summary of TBDs and Focus Areas previously funded by the TBDRP is available on the CDMRP website (https://cdmrp.army.mil/tbd/pdfs/TBDRP%20FY16-19%20Portfolio%20Pie%20Charts_v2.pdf).

Applications submitted to the FY20 TBDRP **must** address at least one of the following specific Focus Areas in Lyme disease and other tick-borne diseases with emphasis on reducing public health burden.

- **Diagnosis**
 - Sensitive and specific direct detection diagnostic assay for *Borrelia* and/or other tick-borne pathogens. Assay should ideally be amenable for implementation in a typical clinical setting, cost-effective, and rapid (diagnosis in <24 hours).

- Diagnostic biomarker panel for Lyme disease and other TBDs that distinguishes tick-borne infection from other febrile illnesses.
- Approaches for Lyme disease or other TBD diagnosis capable of distinguishing active infection and previous exposure, and/or monitoring response to treatment.
- Innovative approaches that provide diagnosis for a single or multiple tick-borne infections from a single sample.
- **Treatment**
 - Therapeutic strategies for treating acute and persistent TBDs. Novel therapeutics and/or non-antibiotic modalities for treating TBDs are encouraged.
 - In vitro interrogation of potential treatments designed to mitigate development of long-term sequelae following infection with bacterial, parasitic, or viral TB agents.
 - Immunomodulatory approaches to treat the inflammatory response to infection.
- **Prevention**
 - Drugs, antibodies, or other novel approaches that can be administered and/or utilized prophylactically to prevent human TBD.
 - Safe and effective human vaccines for TBDs.
 - Understanding the potential role of maternal-fetal transmission and the ability to prevent TBDs by this mode of transmission.
 - Identification, validation, and/or improvement of tick- or reservoir-targeted prevention and control interventions that are safe and non-toxic to non-target species.
 - Understanding the ecology of understudied TBD vectors and reservoirs with emphasis on how it relates to human risk.
- **Pathogenesis**
 - Pathogenesis of persistent clinical manifestations associated with Lyme disease.
 - Immune evasion and/or tolerance of TB pathogens (Lyme and/or other TBDs).
 - Effects of tick sialome on human infection, immune response, disease progression, and pathogen dissemination.
 - TB infections and co-infections (simultaneous or sequential) and their effects on human disease severity, the local and systemic immune response, or pathogen synergy and competition.
 - Pathogenesis of mammalian meat allergy (allergic response to galactose-alpha-1,3-galactose (alpha-gal)).

II.A.2. Award History

The TBDRP Idea Development Award (IDA) mechanism is being offered for the first time in FY20.

II.B. Award Information

The FY20 TBDRP IDA intends to support research that could lead to impactful discoveries or significant advancements that will accelerate progress toward improving Lyme disease and/or other tick-borne diseases research, patient care, and/or quality of life for military Service members, Veterans, and their beneficiaries, as well as the American public. This research should be conceptually innovative, introducing a new concept or question, challenging existing paradigms, approaching issues from a new perspective, or exhibiting other uniquely creative qualities, and should not merely be an incremental advance upon published data. Applications must describe the short- and long-term impact of the proposed research, as well as the evidence-based burden of disease on public health. Applications should also include a well-formulated, testable hypothesis based on strong scientific rationale that is established through logical reasoning, critical review and analysis of the literature, and/or preliminary data (if available). This award mechanism promotes basic through translational research, including preclinical and clinical research, as well as correlative studies associated with an existing clinical trial to establish proof-of-principle for further development in future studies.

Research involving human subjects and human anatomical substances is permitted; however, clinical trials are not allowed under this Program Announcement. 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 placebo or other control) to evaluate the effects of the interventions on biomedical or behavioral health-related outcomes.

To leverage existing resources and maximize statistical power, the use of validated specimens from Lyme and other tick-borne disease biorepositories and databases is 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, and 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.

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 Department of Defense (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 FY20 TBDRP Idea Development Award will not exceed **\$600,000**. Refer to [Section II.D.5, Funding Restrictions](#), for detailed funding information.

Awards will be made no later than September 30, 2021. For additional information refer to [Section II.F.1, Federal Award Notices](#).

The CDMRP expects to allot approximately \$4.80M to fund approximately five (5) Idea Development 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 FY20 funding opportunity will be funded with FY20 funds, which will expire for use on September 30, 2026.

Research Involving Human Anatomical Substances, Human Subjects, or Human Cadavers: All DoD-funded research involving new and ongoing research with human anatomical substances, human subjects, or human cadavers must be reviewed and approved by the U.S. Army Medical Research and Development Command (USAMRDC) Office of Research Protections (ORP), Human Research Protection Office (HRPO), 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 submission is *not* required. *Allow a minimum of 2 to 3 months for HRPO regulatory review and approval processes.* Refer to the General Application Instructions, Appendix 1, and the Human Subject Resource Document available on the electronic Biomedical Research Application Portal (eBRAP) “Funding Opportunities & Forms” web page (<https://ebrap.org/eBRAP/public/Program.htm>) for additional information. If the proposed research is cooperative (i.e., involving more than one 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 should be submitted under the Human Subjects/Sample Acquisition Option, which requires additional application materials.

Use of DoD or Department of Veterans Affairs (VA) Resources: If the proposed research involves access to active duty military or Veteran 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 submission requirements. Refer to the General Application Instructions, Appendix 1, Section C, for additional detailed information.

Rigor of Experimental Design: All projects should adhere to accepted standards for rigorous study design and reporting to maximize the reproducibility and translational potential of preclinical research. Core standards are described in Landis, S.C., et al., A call for transparent reporting to optimize the predictive value of preclinical research, *Nature* 2012, 490:187-191 (www.nature.com/nature/journal/v490/n7419/full/nature11556.html). While these standards were written for preclinical studies, the basic principles of randomization, blinding, sample-size estimation, and data handling derive from well-established best practices in research and should be applied consistently across basic and translational studies. Applicants should consult the ARRIVE (Animal Research: Reporting *In Vivo* Experiments) guidelines to ensure relevant aspects of rigorous animal research are adequately planned for and, ultimately, reported. The ARRIVE guidelines can be found at http://www.elsevier.com/data/promis_misc/622936arrive_guidelines.pdf.

Research Involving Animals: All DoD-funded research involving new and ongoing research with animals must be reviewed and approved by the USAMRDC ORP 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 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 organization 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: 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.***

USAMRAA makes awards to eligible organizations, not to individuals.

II.C.1.b. Principal Investigator

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

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

The CDMRP 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.

There are no limitations on the number of applications for which an investigator may be named as a PI.

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).

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.1. Address to Request Application Package

eBRAP is a multifunctional web-based system that allows PIs to submit their pre-applications electronically through a secure connection, to view and edit the content of their pre-applications and full applications, to receive communications from the CDMRP, and to submit documentation during award negotiations and period of performance.

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

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 CDMRP 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 CDMRP 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.

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 PI must contact the CDMRP 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.

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

- Idea Development Award; or
- Idea Development Award – Human Subjects/Sample Acquisition Option

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.

[FY20 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 CDMRP 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 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:

- **Background/Rationale**

- State the ideas and logical reasoning on which the proposed research project is based. Clearly demonstrate that there is sufficient rationale for the proposed research.

- Clearly state the type of study proposed (e.g., concept development, animal validation, human validation), and demonstrate that there is sufficient scientific evidence to support moving into the stage of proposed research.
- **Hypothesis, Specific Aims, and Approach**
 - State a clear hypothesis for the project that is supported through scientific rationale, referenced literature, and preliminary data (if available).
 - Concisely state the project’s specific aims and describe the scientific approach.
 - Describe how the proposed research is innovative and represents more than an incremental advance upon published data.
- **Relevance**
 - Summarize the relevance of the proposed project to at least one of the FY20 TBDRP Focus Areas.
- **Impact**
 - Describe the immediate and long-range outcomes of the proposed study and their impact on Lyme disease and/or other tick-borne diseases research, patient care, and/or quality of life. For studies focused on pathogenesis topics, an acceptable long-range outcome may be filling a gap in the foundational knowledge of the disease, pathogen, vector, reservoir, etc.
 - Specifically address the impact of the proposed study on reducing the burden of Lyme disease and/or other tick-borne diseases and their effect on public health, including the health of military Service members.
- **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 DHP and the TBDRP, pre-applications will be screened based on the following criteria:

- **Background/Rationale:** How well the described research demonstrates scientific rationale and provides sufficient evidence that the research is ready to move into the stage of proposed research (e.g., concept development, animal validation, human validation).
- **Hypothesis, Specific Aims, and Approach:** Whether a clear hypothesis is stated and supported through scientific rationale, referenced literature, and preliminary data (if available). How well the specific aims and approach will address the hypothesis. To what degree the proposed research is innovative and represents more than an incremental advance upon published data.
- **Relevance:** To what degree the proposed project is relevant to the FY20 TBDRP Focus Area(s) being addressed.
- **Impact:** If successful, 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. The extent to which the research outcomes fill a gap in foundational knowledge of the disease, pathogen, vector, reservoir, etc. (pathogenesis topics only). The extent to which the proposed study will reduce disease burden and the associated effects on public health, including the health of military Service members.

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

Following the pre-application screening, PIs will be notified as to whether or not 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://www.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	
Download application package components for W81XWH-20-TBDRP-IDA from Grants.gov (https://www.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.	Download application package components for W81XWH-20-TBDRP-IDA from eBRAP (https://ebrap.org/).
Full Application Package Components	
SF424 Research & Related Application for Federal Assistance Form: Refer to the General Application Instructions, Section III.A.1, for detailed information.	<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>

Extramural Submissions	Intramural DoD Submissions
<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 (if applicable) 	<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 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>Note: If either the Project Narrative or the budget fails eBRAP validation or if the Project Narrative or the budget 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>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 Business Official by email. <i>Do not password protect any files of the application package, including the Project Narrative.</i></p>

Extramural Submissions	Intramural DoD Submissions
<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 MB, and the file size for the entire full application package may not exceed 200 MB. ***It is important to include the attachment name as a header on each page of the attachment files.***

- **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.

Describe the proposed project in detail using the outline below.

- **Background/Rationale:** Describe the problem, question, or knowledge gap that is related to at least one of the FY20 TBDRP Focus Areas and will be addressed by the proposed research. Present the ideas and logical reasoning behind the proposed work. Describe previous experience most pertinent to the proposed research. Include relevant literature citations and/or preliminary data (if available 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 when possible.
- **Research Strategy:** Describe the experimental design, methods, 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.
 - Address potential problems and provide approaches to mitigate these concerns, including interdependency of aims.
 - 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 and/or animals are to be used, describe how the choice of proposed cell line(s) and/or animal model(s) is justified and relevant to human biology. If cell line studies are proposed, include information about authentication of proposed cell lines. Describe the statistical rigor of in vitro cellular studies and preclinical animal experiments. If animals studies are proposed, specifically describe how they will be conducted in accordance with the ARRIVE guidelines (https://www.elsevier.com/_data/promis_misc/622936arrive_guidelines.pdf).
- **Innovation:** Explain how the proposed work is innovative and not merely a next logical step or an incremental advance on published data. Describe how the research introduces a new concept or question, challenges existing paradigms, approaches issues from a new perspective, or exhibits other uniquely creative qualities. The following examples are ways in which research may be innovative and are intended to help PIs frame the innovative features of their applications. *This list is not all-inclusive.*
- Novel research method or technology: Development or use of novel research methods or new technologies to address a research question in Lyme disease and/or other tick-borne diseases.
 - Existing method or technology: Application or adaptation of existing methods or technologies for novel research or clinical purposes, or for research or clinical purposes that differ fundamentally from those originally intended, including applying knowledge/methods from other fields.
 - Communication and dissemination of information: Development or use of novel platforms or networks for the communication and dissemination of validated research or clinical information with the purpose of increasing awareness and educating patients or clinicians/providers.
- **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 diseases research field, and/or promote collaboration among fields or with commercial partners.
- **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 or not 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 that will demonstrate that the PI has the support or resources necessary for the proposed work, including availability of and access to research resources (including proprietary material) and appropriate populations (samples/data or databases). 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 Code of Federal Regulations, Title 2, Part 200.315 (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.

- 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.
- 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.

Of particular importance, programmatic reviewers typically do not have access to the full application and therefore 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 selected FY20 TBDRP Focus Area(s).
- 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 the proposed study is innovative.
- Impact: Describe the impact of the proposed study on Lyme disease and/or other tick-borne diseases research, and on patient care and quality of life for military Service members and the American public.

- **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.* Use only characters available on a standard QWERTY keyboard. Spell out all Greek letters, other non-English letters, and symbols. Graphics are not allowed.

Do not duplicate the technical abstract. Minimize the use of acronyms and abbreviations, where appropriate. The lay abstract is an important component of the application review process because it addresses issues of particular interest to the consumer community. Lay abstracts should be written using the outline below.

- 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 FY20 TBD RP 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 diseases research?
- **Attachment 5: Statement of Work (three-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>). For the Idea Development Award mechanism, use the SOW format example titled, “SOW Generic Format.” The SOW must be in PDF format prior to attaching.

The SOW should include a list of major tasks that support the proposed specific aims, followed by a series of subtasks outlined related to the major tasks and milestones within the period of performance. The SOW should describe only the work for which funding is being requested by this application and, as applicable, should also:

- Include the name(s) of the key personnel and contact information for each study site/subaward site.

- Indicate the number (and type, if applicable) of research subjects (animal or human) and/or human anatomical samples projected or required for each task and at each site. Refer to the General Application Instructions, Appendix 1, for additional information regarding regulatory requirements.
 - For studies with prospective accrual of human subjects, indicate quarterly enrollment targets.
 - Identify cell line(s) and commercial or organizational source(s) to be used.
 - If applicable, indicate timelines required for regulatory approvals relevant to human subjects research.
- **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 and will impact the FY20 TBDRP Focus Area(s) being addressed as follows:
- **Public Health Burden:** Describe the burden of illness for the disease(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.
 - **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 research, patient care, and/or quality of life. For studies focused on pathogenesis topics, an acceptable long-term gain may be filling a gap in the foundational knowledge of the disease, pathogen, vector, reservoir, etc. Describe how such mechanistic research could lead to possible sites of intervention and/or prevention, or novel diagnostic approaches, if applicable.
 - **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.
- **Attachment 7: Transition Plan (two-page limit): Upload as “Transition.pdf”.**
 Provide information on the methods and strategies proposed to move the anticipated outcome(s) of this project to the next level of development 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 (CPGs) and recommendations; provider training materials, patient brochures, and other clinical support tools; scientific journal publications; models; simulations; and applications). *Applicants are encouraged to consult with their organization’s Technology Transfer Office (or equivalent) in developing the transition plan and to*

explore developing relationships with industry and/or other funding agencies to facilitate moving toward the next phase of development. The plan for post-award transition of the anticipated outcome should include the components listed below, as appropriate and applicable to the proposed research.

- Describe the collaborations and other resources that will be used to provide continuity of development.
- Describe the funding strategy for transitioning the anticipated outcome(s) to the next level of development and/or commercialization (e.g., specific potential commercial partners, specific funding opportunities to be sought).
- Outline the regulatory strategy (including a brief schedule and milestones) for advancing the outcome(s) to clinical studies, clinical trials, and/or regulatory approval and commercialization, if applicable.

Attachment 8: Human Subjects/Sample Acquisition and Safety Procedures *(required for applications submitted under the Human Subjects/Sample Acquisition Option) (no page limit): Upload as “HumSubProc.pdf”.* If the proposed study involves human subjects or human biological samples, 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.
- 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.
- 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.
- Describe how data will be handled, including rules for stopping data collection, the criteria for inclusion and exclusion of data, how outliers will be defined and managed, and the 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 guidelines (https://www.elsevier.com/_data/promis_misc/622936/arrive_guidelines.pdf), 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 why the animal species, strain, and model(s) being used can address the scientific objectives and, where appropriate, the study’s relevance to human biology. 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 human 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.
- 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: 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 11: 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 A§1681 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”.
- Key Personnel Biographical Sketches (six-page limit each): Upload as “Biosketch_LastName.pdf”.
- Key Personnel Previous/Current/Pending Support (no page limit): Upload as “Support_LastName.pdf”.

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 11. (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. Dun and Bradstreet Data Universal Numbering System (DUNS) Number and System for Award Management (SAM)

Applicant organizations and all sub-recipient organizations must have a DUNS number to submit applications to Grants.gov. The applicant organization must also be registered in the Entity Management functional area of the SAM with an “Active” status to submit applications through the Grants.gov portal. Verify the status of the applicant organization’s Entity registration in SAM well in advance of the application submission deadline. Allow several weeks to complete the entire SAM registration process. If an applicant has not fully complied with the requirements at the time the Federal awarding agency is ready to make a Federal award, the Federal awarding agency may determine that the applicant is not qualified to receive a Federal award and use that determination as a basis for making a Federal award to another applicant. Refer to the General Application Instructions, Section III, for further information regarding Grants.gov requirements.

Announcement of Transition to SAM-Generated Unique Entity Identifier (UEI): Through December 2020, a transition from DUNS to the SAM-generated UEI will occur. Refer to the General Application Instructions, Section III.1, DUNS Number, for more information on the transition and timing.

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.

The anticipated direct costs budgeted for the entire period of performance will not exceed **\$600,000**. If indirect cost rates have been negotiated, indirect costs are to be budgeted in accordance with the organization's negotiated rate. No budget will be approved by the Government exceeding **\$600,000** direct costs or using an indirect cost rate exceeding the organization's negotiated rate.

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

The applicant may request the entire maximum funding amount for a project that may have a period of performance less than the maximum **3** years.

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

- Support for multidisciplinary collaborations, including travel.
- Costs for one investigator to travel to one scientific/technical meeting per year to present project information and/or disseminate project results from the FY20 TBDRP IDA.

Must not be requested for:

- Clinical trial costs

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**
 - If successful, to what extent the proposed project will address a critical problem in Lyme disease and/or other tick-borne diseases and will impact the FY20 TBDRP Focus Area(s) being addressed.
 - If successful, 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.
 - If successful, whether there will be short-term outcome(s)/products(s) (intellectual and/or tangible) that can be directly attributed to the proposed research.
 - If successful, whether there will be significant long-term advancement over current knowledge, technology, and/or practice, ultimately contributing to the field of Lyme disease and/or other tick-borne diseases research, patient care, and/or quality of life. If applicable, to what extent mechanistic research could lead to possible sites of intervention and/or prevention, or novel diagnostic approaches.
 - If successful, 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.

- **Research Strategy and Feasibility**

- Whether the background/rationale describes a problem, question, or knowledge gap that is related to at least one of the FY20 TBDRP Focus Areas and will be addressed by the proposed research.
- How well the application presents the ideas and logical reasoning behind the proposed work and includes relevant literature citations and/or preliminary data (if available) to support the study's feasibility.
- Whether the application states appropriate hypotheses/study questions and overall objective(s) to be reached, along with specific aims in support of the hypothesis/objectives.
- Whether the application describes the experimental design, methods, and analyses including appropriate controls in sufficient detail for evaluation of feasibility.
- How well the application acknowledges potential problems and provides approaches to mitigate those concerns, including interdependency of aims.
- For research involving cell line(s) and/or animals:
 - How well the choice of proposed cell line(s) and/or animal model(s) is justified and relevant to human biology.
 - 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 guidelines (https://www.elsevier.com/_data/promis_misc/622936arrive_guidelines.pdf).
 - 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, as applicable.
 - To what extent the primary endpoint(s) identified in the Animal Research Plan are appropriate, as applicable.
- To what degree the proposed research is innovative and not merely a next logical step or an incremental advance on published data.

- **Human Subjects/Sample Acquisition and Safety Procedures (*for applications submitted under the Human Subjects/Sample Acquisition Option*)**
 - The degree to which the study population, the methods for sample acquisition and/or human subjects recruitment, the informed consent process, and the screening procedures are justified and appropriate to accomplish the proposed work.
 - 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.
 - 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.
 - Whether the application describes how data will be handled, including rules for stopping data collection, the criteria for inclusion and exclusion of data, how outliers will be defined and managed, and the identification of primary endpoints.
 - How well the types of specimens or data to be collected and evaluated, and specimen storage and maintenance, are described.

- **Personnel**
 - Based on 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 diseases research field, and/or promote collaboration among fields or with commercial partners (if applicable).

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 of 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 FY20 TBDRP, as evidenced by the following:
 - Adherence to the intent of the award mechanism
 - Programmatic relevance in relation to the FY20 TBDRP Focus Areas
 - Relative impact, including impact of public health burden and burden on military Service members
 - Programmatic 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 **programmatically 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, on behalf of the DHA and the OASD(HA). *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.army.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 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 200.88, 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 FY20 funds are anticipated to be made no later than September 30, 2021. 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 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 other 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.B.

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

Unless otherwise restricted, 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.

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](#); the [General Research Terms and Conditions with Institutions of Higher Education, Hospitals, and Non-Profit Organizations: Addendum to the DoD R&D General Terms and Conditions](#); and the [USAMRAA General Research Terms and Conditions with For-Profit Organizations](#) for further information.

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 as well as a final progress report will be required.

Annual quad charts as well as a final quad chart will be required.

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

Awards resulting from this Program Announcement will incorporate 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 \$10,000,000 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. 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. CDMRP 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 CDMRP Help Desk, which is available Monday through Friday from 8:00 a.m. to 5:00 p.m. ET. 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 CDMRP 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 501c. The Program Announcement numeric version code will match the General Application Instructions version code 501.

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:

- 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.

For applications submitted under the Human Subjects/Sample Acquisition Option:

- [Attachment 8](#), Human Subjects/Sample Acquisition and Safety Procedures, 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 FY20 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 FY20 TBDRP Programmatic Panel members can be found at <https://cdmrp.army.mil/tbdrp/panels/panels20>.*
- 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 FY20, the identities of the peer review contractor and the programmatic review contractor may be found at the CDMRP website (<https://cdmrp.army.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.
- Submission of the same research project to different funding opportunities within the same program and fiscal year.
- The invited application proposes a different research project than that described in the pre-application.
- The PI does not meet the eligibility criteria.
- A clinical trial is proposed.

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 and 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	
	Representations (extramural submissions only): Upload as Attachment 10 with file name "RequiredReps.pdf" if applicable	
	Suggested Collaborating DoD Military Facility Budget Format: Upload as Attachment 11 with file name "MFBudget.pdf" if applicable	
Research & Related Personal Data	Complete form as instructed	
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
CDMRP	Congressionally Directed Medical Research Programs
CFR	Code of Federal Regulations
COI	Conflicts of Interest
DHA	Defense Health Agency
DHP	Defense Health Program
DoD	Department of Defense
DoDGARs	Department of Defense Grant and Agreement Regulations
DUNS	Data Universal Numbering System
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
HRPO	Human Research Protection Office
IACUC	Institutional Animal Care and Use Committee
IRB	Institutional Review Board
LOI	Letter of Intent
M	Million
MIPR	Military Interdepartmental Purchase Request
OASD(HA)	Office of the Assistant Secretary of Defense for Health Affairs
ORCID	Open Researcher and Contributor ID, Inc.
ORP	Office of Research Protections
PI	Principal Investigator
RDT&E	Research, Development, Test, and Evaluation
SAM	System for Award Management
SOW	Statement of Work
STEM	Science, Technology, Engineering, and/or Mathematics
TBDRP	Tick-Borne Disease Research Program
UEI	Unique Entity Identifier
URL	Uniform Resource Locator
USAMRAA	U.S. Army Medical Research Acquisition Activity
USAMRDC	U.S. Army Medical Research and Development Command
USC	United States Code
VA	Department of Veterans Affairs