

I. OVERVIEW OF THE FUNDING OPPORTUNITY

Program Announcement for the Department of Defense

Defense Health Program

Congressionally Directed Medical Research Programs

Reconstructive Transplant Research Program

Advanced Technology Development Award

Announcement Type: Initial

Funding Opportunity Number: HT942524RTRPATDA

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

SUBMISSION AND REVIEW DATES AND TIMES

- **Pre-Application (Preproposal) Submission Deadline:** 5:00 p.m. Eastern time (ET), August 7, 2024
- **Invitation to Submit an Application:** September 2024
- **Application Submission Deadline:** 11:59 p.m. ET, October 23, 2024
- **End of Application Verification Period:** 5:00 p.m. ET, October 28, 2024
- **Peer Review:** December 2024
- **Programmatic Review:** February 2025

This program announcement must be read in conjunction with the General Application Instructions, version 901. The General Application Instructions document is available for downloading from the [Grants.gov](https://www.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

The U.S. Army Medical Research Acquisition Activity (USAMRAA) is soliciting applications to the fiscal year 2024 (FY24) Reconstructive Transplant Research Program (RTRP) using delegated authority provided by United States Code, Title 10, Section 4001 (10 USC 4001). The Congressionally Directed Medical Research Programs (CDMRP) at the U.S. Army Medical Research and Development Command (USAMRDC) is the program management agent for this funding opportunity. Congress initiated the RTRP in 2012 to provide support for research of high potential impact and exceptional scientific merit to refine approaches for, and increase access to, reconstructive transplants and state-of-the-art immunotherapy. Appropriations for the RTRP from FY12 through FY23 totaled \$141.0 million (M). The FY24 appropriation is \$12.0M.

The RTRP challenges the scientific community to design innovative research that will advance science and standardized clinical practice of vascularized composite allotransplantation (VCA) to improve access, safety, and quality of life for catastrophically injured Service Members, Veterans, and the American public. VCA refers to the transplantation of multiple tissues such as muscle, bone, nerve, and skin as a functional unit (e.g., a hand or face) from a deceased donor to a recipient with a severe injury. The ultimate goal is to return injured Service Members to duty and restore their quality of life.

Applications from investigators within the military services and applications involving multi-institutional and multidisciplinary collaborations among academia, industry, the military services, the Department of Veterans Affairs (VA), and other federal government agencies are highly encouraged.

II.A.1. FY24 RTRP Focus Areas

To meet the intent of the funding opportunity, applications to the FY24 RTRP Advanced Technology Development Award must address at least one of the FY24 RTRP Advanced Technology Development Award Focus Areas listed below (select both a bolded Focus Area and the appropriate subtopic):

Identify and/or validate reliable noninvasive prognostic or diagnostic biomarkers, methods, or tools for monitoring VCA immunosuppression or rejection, including applications that would be suitable for point-of-care testing or home monitoring.

- Identify and/or validate reliable noninvasive biomarkers for monitoring acute and chronic VCA graft rejection in the clinic (i.e., human clinical samples).
- Develop assays, devices, or technology for clinical graft monitoring utilizing biomarkers; proposed devices should take into account human use factors unique to VCA recipients.

- Identify and/or validate reliable noninvasive approaches to measuring/monitoring in vivo/clinical immunosuppression levels.

Advance tissue preservation strategies.

- Develop promising static preservation strategies, active perfusion modalities, or other technologies for translation to the clinic.
- Develop mitigation strategies of preservation-mediated injury, including immune activation or ischemia reperfusion injury in VCA.

II.A.2. Award History

The RTRP Advanced Technology Development Award mechanism was first offered in FY16 as the Technology Development Award. Since then, 57 Advanced Technology Development Award applications have been received, and 10 have been recommended for funding.

II.B. Award Information

The FY24 RTRP Advanced Technology Development Award is intended to support research critical for the translation of promising preclinical findings into products focused on reconstructive transplantation.

Proposed research and products to be developed may be material products such as drugs, biologic agents, devices, or knowledge-based products such as technical reports and clinical practice guidelines that inform clinical/operational decisions and promote evidence-based changes in clinical practice and standard of care. Proposed research may include preclinical studies in animal models, human subjects, or human anatomical substances, as well as correlative studies associated with an existing clinical trial.

Important aspects of this award mechanism include:

- **Study Design and Feasibility:** The proposed study design should be clearly described, rigorous, well-integrated, and support maximal reproducibility and translational feasibility. A statistical plan with appropriate power analysis should be included, if applicable. It should be clear how the proposed study design of this project will position the product for the next phase of development as described in the post-award Transition Plan ([Attachment 9](#)). If a model system is included in the research, it should be appropriate for the study and applicable to VCA.
- **Impact/Military Relevance:** The short- and long-term impacts of the proposed research should be clearly articulated. Projects *must* address at least one of the FY24 RTRP Advanced Technology Development Award Focus Areas listed in [Section II.A.1](#) above. All products to be developed must be responsive to the health care needs of military Service Members and/or Veterans recovering from traumatic injury, and/or their Family members, caregivers, or clinicians, as well as the general public. Collaboration with military and VA researchers and clinicians is encouraged but not required.

- **Transition Plan:** The post-award Transition Plan ([Attachment 9](#)) should include potential funding and resources and show how the product will progress to the next level of development (e.g., clinical trials, delivery to the military or civilian market) after the successful completion of this award. A regulatory strategy as applicable to the proposed research/product should also be included.
- **Preliminary Data:** Proof of concept demonstrating the potential utility of the proposed product, or a prototype/preliminary version of the proposed product, must already be established. ***Preliminary and/or published data that are relevant to reconstructive transplantation and support the rationale for the proposed study must be included (these data may be unpublished if from a member of the research team or from the published literature).***

Important Note: Leveraging novel findings from solid organ transplant research for testing in a VCA setting is acceptable if the rationale and benefits for doing so are appropriately explained and justified. For example, it should be clear why the anticipated result might be different in VCA, or why it is important to confirm the result is the same in VCA, or why repeating the study in a VCA setting could lead to new mechanistic insights or a better understanding of unique aspects of VCA.

Advancing Women’s Health Research and Innovation: The CDMRP encourages research on health areas and conditions that affect women uniquely, disproportionately, or differently from men, including studies analyzing sex as a biological variable. Such research should relate anticipated project findings to improvements in women’s health outcomes and/or advancing knowledge for women's health. The RTRP therefore encourages research that addresses how various aspects of reconstructive transplant affect women uniquely, disproportionately, or differently from men.

Multiple Principal Investigator (PI) Option: The Advanced Technology Development Award includes an option for up to four PIs. One PI will be identified as the Initiating PI and will be responsible for the majority of the administrative tasks associated with application submission. The other PI(s) will be identified as Partnering PI(s). All PIs should contribute significantly to the development and execution of the proposed research project. If recommended for funding, each PI will be named on separate awards to the recipient organization(s). Each award will be subject to separate reporting, regulatory, and administrative requirements. For individual submission requirements for the Initiating and Partnering PI(s), refer to [Section II.D.2, Content and Form of the Application Submission](#).

Rigor of Experimental Design: All projects should adhere to a core set of standards for rigorous study design and reporting to maximize the reproducibility and translational potential of clinical and preclinical research. The standards are described in SC Landis et al., 2012, A call for transparent reporting to optimize the predictive value of preclinical research, *Nature* 490:187-191 (<http://www.nature.com/nature/journal/v490/n7419/full/nature11556.html>). While these standards are written for preclinical studies, the basic principles of randomization, blinding, sample-size estimation, and data handling derive from well-established best practices in clinical studies.

Use of Department of Defense (DOD) or VA Resources: Applications from investigators within the military services and applications involving multidisciplinary collaborations among academia, industry, the military services, the VA, and other federal government agencies are highly encouraged. These relationships can leverage knowledge, infrastructure, and access to unique clinical populations that the collaborators bring to the research effort, ultimately advancing research that is of significance to Service Members, Veterans, and/or their Families. If the proposed research relies on access to unique 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.

For research involving animals, human subjects, human anatomical substances, or human cadavers, please see to the General Application Instructions, Appendix 6, for more information.

Clinical trials are not allowed under this funding opportunity. A clinical trial is defined in the Code of Federal Regulations, Title 45, Part 46.102 (45 CFR 46.102) as a research study in which one or more human subjects are prospectively assigned to one or more interventions (which may include a placebo or another control) to evaluate the effects of the interventions on biomedical or behavioral health-related outcomes.

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

For the purposes of this funding opportunity, research that meets the definition of a clinical trial is distinct from clinical research. Clinical research is allowed under this funding opportunity. Clinical research encompasses research with human data, human specimens, and/or interaction with human subjects. Clinical research is observational in nature and includes:

- (1) Research conducted with human subjects and/or material of human origin such as data, specimens, and cognitive phenomena for which an investigator (or co-investigator) does **not** seek to assess the safety, effectiveness, and/or efficacy outcomes of an intervention. Research meeting this definition may include but is not limited to: (a) mechanisms of human disease, (b) diagnostic or detection studies (e.g., biomarker or imaging), (c) health disparity studies, and (d) development of new technologies.
- (2) Epidemiologic and behavioral studies that do **not** seek to assess the safety, effectiveness, and/or efficacy outcomes of an intervention.
- (3) Outcomes research and health services research that do not fit under the definition of clinical trial.

Excluded from the definition of clinical research are in vitro studies that utilize human data or specimens that cannot be linked to a living individual and meet the requirements for exemption under [§46.104\(d\)\(4\) of the Common Rule](#).

In-Progress Review: The RTRP holds annual In-Progress Review meetings in a virtual setting as a forum for award performers to present progress updates to the Programmatic Panel and RTRP staff. Award recipients may receive an invitation to present their project at one of these meetings during the period of performance of their award.

The funding instrument for awards made under the program announcement will be grants (31 USC 6304).

The anticipated total costs budgeted for the entire period of performance for an FY24 RTRP Advanced Technology Development Award should not exceed **\$1.0M for single PI applications and \$1.5M for applications submitted under the Multiple PI Option**. Refer to [Section II.D.5, Funding Restrictions](#), for detailed funding information.

Awards supported with FY24 funds will be made no later than September 30, 2025.

The CDMRP expects to allot approximately \$3.5M to fund approximately three Advanced Technology Development Award applications. Funding of applications received is contingent upon the availability of federal funds for this program, the number of applications received, the quality and merit of the applications as evaluated by peer 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 FY24 funding opportunity will be funded with FY24 funds, which will expire for use on September 30, 2030.

II.C. Eligibility Information

II.C.1. Eligible Applicants

II.C.1.a. Organization: Extramural and Intramural organizations are eligible to apply, including foreign or domestic organizations, for-profit and non-profit organizations, and public entities.

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

Intramural DOD Organization: Refers specifically to DOD organizations, including DOD laboratories, DOD military treatment facilities, and/or DOD activities embedded within a civilian medical center.

Awards are made to eligible *organizations*, not to individuals. Refer to the General Application Instructions, Appendix 1, for additional recipient qualification requirements.

II.C.1.b. Principal Investigator

Independent investigators at all academic levels (or non-academic equivalent) are eligible to be named as a PI (or Initiating or Partnering PIs for the Multiple PI Option).

There are no limitations on the number of applications for which an investigator may be named as a PI (or Initiating or Partnering PIs for the Multiple PI Option); however, the RTRP strongly encourages PIs to focus on the quality of their applications rather than quantity.

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

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 to fulfill the financial and technical deliverable requirements of the award and submit invoices for payment.

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

II.D. Application and Submission Information

II.D.1. Location of Application Package

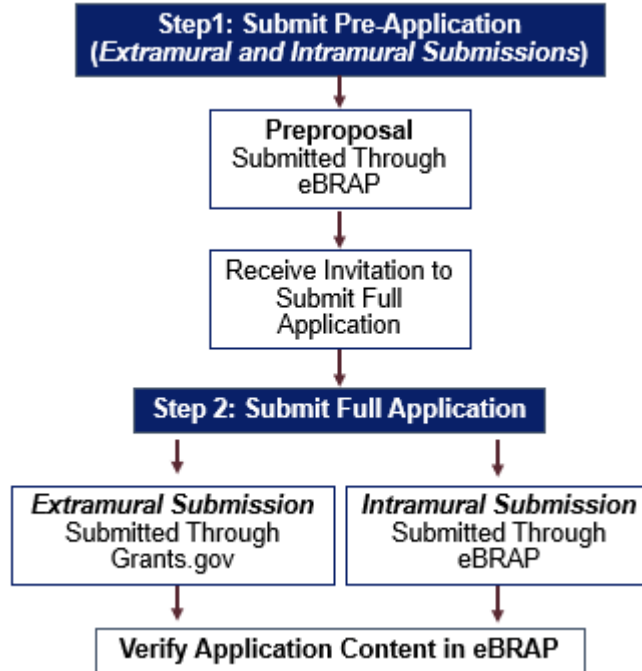
Submission is a two-step process requiring both a *pre-application* submitted via the Electronic Biomedical Research Application Portal (eBRAP.org) and a *full application* (eBRAP.org or Grants.gov). Depending on the type of submission (i.e., extramural vs. intramural), certain aspects of the submission process will differ.

The CDMRP uses two portal systems to accept pre- and full application submissions.

eBRAP (<https://ebrap.org>) is a secure web-based system that allows PIs and/or organizational representatives from both extra- and intramural organizations to receive communications from the CDMRP and submit their pre-applications. Additionally, eBRAP allows extramural applicants to view and verify full applications submitted to Grants.gov and allows intramural DOD applicants to submit and verify full applications following their pre-application submission.

Grants.gov (<https://grants.gov>) is a federal system that must be used by funding agencies to announce extramural grant applications. Full applications for CDMRP funding opportunities can only be submitted to Grants.gov after submission of a pre-application through eBRAP.

Application Submission Workflow



Extramural Submission: An application submitted by an [extramural organization](#) for an extramural or intramural PI working within an extramural or intramural organization. For example, a research foundation submitting an application for a DOD employee working within a DOD organization would be considered an extramural submission and should follow instructions specific to extramural submissions. Download application package components for HT942524RTRPATDA from Grants.gov (<https://grants.gov>). Full applications from extramural organizations *must* be submitted through Grants.gov.

Intramural Submission: An application submitted by an [intramural DOD organization](#) for an investigator employed by that organization. Intramural DOD organizations may submit full applications to either eBRAP or Grants.gov. Download application package components for HT942524RTRPATDA from the anticipated submission portal eBRAP (<https://ebrap.org>) or Grants.gov.

The submission process should be started early to avoid missing deadlines. Regardless of submission type or portal used, all pre- and full application components must be submitted by the deadlines stipulated on the first page of this program announcement. There are no grace periods for deadlines; failure to meet submission deadlines will result in application rejection. ***The USAMRAA cannot make allowances/exceptions for submission problems encountered by the applicant organization using system-to-system interfaces with Grants.gov.***

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

Submitting applications that 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).

Unnecessary duplication of funding or accepting funding from more than one source for the same research is prohibited. See the CDMRP's full position on research duplication at <https://cdmrp.health.mil/funding/researchDup>.

Including classified research data within the application and/or proposing research that may produce classified outcomes, or outcomes deemed sensitive to national security concerns, may result in application withdrawal. Refer to the General Application Instructions, Appendix 7, Section B.

FY24 RTRP Programmatic Panel members should not be involved in any pre-application or full application. For questions related to panel members and pre-applications or applications, refer to [Section II.H.2.c, Withdrawal](#), or contact the eBRAP Help Desk at help@eBRAP.org or 301-682-5507.

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

All pre-application components must be submitted by the PI or Initiating PI through eBRAP (<https://eBRAP.org>), including the submission of contact information for each Partnering PI if exercising the Advanced Technology Development Award – Multiple PI Option.

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

Advanced Technology Development Award – Multiple PI Option: After the Initiating PI confirms submission of the pre-application, the Partnering PI(s) will be notified of the pre-application submission via an email from eBRAP. ***The Partnering PI(s) must follow the link in the notification email to associate the partnering pre-application with their eBRAP account.*** If not previously registered, the Partnering PI(s) must register in eBRAP.

After associating the pre-application with their eBRAP account, the Partnering PI(s) should email the eBRAP Help Desk (help@eBRAP.org) to have the desired contact information associated with their pre-application. The email should include the pre-application log number, the name of the Business Official, the name(s) of the Performing/Contracting Organization(s), and the submission-type for the pre-application (extramural or intramural).

Partnering PIs should not initiate a new pre-application based on the same research project submitted by the Initiating PI. Partnering PIs are urged to complete these steps as soon as possible. If they are not completed:

- The Partnering PI(s) will not be able to view and modify their full application during the verification period in eBRAP.
- Any intramural Partnering PI will not be able to submit their full application package components to eBRAP.

When starting the pre-application, applicants will be asked to select a “Mechanism Option”. Please be sure to select the correct option appropriate to your pre-application:

Application Includes:	Select Option:
Single PI	Advanced Technology Development Award
Multiple PIs	Advanced Technology Development Award – Multiple PI Option

II.D.2.a.i. Pre-Application Components

Pre-application submissions must include the following components (refer to the General Application Instructions, Section III.B, for additional information on pre-application submission):

Note: *Upload documents as individual PDF files unless otherwise noted.*

- **Preproposal Narrative (two-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:

- **Technology Development Product:** Describe the product (materiel or knowledge-based) that will address a need in reconstructive transplantation and briefly compare it to existing technologies or standard of care, as applicable. State the scientific rationale, the preclinical and/or clinical findings that support the need for the proposed product, and a description of how proof of concept has been demonstrated. If leveraging findings from solid organ transplant research for testing in a VCA setting, briefly explain the rationale and benefits of doing so.
- **Hypothesis or Objective:** State the hypothesis to be tested or the objective(s) to be reached.
- **Specific Aims and Study Design:** Concisely state the project’s specific aims and describe the scientific approach. If utilizing a model system, explain how the model is appropriate for the study and applicable to VCA. If addressing women’s health research,

describe how the project will investigate an aspect of reconstructive transplant that affects women uniquely, disproportionately, or differently from men. If proposing development of a device, the study design should support a regulatory filing with the Food and Drug Administration (FDA). Include any relevant literature citations that support this approach.

- **Impact and Focus Area(s):** Describe the short- and long-term impacts of the proposed research and anticipated product(s) on the field of reconstructive transplant research, patient care, and/or quality of life, including the impact on at least one of the FY24 RTRP Advanced Technology Development Award Focus Areas described in [Section II.A.1](#).
- **Military Relevance:** Describe how the proposed research project is responsive to the health care needs of military Service Members and/or Veterans recovering from traumatic injury, and/or their Family members, caregivers, or clinicians, as well as the general public.
- **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.

II.D.2.a.ii. Pre-Application Screening Criteria

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

- **Technology Development Product:** How well the pre-application focuses research on a defined product (materiel or knowledge-based) that will address a need in reconstructive transplantation, and whether it is compared to existing technologies or standard of care, as applicable. Whether the product is based on promising preclinical or clinical findings, sound scientific rationale, and demonstrated proof of concept. Whether there is an appropriate explanation for leveraging findings from solid organ transplant research for testing in a VCA setting (if applicable).

- **Specific Aims and Study Design:** How well the specific aims and proposed methodology support the research hypothesis and/or objectives and the development of the product. Whether the study design would support a regulatory filing with the FDA, if applicable. If a model system is proposed, whether it is appropriate for the study and applicable to VCA. If addressing women’s health research, how well the project will investigate an aspect of reconstructive transplant that affects women uniquely, disproportionately, or differently from men.
- **Impact and Focus Area(s):** The degree to which the proposed research and anticipated product(s) (materiel or knowledge-based) will have potential short- and long-term impacts on the field of reconstructive transplantation research, patient care, and/or quality of life, including the impact on one or more of the FY24 RTRP Advanced Technology Development Focus Areas described in [Section II.A.1](#).
- **Military Relevance:** How well the proposed research is responsive to the health care needs of military Service Members and/or Veterans recovering from traumatic injury, and/or their Family members, caregivers, or clinicians, as well as the general public.

II.D.2.a.iii. Notification of Pre-Application Screening Results

Following the pre-application screening, PIs or Initiating PIs will be notified as to whether they are invited to submit full applications. The estimated date when PIs can expect to receive notification of an invitation to submit a full application is indicated in [Section I, Overview of the Funding Opportunity](#). No feedback (e.g., a critique of the pre-application’s strengths and weaknesses) is provided at this stage. Because the invitation to submit a full 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.

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

Applicants must receive an invitation to submit a full application. Uninvited full application submissions will be rejected.

Multiple PI Option: Separate full application package submissions are required for the Initiating PI and each Partnering PI, even if the PIs are located within the same organization. Each full application package must be submitted using the unique eBRAP log number received by the Initiating and Partnering PIs during pre-application submission. *All associated applications (the Initiating PI’s and each Partnering PI’s) must be submitted by the full application submission deadline.*

II.D.2.b.i. Full Application Submission Type

Extramural Submissions: Full applications from extramural organizations *must* be submitted through Grants.gov Workspace. Full applications from extramural organizations, including non-DOD federal organizations, received through eBRAP will be withdrawn. Refer to the General Application Instructions, Section IV, for considerations and detailed instructions regarding extramural full application submission.

Intramural Submissions: Intramural DOD organizations may submit full applications through either eBRAP or Grants.gov. There is no preference from the CDMRP for which submission portal is utilized; submission through one portal or the other does not provide the application any advantage during the review process. Intramural DOD organizations that choose to submit through Grants.gov should follow Extramural Submission instructions. Intramural DOD organizations that are unable to submit through Grants.gov should submit through eBRAP. For the remainder of this program announcement, it will be assumed intramural DOD submissions will proceed through eBRAP. Refer to the General Application Instructions, Section V, for considerations and detailed instructions regarding intramural DOD full application submission.

II.D.2.b.ii. Full Application Submission Components for the PI or Initiating PI

Each application submission must include the completed full application package for this program announcement. See [Section II.H.3](#) of this program announcement for a checklist of the required application components.

(a) SF424 Research & Related Application for Federal Assistance Form (*Extramural Submissions Only*): Refer to the General Application Instructions, Section IV.B, for detailed information.

(b) 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 2.

- **Attachment 1: Project Narrative (15-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 (uniform resource locators) that provide additional information that expands 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/Readiness:** Describe the product (materiel or knowledge-based) to be developed and its proposed use. Present the ideas and scientific rationale behind the proposed research project, and clearly demonstrate that there is sufficient evidence to support the proposed stage of research. Cite relevant literature. Describe previous experience most pertinent to this project. If leveraging findings from solid organ transplant research for testing in a VCA setting, explain the rationale and benefits of doing so. If utilizing a model system, explain how the model is appropriate for the study and applicable to VCA. If addressing women’s health research, describe how the project will investigate an aspect of reconstructive transplant that affects women uniquely, disproportionately, or differently from men. ***Preliminary data relevant to reconstructive transplant that support proof of concept of the proposed product or a prototype/preliminary version of the product, must be***

included (these data may be unpublished if from a member of the research team, or from the published literature).

- **Hypothesis and/or Objective(s):** State the hypothesis to be tested and/or the objective(s) to be reached.
- **Specific Aims:** Concisely explain the project’s specific aims to be funded by this application. If the proposed work is part of a larger study, present only tasks that would be funded under this FY24 RTRP Advanced Technology Development Award.
- **Study Design and Feasibility:**
 - Describe the study design, methods, and analyses, including appropriate controls, in sufficient detail for evaluation.
 - Provide a well-developed, well-integrated research strategy that supports the translational feasibility and promise of the approach.
 - Define the specific study outcomes. Describe how they will be measured and how they will support translation of promising preclinical and/or clinical research findings into a product for clinical applications.
 - 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, and identification of primary endpoints.
 - Describe the statistical plan and the rationale for the statistical methodology. Provide a sample size estimate and the method by which it was derived, including power analysis calculation, as applicable. Include any plans for blinding and randomization. Explain how this plan is appropriate for the proposed study and how the study is designed to achieve reproducible and rigorous results.
 - If proposing development of a device, the study design should support a regulatory filing with the FDA.
 - Describe how data will be reported and how it will be assured that the documentation will support a regulatory filing with the FDA or international equivalent, if applicable.
 - Describe how the proposed study design will position the product for the next phase of development as described in the post-award Transition Plan ([Attachment 9](#)).
 - Address potential problem areas and present alternative methods and approaches.
 - If animal studies are proposed, briefly describe the key elements of the study/ studies as they relate to the overall project; detailed information is required in

[Attachment 8, Animal Research Plan](#). Describe the availability of and your access to the animal model proposed.

- If human subjects or human anatomical substances will be used, include a detailed plan for the recruitment of subjects or the acquisition of samples. The plan should include a description of how the samples and any associated data will be stored during and after the study, including compliance with relevant laws and regulations for human subjects research. Consent Forms for all samples collected under this project should include permission for the samples to be used in future studies without the need for re-consent. Describe the availability of the proposed study population and past successes in recruiting similar populations. If an active-duty military, Veteran, or military Family member or caregiver population will be used in the proposed research project, include the details in [Attachment 7, Military Relevance Statement](#). ***This award may not be used to conduct clinical trials.***
- If applicable, describe the strategy for the inclusion of women and minorities appropriate to the objectives of the study, including a description of the composition of the proposed study population in terms of sex/gender, racial, and ethnic group, and an accompanying rationale for the selection of subjects. Studies utilizing human biospecimens or datasets that cannot be linked to a specific individual, gender, ethnicity, or race (typically classified as exempt from Institutional Review Board [IRB] review) are exempt from this requirement.
- If the proposed research involves access to active-duty military and/or VA patient populations and/or DOD or VA resources or databases, describe the access at the time of submission and include a plan for maintaining access as needed throughout the proposed research. Refer to the General Application Instructions, Appendix 4, for additional considerations
- **Partnership (*Multiple PI Option only*)**: If submitting under the Multiple PI Option, briefly describe the partnership proposed and how it will support successful completion of project objectives; detailed information is required in [Attachment 10, Partnership Statement](#).
- **Attachment 2: Supporting Documentation: Combine and upload as a single file named “Support.pdf”**. Start each document on a new page. 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.
- **List of Abbreviations, Acronyms, and Symbols:** Provide a list of abbreviations, acronyms, and symbols.
- **Facilities, Existing Equipment, and Other Resources:** Describe the facilities and equipment available for performance of the proposed project and any additional facilities or equipment proposed for acquisition at no cost to the award. Indicate whether government-furnished facilities or equipment are proposed for use. If so, reference should be made to the original or present government award under which the facilities or equipment items are now accountable. There is no form for this information.
- **Publications and/or Patents:** Include a list of relevant publication URLs and/or patent abstracts. If articles are not publicly available, then copies of up to five published manuscripts may be included in Attachment 2. Extra items will not be reviewed.
- **Letters of Organizational Support:** Provide a letter (or letters, if applicable) signed by the Department Chair or appropriate organization official, confirming the laboratory space, equipment, and other resources available for the project. Letters of support not requested in the program announcement, such as those from members of Congress, do not impact application review or funding decisions.
- **Letters of Collaboration (*if applicable*):** Provide a signed letter from each collaborating individual and/or organization demonstrating that the PI has the support and resources necessary for the proposed work. If an investigator at an intramural DOD organization is named as a collaborator on a full application submitted through an extramural organization, the application must include a letter from the collaborator’s Commander or Commanding Officer at the intramural DOD organization authorizing the collaborator’s involvement.
- **Intellectual Property:** Information can be found in the 2 CFR 200.315, “Intangible Property.”
 - **Intellectual and Material Property Plan (*if applicable*):** Provide a plan for resolving intellectual and material property issues among participating organizations.
- **DOD Data Management Plan (two-page limit is recommended):** Describe the data management plan in accordance with Section 3.c, Enclosure 3, [DoD Instructions 3200.12](#). *Do not duplicate the Data and Research Resources Sharing Plan.* Refer to General Application Instructions, Section IV.B, Attachments Form, Attachment: Supporting Documentation, for detailed information regarding Data Management Plan content.

- **Data and Research Resources Sharing Plan:** Describe the type of data or research resource to be made publicly available as a result of the proposed work. Describe how data and resources generated during the performance of the project will be shared with the research community. Include the name of the repository(ies) where scientific data and resources arising from the project will be archived, if applicable. If a public repository will not be used for data or resource sharing, provide justification. Provide a milestone plan for data/results dissemination including when data and resources will be made available to other users, including dissemination activities with a particular focus on feeding back the data to affected communities and/or research participants. Refer to the CDMRP’s Policy on Data & Resource Sharing located on the eBRAP “Funding Opportunities & Forms” web page <https://ebrap.org/eBRAP/public/Program.htm> for more information about the CDMRP’s expectations for making data and research resources publicly available.
- **Inclusion of Women and Minorities (only applicable for applications proposing clinical research):** Provide an anticipated enrollment table(s) for the inclusion of women and minorities using the Public Health Service (PHS) Inclusion Enrollment Report, a three-page fillable PDF form, that can be downloaded from eBRAP at <https://ebrap.org/eBRAP/public/Program.htm>. The enrollment table(s) should be appropriate to the objectives of the study with the proposed enrollment distributed on the basis of sex/gender, race, and ethnicity. Studies utilizing human biospecimens or datasets that cannot be linked to a specific individual, gender, ethnicity, or race (typically classified as exempt from IRB review) are exempt from this requirement.
- **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 signed by 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. If the VA-affiliated non-profit corporation is not identified as the applicant organization 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.
- **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.*** Use only characters available on a standard QWERTY keyboard. Spell out all Greek letters, other non-English letters, and symbols. Graphics are not allowed.

Technical abstracts should be written using the outline below. Clarity and completeness within the space limits are highly important.

- **Background/Rationale/Readiness:** Describe the product to be developed and its proposed use. Present the ideas and scientific rationale behind the proposed research project. If leveraging findings from solid organ transplant research for testing in a VCA setting, briefly explain the rationale and benefits of doing so. If utilizing a model system, explain how the model system is appropriate for the study and applicable to VCA. If addressing women’s health research, describe how the project will investigate an aspect of reconstructive transplant that affects women uniquely, disproportionately, or differently from men.
- **Hypothesis or Objective(s):** State the hypothesis to be tested and/or the objective(s) to be reached.
- **Specific Aims/Study Design:** State the specific aims of the proposed research project, and briefly describe the study design, including appropriate controls. Indicate how the product will be positioned for next phase of development at the end of the period of performance.
- **Impact:** Briefly describe the short- and long-term impacts of the proposed product on the field of reconstructive transplant research, patient care, and/or quality of life, including the impact on at least one of the FY24 RTRP Advanced Technology Development Focus Areas listed in [Section II.A.1](#).
- **Military Relevance:** Briefly explain how the proposed project will have immediate or potential long-term benefit for the health care needs of military Service Members and/or Veterans recovering from traumatic injury, and/or their Family members, caregivers, or clinicians, as well as the general public.
- **Attachment 4: Lay Abstract (one-page limit): Upload as “LayAbs.pdf”.** The lay abstract is used by all reviewers, and addresses issues of particular interest to the affected community. ***Abstracts of all funded research projects will be posted publicly.*** 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.***

Lay abstracts should address the points outlined below ***in a manner that will be readily understood by readers without a background in science or medicine.*** Avoid overuse of scientific jargon, acronyms, and abbreviations.

- Clearly describe the objectives and rationale for the application in a manner readily understood by readers without a background in science or medicine.
- Identify the [FY24 RTRP Advanced Technology Development Award Focus Area\(s\)](#) to be addressed.
- Describe the ultimate applicability and impact of the product.
 - What types of patients will the product help, and how will it help them? Include the current available statistics to the related injury/condition.

- What are the potential clinical applications, benefits, and risks?
- What is the projected time it may take to achieve a patient-related outcome?
- Briefly describe how the proposed product will benefit Service Members and/or Veterans recovering from traumatic injury, and/or their Family members, caregivers, or clinicians, as well as the general public.
- What are the likely contributions of the proposed product to advancing the field of reconstructive transplant research?
- **Attachment 5: Statement of Work (three-page limit): Upload as “SOW.pdf”.** Refer to the eBRAP “Funding Opportunities & Forms” web page (<https://ebrap.org/eBRAP/public/Program.htm>) for the suggested Statement of Work (SOW) format and recommended strategies for assembling the SOW.

For the Advanced Technology Development Award, refer to either the “Example: Assembling a Clinical Research and/or Clinical Trial Statement of Work” or “Example: Assembling a Generic Statement of Work”, whichever example is most appropriate for the proposed effort, for guidance on preparing the SOW. Use the “Suggested SOW Format” to develop the SOW for the proposed research. Submit as a PDF.

Multiple PI Option: *Each PI must submit an identical copy of a jointly created SOW. The specific contributions of the Initiating PI and each Partnering PI should be clearly noted for each task.*

- **Attachment 6: Impact Statement (one-page limit): Upload as “Impact.pdf.”** Describe the short- and long-term impacts of the proposed product on the field of reconstructive transplant research, patient care, and/or quality of life, including an assessment of the likelihood that a successful outcome will lead to a practical application in individuals recovering from traumatic injury. State the relevance of the proposed product development plan to at least one of the FY24 RTRP Advanced Technology Development Award Focus Areas listed in [Section II.A.1](#), and explain the applicability of the proposed findings to improving clinical outcomes for individuals recovering from traumatic injury. Although not all-inclusive, the following are examples of ways in which research projects may have an impact, if successful:
 - Has the potential to advance the field of reconstructive transplant research.
 - Has the potential to change the standard of care.
 - Contributes to the development or validation of evidence-based policy or guidelines for patient evaluation and care.
- **Attachment 7: Military Relevance Statement (one-page limit): Upload as “MilRel.pdf”.** Demonstrate how the proposed research is responsive to the health care needs and quality of life of military Service Members and/or Veterans recovering from traumatic injury, and/or their Family members, caregivers, or clinicians, as well as the

general public. If an active-duty military, Veteran, or military Family member or caregiver population will be used in the proposed research project, describe the population(s), the appropriateness of the population(s) for the proposed research, access to and the feasibility of using the population. If a non-military population will be used for the proposed research project, explain how the population simulates the military population. If applicable, show how the proposed research project aligns with DOD and/or VA areas of research interest.

- **Attachment 8: Animal Research Plan (five-page limit): Upload as “AnimalResPlan.pdf”.** (*Attachment 8 is only applicable and required for applications proposing animal studies.*)

If the proposed study involves animals, a summary describing the animal research that will be conducted must be included in the application. Consult the ARRIVE guidelines 2.0 (Animal Research: Reporting *In Vivo* Experiments) to ensure relevant aspects of rigorous animal research are adequately planned for and, ultimately, reported. The ARRIVE guidelines 2.0 can be found at <https://arriveguidelines.org/arrive-guidelines>. The Animal Research Plan may not be an exact replica of the protocol(s) submitted to the Institutional Animal Care and Use Committee (IACUC). The Animal Research Plan should address the following points to achieve reproducible and rigorous results 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.
 - Describe and confirm the availability of and access to the animal model proposed. Include alternate strategies should access to the animal model become restricted or limited.
 - Summarize the procedures to be conducted and state the endpoints/outcome measures to be assessed. Describe how the study will be controlled.
 - Describe the randomization and blinding procedures for the study, and any other measures to be taken to minimize the effects of subjective bias during animal treatment and assessment of results. If randomization and/or blinding will not be utilized, provide justification.
 - Provide a sample size estimate for each study arm and the method by which it was derived, including power analysis calculations.
 - 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)/outcome measures(s).
- **Attachment 9: Transition Plan (two-page limit): Upload as “Transition.pdf.”** Provide information on potential methods and strategies to feasibly move the product or

knowledge outcome to the next phase of development (e.g., clinical trials, partnership with DOD advanced developers, commercialization, and/or delivery to the civilian or military market) after successful completion of the award. Applicants are encouraged to work with their organization's Technology Transfer Office, or equivalent, to develop the Transition Plan. They are encouraged to explore the development of relationships with industry, DOD advanced developers, and/or other funding agencies to facilitate moving the product into the next phase of development. The Transition Plan should include the components listed below.

- A description of the scientific or technical requirements needed to advance the research findings.
- The planned indication for the product label, if appropriate, and an outline of the development plan required to support that indication (e.g., Target Product Profile). Indicate whether there was any consideration of predicate technologies or potential pre-existing market exclusivities. Describe in detail the FDA regulatory strategy, to include considerations for compliance with Good Manufacturing Practice, Good Laboratory Practice, and Good Clinical Practice guidelines, if appropriate.
- Details of the funding strategy that will be used to transition the product(s) to the next level of development and/or commercialization (e.g., specific potential industry partners, partnerships with DOD advanced developers, specific funding opportunities to be applied for). Include a description of collaborations and other resources that will be used to provide continuity of development.
- A description of collaborations and other resources that will be used to provide continuity of development, including proposed development or modification of clinical practice guidelines and recommendations, provider training materials, patient brochures, and other clinical support tools, scientific journal publications, models, simulations, and applications.
- A schedule with defined milestones and deliverables for transitioning the product(s) or outcome(s) to the next phase of development (e.g., clinical trials, transition to industry, transition to DOD advanced developers, delivery to the civilian and/or military market, incorporation into clinical practice, or approval by the FDA).
- A risk analysis for cost, schedule, manufacturability, and sustainability.
- If applicable, ownership rights and/or access to the intellectual property necessary for the development and/or commercialization of products or technologies supported with this award and the government's ability to access such products or technologies in the future.

- **Attachment 10: Partnership Statement (one-page limit): Upload as “Partnership.pdf”.** (*Attachment 10 is only applicable and required for applications submitted under the Partnering PI Option*)
 - Describe how the proposed project incorporates the unique skills of each partner and will result in a level of productivity greater than that achievable by each PI working independently.
 - Describe how the proposed partnership involves a substantial contribution by each partner and the reciprocal flow of ideas and information. Provide the time commitment for each partner.
 - Demonstrate how the partnership will maximize the use of existing resources and minimize unnecessary duplication.
 - Describe the communication plan and provide evidence of institutional support for resolving potential intellectual and material property issues and removing institutional barriers to achieving high levels of cooperation.
 - **Attachment 11: Representations (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 8, Section B, Representations.
 - **Attachment 12: Suggested Intragovernmental/Intramural Budget Form (if applicable): Upload as “IGBudget.pdf”.** If an [intramural DOD organization](#) will be a collaborator in performance of the project, complete a separate budget using the “Suggested Intragovernmental/Intramural Budget Form”, available for download on the eBRAP “Funding Opportunities & Forms” web page (<https://ebrap.org/eBRAP/public/Program.htm>). The budget should cover the entire period of performance for each intramural DOD site and include a budget justification as instructed. The *total* costs per year for each subaward (direct and indirect costs) should be included on the Grants.gov Research & Related Budget Form under subaward costs. Refer to the General Application Instructions, Section V.A.(e), for additional information and considerations.
- (c) Research & Related Personal Data:** For extramural submissions, refer to the General Application Instructions, Section IV.B.(c), and for intramural submissions, refer to the General Application Instructions, Section V.A.(c), for detailed instructions.
- (d) Research & Related Senior/Key Person Profile (Expanded):** For extramural submissions, refer to the General Application Instructions, Section IV.B.(d), and for intramural submissions, refer to the General Application Instructions, Section V.A.(d), for detailed instructions.
- **PI Biographical Sketch (six-page limit):** Upload as “Biosketch_LastName.pdf”.

- **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”.

(e) Research & Related Budget: For extramural submissions, refer to the General Application Instructions, Section IV.B.(e), and for intramural submissions, refer to the General Application Instructions, Section V.A.(e), for detailed instructions.

- **Budget Justification (no page limit):** For extramural submissions, refer to the General Application Instructions, Section IV.B.(e), Section L, for instructions. For intramural submissions, refer to General Application Instructions, Section V.A.(e), Budget Justification Instructions.

Multiple PI Option: *Initiating and Partnering PIs must have a separate budget and justification specific to their distinct portions of the effort that the applicant organization will submit as separate Grants.gov or eBRAP application packages. The Initiating PI should not include budget information for Partnering PI(s) even if they are located within the same organization. Refer to [Section II.D.5, Funding Restrictions](#), for detailed information.*

(f) Project/Performance Site Location(s) Form: For extramural submissions, refer to the General Application Instructions, Section IV.B.(f), and for intramural submissions, refer to the General Application Instructions, Section V.A.(f), for detailed instructions.

(g) Research & Related Subaward Budget Attachment(s) Form (if applicable, Extramural Submissions Only): Refer to the General Application Instructions, Section IV.B.(g), for detailed instructions.

- **Extramural Subaward:** Complete the Research & Related Subaward Budget Form and upload through Grants.gov.
- **Intramural DOD Subaward:** Complete a separate “[Suggested Intragovernmental/Intramural Budget Form](#)” for each intramural DOD subaward and upload as a single document titled **IGBudget.pdf** to Grants.gov as Attachment 12.

II.D.2.b.iii. Full Application Submission Components for each Partnering PI

The application submission process for each Partnering PI uses an abbreviated full application package. Refer to the equivalent attachment above for details specific to each of the following application components.

- (a) **SF424 Research & Related Application for Federal Assistance Form (*Extramural Submissions Only*)**: Refer to the General Application Instructions, Section IV.B.(a), for detailed information.
- (b) **Attachments**:
- **Attachment 5: Statement of Work (three-page limit)**: Upload as “SOW.pdf”. Each PI must submit an identical copy of a jointly created SOW.
 - **Attachment 11: Representations (*Extramural submissions only*)**: Upload as “RequiredReps.pdf”.
 - **Attachment 12: Suggested Intragovernmental/Intramural Budget Form**: Upload as “IGBudget.pdf”.
- (c) **Research & Related Personal Data**: For extramural submissions, refer to the General Application Instructions, Section IV.B.(c), and for intramural submissions, refer to the General Application Instructions, Section V.A.(c), for detailed information.
- (d) **Research & Related Senior/Key Person Profile (Expanded)**: For extramural submissions, refer to the General Application Instructions, Section IV.B.(d), and for intramural submissions, refer to the General Application Instructions, Section V.A.(d), for detailed information.
- **PI Biographical Sketch (six-page limit)**: Upload as “Biosketch_LastName.pdf”.
 - **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”.
- (e) **Research & Related Budget**: For extramural submissions, refer to the General Application Instructions, Section IV.B.(e), and for intramural submissions, refer to the General Application Instructions, Section V.A.(e), for detailed information.
- **Budget Justification (no page limit)**: Upload as “BudgetJustification.pdf”.
 - ***The initiating and Partnering PI(s) must each submit a budget and justification specific to their own portion of the efforts as part of their separate Grants.gov or eBRAP application packages. The Research & Related Budget for each Partnering PI should not include budget information for the Initiating PI, even if they are located within the same organization. Refer to [Section II.D.5, Funding Restrictions](#), for detailed information.***

(f) Project/Performance Site Location(s) Form: For extramural submissions, refer to the General Application Instructions, Section IV.B.(f), and for intramural submissions, refer to General Application Instructions, Section V.A.(f), for detailed information.

(g) Research & Related Subaward Budget Attachment(s) Form (if applicable, Extramural Submissions Only): Refer to the General Application Instructions, Section IV.B.(g), for detailed information.

- **Extramural Subaward:** Complete the Research & Related Subaward Budget Form through Grants.gov.
- **Intramural DOD Subaward:** Complete the “Suggested Intragovernmental/Intramural Budget Form” for each intramural DOD subaward and upload as a single document titled IGBudget.pdf to Grants.gov as [Attachment 12](#).

II.D.2.c. Applicant Verification of Full Application Submission in eBRAP

Independent of submission type, once the full application is submitted it is transmitted to and processed in eBRAP. At this stage, the PI and organizational representatives will receive an email from eBRAP instructing them to log into eBRAP to review, modify, and verify the full application submission. Verification is strongly recommended but not required. eBRAP will validate full application files against the specific program announcement requirements, and discrepancies will be noted in the “Full Application Files” tab in eBRAP. However, eBRAP does not confirm the accuracy of file content. It is the applicant’s responsibility to review all application components and ensure proper ordering as specified in the program announcement. ***The Project Narrative and Research & Related Budget Form cannot be changed after the application submission deadline. 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 full application submission deadline.*** Other application components, including subaward budget(s) and subaward budget justification(s), may be changed until the end of the [application verification period](#). The full application cannot be modified once the application verification period ends.

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

The applicant organization must be registered as an entity in SAM (<https://www.sam.gov/content/home>) and receive confirmation of an “Active” status before submitting an application through Grants.gov. Organizations must include the UEI generated by SAM in applications to this funding opportunity.

II.D.4. Submission Dates and Times

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.

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

II.D.5. Funding Restrictions

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

Single PI: The application's total costs budgeted for the entire period of performance should not exceed **\$1.0M**. If indirect cost rates have been negotiated, indirect costs are to be budgeted in accordance with the organization's negotiated rate. Collaborating organizations should budget associated indirect costs in accordance with each organization's negotiated rate.

Multiple PI Option: The combined total costs budgeted for the entire period of performance in the applications of the Initiating PI and each Partnering PI should not exceed **\$1.5M**. If indirect cost rates have been negotiated, indirect costs are to be budgeted in accordance with the organization's negotiated rate. Collaborating organizations should budget associated indirect costs in accordance with each organization's negotiated rate.

A separate award will be made to each PI's organization.

The PIs are expected to be partners in the research, and direct cost funding should be divided accordingly unless otherwise warranted and clearly justified.

Any application that requests the higher level of funding and that does not include a Partnering PI will have its budget reduced as appropriate.

All Applications:

All direct and indirect costs of any subaward or contract must be included in the 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 must be requested for:

- Travel costs for the PI to present project information or disseminate project results at a DOD-sponsored meeting (e.g., the Military Health System Research Symposium) during the period of performance. For budgetary purposes, it should be assumed that the meeting will occur in year 2. These travel costs are in addition to those allowed for annual scientific/technical meetings.

May be requested for (not all-inclusive):

- Support of multidisciplinary collaborations, including travel.
- Costs for one investigator to travel to one scientific/technical meeting per year in addition to the required meeting described above. The intent of travel costs to scientific/technical meetings is to present project information or disseminate project results from the RTRP Advanced Technology Development Award.

Must not be requested for:

- Clinical trial costs

II.D.6. Other Submission Requirements

Refer to the General Application Instructions, Appendix 2, 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 individually evaluated according to the following **scored criteria**, which are listed in decreasing order of importance:

- **Study Design and Feasibility**
 - How well the preliminary and/or published data and ideas and scientific rationale support the proposed research project and demonstrate sufficient evidence to support moving into the proposed stage of research. Whether there is an appropriate explanation for leveraging findings from solid organ transplant research for testing in a VCA setting (if applicable).
 - Whether preliminary data relevant to reconstructive transplant is provided and how well it supports proof-of-concept of the proposed product/prototype/preliminary version of product.
 - How well the hypothesis and objectives, specific aims, study design, methods, and analyses are developed and support the appropriateness (including controls) and feasibility of the proposed study.
 - How well the research strategy supports the translational feasibility and promise of the approach.
 - To what extent the study outcomes will be appropriately measured and will support the translation of promising preclinical and/or clinical research findings into a product for clinical applications.
 - How appropriate the plans are for handling data, including appropriate rules for stopping data collection, criteria for inclusion and exclusion of data, how outliers will be defined and handled, and identification of primary endpoints.
 - Whether the study design would support a regulatory filing with the FDA, if applicable. Whether data will be appropriately reported and documented to support a regulatory filing with the FDA or international equivalent, as applicable.

- How well the study design will position the product for the next phase of development as described in the post-award Transition Plan ([Attachment 9](#)).
- How well the application acknowledges potential problems and addresses alternative approaches.
- If a model system is proposed, whether it is appropriate for the study and applicable to VCA.
- If addressing women’s health research, how well the project will investigate an aspect of reconstructive transplant that affects women uniquely, disproportionately, or differently from men.

For applications involving animal research:

- How well the animal study (or studies), as applicable, is designed to achieve the objectives, including the choice of model and endpoints/outcome measures.
- Whether the application has described the availability and accessibility of the proposed animal model.
- How well the animal study (or studies) is designed to achieve the objectives, including the choice of model and endpoints/outcome measures to be used.
- How well the study (or studies) is designed to achieve reproducible and rigorous results, including controls, sample size estimation, blinding, randomization, and data handling.

For applications involving human subjects:

- The degree to which the plan to study human subjects and human anatomical substances is designed to achieve the objectives, and is appropriate and feasible, including demonstrated access to the selected population(s) or resource(s).
- Whether the strategy for the inclusion of women and minorities and distribution of proposed enrollment are appropriate for the proposed research. Studies utilizing human biospecimens or datasets that cannot be linked to a specific individual, gender, ethnicity, or race (typically classified as exempt from IRB review) are exempt from this requirement.

For applications involving military or Veteran populations:

- The degree to which the plan to study military or Veteran populations is appropriate and feasible, including demonstrated access to the selected population.

- **Statistical Plan**

- To what degree the statistical plan and power analysis are appropriate for the proposed project, as applicable.

- How well the study (or studies) is designed to achieve reproducible and rigorous results, including controls, sample size estimation, blinding, randomization, and data handling.
- **Impact**
 - How well the proposed research addresses at least one of the FY24 RTRP Advanced Technology Development Award Focus Areas listed in [Section II.A.1](#).
 - How well the proposed product will make important short-term and long-term contributions to reconstructive transplant research, patient care, and/or quality of life.
 - How the proposed product, if successful, will lead to a practical application in individuals recovering from traumatic injury in the short- or long-term.
- **Transition Plan**
 - Whether a description of the scientific or technical requirements needed to advance the research findings is provided.
 - How the regulatory strategy and development plan to support the proposed product label, if applicable, are appropriate and well described.
 - Whether the funding strategy described to bring the product(s) to the next level of development (e.g., clinical trial, transition to industry, delivery to the market, progression toward incorporation into standard practice) is appropriate.
 - To what extent the collaborations and other resources (established or planned) described are appropriate and will provide continuity of development.
 - Whether the schedule and milestones for bringing the outcome(s) to the next level of development (e.g., clinical trials, transition to industry, transition to DOD advanced developers, delivery to the civilian and/or military market, progression toward incorporation into clinical practice, FDA approval) are appropriate and feasible.
 - If applicable, how well the risk analysis for cost, schedule, manufacturability, and sustainability is developed.
 - How well the application identifies intellectual property plan ownership, describes an appropriate intellectual and material property plan among participating organizations (if applicable), and addresses any impact of intellectual property issues on product development and subsequent government access to products supported by this program announcement.
 - How well the plan supports further development and dissemination of the knowledge product to the VCA community, if applicable.

- **Personnel**

- How the background and experience/expertise of the PI and other key personnel demonstrate their ability to perform the proposed work.
- How well the PI's record of accomplishment demonstrates their ability to accomplish the proposed research project.
- How the levels of effort by the PI and other key personnel are appropriate to ensure the successful conduct of the project.

For applications submitted under the Multiple PI Option:

- How well the project incorporates the unique skills of each partner and will result in a level of productivity greater than that achievable by each PI working independently.
- How the proposed partnership involves a substantial contribution by each partner and the reciprocal flow of ideas and information.
- How well the partnership will maximize the use of existing resources and minimize unnecessary duplication.
- How well the communication plan and institutional support will facilitate high levels of cooperation and will resolve any potential intellectual and material property issues.
- How the partners' combined expertise will better address the research question.

In addition, the following criteria will also contribute to the overall evaluation of the application, but will not be individually scored and are therefore termed **unscored criteria**:

- **Budget**

- Whether the **total** costs exceed the allowable total costs as published in the program announcement.
- Whether the budget is appropriate for the proposed research and partnership option (if applicable).

- **Environment**

- To what extent the scientific environment is appropriate for the proposed research project.
- How well the research requirements are supported by the availability of and accessibility to facilities and resources.
- To what extent the quality and level of institutional support are appropriate for the proposed research project.

- **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 priorities of the DHP and FY24 RTRP, as evidenced by the following:
 - Adherence to the intent of the award mechanism
 - Program portfolio composition
 - Programmatic relevance to [FY24 RTRP Advanced Technology Development Award Focus Areas](#)
 - Relative impact and/or military relevance

II.E.2. Application Review and Selection Process

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

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 review panel. Violations of confidentiality can result in the dissolution 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 a third party is a crime in accordance with 18 USC 1905.

II.E.3. Integrity and Performance Information

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

An applicant organization may review SAM and submit comments on any information currently available about the organization that a federal awarding agency previously entered. 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.F. Federal Award Administration Information

II.F.1. Federal Award Notices

Each applicant organization and PI will receive email notification when the funding recommendations are posted to eBRAP. At this time, each PI will receive a peer review summary statement on the strengths and weaknesses of the application and an information paper describing the funding recommendation and review process for the RTRP award mechanisms. The information papers and a list of organizations and PIs recommended for funding are also posted on the program's page within the CDMRP website.

If an application is recommended for funding, after the email notification is posted to eBRAP, a government representative will contact the person authorized to negotiate on behalf of the recipient organization.

Only an appointed USAMRAA Grants Officer may obligate the government to the expenditure of funds to an extramural organization. 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 (i.e., assistance agreement).***

Intra-DOD obligations of funding will be made according to the terms of a negotiated Inter-Agency Agreement and managed by a CDMRP Science Officer.

Funding obligated to ***intragovernmental and intramural DOD organizations*** will be sent through the Military Interdepartmental Purchase Request (MIPR), Funding Authorization Document (FAD), or Direct Charge Work Breakdown Structure processes. Transfer of funds is contingent upon appropriate safety and administrative approvals. Intragovernmental and intramural DOD investigators and collaborators must coordinate receipt and commitment of

funds through their respective Resource Manager/Task Area Manager/Comptroller or equivalent Business Official.

An 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. For extramural submissions, refer to the General Application Instructions, Section IV.B.(e), Pre-Award Costs section, and for intramural submissions, refer to the General Application Instructions, Section V.A.(e), Pre-Award Costs section, for additional information about pre-award costs.

If there are technical reporting requirement delinquencies for any existing CDMRP awards at the applicant organization, no new awards will be issued to the applicant organization until all delinquent reports have been submitted.

II.F.2. PI Changes and Award Transfers

Single PI Option: Unless otherwise restricted, changes in PI or organization will be allowed on a case-by-case basis, provided the intent of the award mechanism is met.

Multiple PI Option: An organizational transfer of an award supporting the Initiating PI or Partnering PI(s) is discouraged and will be evaluated on a case-by-case basis.

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 7, Section F, for general information on organization or PI changes.

II.F.3. 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 7, for general information regarding administrative requirements.

Refer to the General Application Instructions, Appendix 8, for general information regarding national policy requirements.

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

Applications recommended for funding that involve animals, human data, human specimens, human subjects, or human cadavers must be reviewed for compliance with federal and DOD animal and/or human subjects protection requirements and approved by the USAMRDC Office of Human and Animal Research Oversight prior to implementation. This administrative review

requirement is in addition to the local IACUC, IRB, or Ethics Committee review. Refer to the General Application Instructions, Appendix 6, for additional information.

II.F.4. Reporting

Annual technical progress reports as well as a final technical progress report will be required. Annual and final technical reports must be prepared in accordance with the Research Performance Progress Report (RPPR).

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

If employing the **Multiple PI Option**, each PI, whether Initiating or Partnering, must submit annual progress reports as required by the individual award agreement, as well as a final progress report.

Award Expiration Transition Plan: An Award Expiration Transition Plan must be submitted with the final progress report. Use the one-page template “Award Expiration Transition Plan,” available on the eBRAP “Funding Opportunities & Forms” web page (<https://ebrap.org/eBRAP/public/Program.htm>) under the “Progress Report Formats” section. The Award Expiration Transition Plan must outline whether and how the research supported by this award will progress and must include source(s) of funding, either known or pending.

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

Awards resulting from this program announcement may entail additional reporting requirements related to recipient integrity and performance matters. Recipient organizations that have federal contract, grant, and cooperative agreement awards with a cumulative total value greater than \$10.0M are required to provide information to SAM about certain civil, criminal, and administrative proceedings that reached final disposition within the most recent 5-year period and that were connected with performance of a federal award. These recipients are required to disclose, semiannually, information about criminal, civil, and administrative proceedings as specified in the applicable Representations (see General Application Instructions, Appendix 8, Section B).

II.G. Federal Awarding Agency Contacts

II.G.1. eBRAP Help Desk

Questions regarding program announcement content or submission requirements as well as technical assistance related to pre-application or intramural application submission:

Phone: 301-682-5507

Email: help@eBRAP.org

II.G.2. Grants.gov Contact Center

Questions regarding Grants.gov registration and Workspace:

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

Email: support@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 901a. The program announcement numeric version code will match the General Application Instructions version code 901.

II.H.2. Administrative Actions

After receipt of pre-applications or full 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 full application:

- Submission of an application for which a letter of invitation was not issued.
- Project Narrative exceeds page limit.
- Project Narrative is missing.
- Budget is missing.

II.H.2.b. Modification

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

II.H.2.c. Withdrawal

The following may result in administrative withdrawal of the full application:

- An FY24 RTRP 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, including letters of support/recommendation. *A list of the FY24 RTRP Programmatic Panel members can be found at <https://cdmrp.health.mil/rtrp/panels/panels24>.*
- 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.
- Applications that include names of personnel from either of the CDMRP peer or programmatic review companies. For FY24, the identities of the peer review contractor and the programmatic review contractor may be found at the CDMRP website (<https://cdmrp.health.mil/about/2tierRevProcess>).
- 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.
- Applications submitted by a federal government organization (including an intramural DOD organization) may be withdrawn if (a) the organization cannot accept and execute the entirety of the requested budget in current fiscal year (FY24) funds and/or (b) the federal government organization cannot coordinate the use of contractual, assistance, or other appropriate agreements to provide funds to collaborators.
- Application includes research data that are classified and/or proposes research that may produce classified outcomes, or outcomes deemed sensitive to national security concerns.
- 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.
- A clinical trial is proposed.
- The PI (Initiating or Partnering PI) does not meet the eligibility criteria.

- **Multiple PI Option:** Failure to submit all associated (Initiating and Partnering PI[s]) applications by the deadline.

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. Full Application Submission Checklist

Full Application Components	Uploaded	
	Single or Initiating PI	Partnering PI(s)
SF424 Research & Related Application for Federal Assistance <i>(Extramural submissions only)</i>	<input type="checkbox"/>	<input type="checkbox"/>
Summary (Tab 1) and Application Contacts (Tab 2) <i>(Intramural submissions only)</i>	<input type="checkbox"/>	<input type="checkbox"/>
Attachments		
Project Narrative – Attachment 1, upload as “ProjectNarrative.pdf”	<input type="checkbox"/>	
Supporting Documentation – Attachment 2, upload as “Support.pdf”	<input type="checkbox"/>	
Technical Abstract – Attachment 3, upload as “TechAbs.pdf”	<input type="checkbox"/>	
Lay Abstract – Attachment 4, upload as “LayAbs.pdf”	<input type="checkbox"/>	
Statement of Work – Attachment 5, upload as “SOW.pdf”	<input type="checkbox"/>	<input type="checkbox"/>
Impact Statement – Attachment 6, upload as “Impact.pdf”	<input type="checkbox"/>	
Military Relevance Statement – Attachment 7, upload as “MilRel.pdf”	<input type="checkbox"/>	
Animal Research Plan – Attachment 8, upload as “AnimalResPlan.pdf”	<input type="checkbox"/>	
Transition Plan – Attachment 9, upload as “Transition.pdf”	<input type="checkbox"/>	
Partnership Statement – Attachment 10, upload as “Partnership.pdf”		
Representations <i>(Extramural submissions only)</i> – Attachment 11, upload as “RequiredReps.pdf”	<input type="checkbox"/>	<input type="checkbox"/>
Suggested Intragovernmental Budget Form <i>(if applicable)</i> – Attachment 12, upload as “IGBudget.pdf”	<input type="checkbox"/>	<input type="checkbox"/>
Research & Related Personal Data	<input type="checkbox"/>	<input type="checkbox"/>
Research & Related Senior/Key Person Profile (Expanded)	<input type="checkbox"/>	<input type="checkbox"/>
Attach PI Biographical Sketch (Biosketch_LastName.pdf)	<input type="checkbox"/>	<input type="checkbox"/>
Attach PI Previous/Current/Pending Support (Support_LastName.pdf)	<input type="checkbox"/>	<input type="checkbox"/>
Attach Biographical Sketch (Biosketch_LastName.pdf) for each senior/key person	<input type="checkbox"/>	<input type="checkbox"/>
Attach Previous/Current/Pending (Support_LastName.pdf) for each senior/key person	<input type="checkbox"/>	<input type="checkbox"/>

Research & Related Budget (<i>Extramural submissions only</i>) Include budget justification	<input type="checkbox"/>	<input type="checkbox"/>
Budget (<i>Intramural submissions only</i>) Include budget justification	<input type="checkbox"/>	<input type="checkbox"/>
Project/Performance Site Location(s) Form	<input type="checkbox"/>	<input type="checkbox"/>
Research & Related Subaward Budget Attachment(s) Form (<i>if applicable</i>)	<input type="checkbox"/>	<input type="checkbox"/>

APPENDIX 1: ACRONYM LIST

ACOS/R&D	Associate Chief of Staff for Research and Development
ACURO	Animal Care and Use Review Office
ARRIVE	Animal Research: Reporting <i>In Vivo</i> Experiments
ATDA	Advanced Technology Development Award
CDMRP	Congressionally Directed Medical Research Programs
CFR	Code of Federal Regulations
DHP	Defense Health Program
DOD	Department of Defense
DoDGARs	Department of Defense Grant and Agreement Regulations
eBRAP	Electronic Biomedical Research Application Portal
ET	Eastern Time
FAD	Funding Authorization Document
FDA	Food and Drug Administration
FY	Fiscal Year
IACUC	Institutional Animal Care and Use Committee
IRB	Institutional Review Board
M	Million
MB	Megabytes
MIPR	Military Interdepartmental Purchase Request
PDF	Portable Document Format
PHS	Public Health Service
PI	Principal Investigator
RPPR	Research Performance Progress Report
RTRP	Reconstructive Transplant Research Program
SAM	System for Award Management
SOW	Statement of Work
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