Translational Research Institute for Space Health
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# Translational Research Institute for Space Health (TRISH)

TRANSLATIONAL RESEARCH INSTITUTE FOR SPACE HEALTH

# Ground-Based Venous Thromboembolism (VTE) Pathophysiology and Analog Solicitation

**Release Date: June 16, 2026**
**Proposals Due: August 18, 2026 at 11:59 pm ET**
**Estimated Selection Announcement: December 2026**
**Anticipated Start Date: January 2027**

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# A. About TRISH

The Translational Research Institute for Space Health (TRISH) is an applied space health research catalyst supported by the NASA Human Research Program (HRP) that funds disruptive, high-impact scientific studies and technologies to equip astronauts for space exploration. TRISH relentlessly pursues and funds novel research to deliver high-impact scientific and technological solutions that advance space health and help humans thrive wherever they explore, in space or on Earth.

TRISH support focuses on maintaining and improving human health in space. Since its inception, TRISH has funded over 150 projects that have advanced medical science for both our world and the worlds that lay beyond. As the only institute dedicated to promoting space health discoveries and technologies, TRISH is accelerating research that will benefit all people with a future in deep space and here on Earth.

Founded on October 1, 2016, TRISH works in partnership with NASA's HRP through Cooperative Agreement NNX16AO69A. Led by Baylor College of Medicine's Center for Space Medicine, TRISH's consortium leverages partnerships with the California Institute of Technology (Caltech) and the Massachusetts Institute of Technology (MIT). More details on TRISH, its mission and funding opportunities can be found at https://www.bcm.edu/spacehealth.

TRISH recognizes the need to encourage innovation among the space health community, to attract cutting-edge technologies and high-risk, high-reward ideas, and to translate existing technologies for use in space flight. Our primary goal is to help mitigate NASA HRP's Human Research Roadmap (HRR) Risks and enable future Artemis missions and deep space exploration.

# B. Opportunity

**Background:**

In recent years, a new risk to human spaceflight has been identified: the risk of crew developing Venous Thromboembolism (VTE). The initial thrombosis case was identified in spaceflight via ultrasound, performed as part of a vascular research study, and treated. An untreated thrombus could lead to a pulmonary embolism, a serious condition that could result in death.

In October of 2024, NASA convened a group of experts to inform the VTE risk during spaceflight. The report can be found here: Venous Thromboembolism VTE Report REV1 April 2025.pdf

In summary, the cross-sectional area of the left and right internal jugular veins (IJVs) is usually increased in microgravity compared to terrestrial settings, suggesting resistance to blood outflow from the head. During spaceflight, some individuals have experienced the formation of a thrombus in the internal jugular vein (and/or its associated vasculature), which may be symptomatic or asymptomatic. Altered blood flow and associated vessel distention have been observed in both the left and right internal jugular veins, although this is somewhat more common on the left, which tends to be anatomically smaller. There may be antegrade flow in the left jugular vein but it can be slower than the terrestrial normal. Flow alterations can also include stasis and/or retrograde flow. Ultrasound imaging has indicated that some crewmembers have experienced stasis and retrograde flow in the left internal jugular vein, but not in the right.

In a sample of 22 crewmembers, ultrasound imaging identified 54% of individuals had stasis/stagnant flow or retrograde flow in the left IJV, with the right IJV consistently experiencing antegrade flow (Marshall-Goebel *et al.*, 2019; Pavela J *et al*., 2022). A small number of crewmembers with obstructive thrombi were identified. Crewmembers with thrombi were treated as described in the report and able to complete their missions. Upon landing some thromboses completely resolved and some required additional treatment. The exact cause and clinical importance of these changes remain incompletely understood.

The VTE risk remains a concern for long-duration spaceflight and warrants further investigation to better understand its underlying causes and associated risks in the spaceflight environment. The development and validation of ground-based analogs that replicate VTE-related phenomena, including altered venous hemodynamics, venous stasis, retrograde flow, and other vascular changes associated with spaceflight, would provide valuable tools for advancing research in this area.

While the hemodynamic changes associated with spaceflight have been characterized, the underlying pathophysiological mechanisms driving thrombus formation in this context remain incompletely understood. Open questions include the relative contributions of endothelial dysfunction, altered coagulation factor expression, changes in platelet reactivity, and immune modulation to VTE risk in microgravity.

**Goal of the Request For Proposals (RFP):**

The goal of this RFP is to advance our understanding of VTE pathophysiology in the context of spaceflight-associated hemodynamic changes and to develop and validate ground-based analogs that replicate these conditions. Proposals should address one of the following areas:

(1) Pathophysiology studies that advance mechanistic understanding of thrombus formation under conditions of retrograde venous flow, stasis, or vessel distention relevant to spaceflight; or/and
(2) Development and validation of ground-based analogs and model, including *in-silico, in-vitro, ex-vivo, in-vivo*, human-subject, and hybrid approaches, that reliably reproduce key in-space hemodynamic conditions and enable investigation of venous thrombus formation and progression.

Deliverables should be appropriate to the proposed area(s) of focus. Pathophysiology proposals should deliver mechanistic characterization data and analyses. Analog proposals should deliver a validated analog protocol, population variability datasets, and characterization reports.

Required Characteristics of a successful proposal:
Proposals must:

- Clearly address at least one of the focus areas listed above.
- Demonstrate relevance to spaceflight-associated VTE risk.
- Utilizes a ground-based research approach.
- Include a sound scientific or technical rationale and a feasible study design.
- Define measurable outcomes and deliverables appropriate to the proposed work.
- For analog-development proposals, include an approach for validation of the proposed analog or model.

Preferred Characteristics of a Successful Proposal

In addition to meeting all required characteristics, proposals are encouraged to:

- Address both focus areas through an integrated approach.
- Utilize existing datasets, biospecimens, or research resources when appropriate.
- Produce data, protocols, or models that can support future research efforts.

Characteristics Likely to Be Declined

Proposals are unlikely to be competitive if they:

- Focus primarily on cardiovascular or vascular biology questions that are not directly related to the in-space VTE.
- Rely on new prospective spaceflight experiments rather than ground-based research approaches.
- Rely on asking for access to NASA data that the proposing team does not already have access to.
- Emphasize descriptive observations without advancing mechanistic understanding or model development.
- Propose analogs or models that do not address the key hemodynamic changes associated with spaceflight, such as venous stasis, retrograde flow, or vessel distention.
- Have limited applicability to future studies of spaceflight-associated VTE risk.

## C. Award Information

Proposals can request up to $500K in total costs (direct + indirect costs) over a performance period of up to 15 months. Awards can begin as early as January 2027 and must be initiated by March 2027. Projects must conclude by March 31, 2028. Selected proposals will be funded as research grants.

## D. Eligibility

All categories of United States (U.S.) institutions and companies are eligible to submit proposals. Principal Investigators (PIs) may collaborate with universities, the private sector, and federal, state, and local government laboratories. In all such arrangements, the applying entity is expected to be responsible for administering the project according to the management approach presented in the proposal. For our policy on international proposers and institutions, please refer to the FAQ and FAR Supplement.

## E. Application and Submission Information

Proposers considering applying must register in the system for award management (SAM) database (www.sam.gov) to ensure ability to receive funds if selected. It is recommended that new registrations on SAM are started as soon as possible (at least 15 business days) in advance of any due dates to allow sufficient time to complete SAM registration before registering in the TRISH Grant Research Integrated Dashboard (GRID - https://spacehealth.bcm.edu/. A Unique Entity Identifier (UEI) will be issued as part of the SAM.gov registration process. An entity must provide its unique entity identifier (UEI) in each application it submits to TRISH.

**Any proposals not submitted through the TRISH GRID and sent directly to TRISH by email, fax, or other means will not be considered.** Format and template will be available on GRID and are detailed below.

## 1. TRISH Proposal Submission Website

**The deadline for proposals submission is August 18, 2026 by 11:59 PM Eastern Time (ET)**. Proposals received after the deadline will not be reviewed.

**To register on TRISH GRID**:

- Go to https://spacehealth.bcm.edu/ and follow these instructions.
- Fill in the requested information and click the "Create Account" button at the bottom of the page.
- Verify your email via the "Send verification link" button at the top right. Email verification is required to submit an application. You will receive an email from noreply@smapply.io to "Confirm Your Email Address." The website will state that your email address has been verified.
- Click the "Continue" button.

**To submit an application:**

- After you have registered and verified your email, login to your GRID account.
- Click "Programs" in the top navigation bar.
- Select "Ground-Based Venous Thromboembolism (VTE) Pathophysiology and Analog Solicitation" and click "Apply."
- Complete the tasks listed under "Your tasks." When all sections are marked as complete, you will be able to review and submit your proposal.

Requests for assistance in accessing and/or using this website may be sent to TRISH's Cosmic Concierge by selecting "Open Solicitation" from the drop-down menu. Any emails from the GRID will come from noreply@smapply.io. Please check your Spam folder if you are not receiving emails from GRID.

## 2. Pre-Proposal Briefing

A pre-proposal virtual briefing will be held on Tuesday, June 30, 2026, at 3:00 PM ET. Please see the link to register for the pre-proposal virtual briefing here.

The pre-proposal briefing will provide interested proposers with the opportunity to ask pre-submitted questions in order to better understand the intent, scope of work, and selection criteria. This meeting will be open to the public and accessible with an internet connection.

## 3. Proposal Requirements

**Proposals that do not conform to these requirements may be declared noncompliant and declined without review.**

a) Application Form

All proposals **must be** in the format given below. Key project information must include:

- Principal investigator (PI)
- Contact information (email, phone, mailing address)
- Proposing institution
- Team members and/or Collaborating Institutions (if any)
- Project title
- Proposed start/end dates

- Authorized organizational representative, with contact information
- Total funds requested
- Cost-sharing

Proposals are prepared by the PI and submitted by the PI or an authorized representative from the PI's institution. TRISH does not require institutional sign-off at the time of proposal submission, but PIs must follow their home organization's institutional policies. **Proposals will not be accepted after the listed due dates.**

b) Project Description

The maximum page limit for the Project Description is 10 pages, using 8 ½ by 11-inch pages, a standard 12-point font and one-inch margins. The page limit for full proposals includes all figures, tables, and charts (references are not included in the page limit). Figure and Table captions can use a 10-point font. Submission of appendices with the proposal is not allowed. Extraneous materials will be redacted and the PI will be notified. **The Project Description should include the following required sections:**

- Background and Proposed Methods: Proposals will fall into one or both of the following categories: pathophysiology and/or analog development. The Background and Proposed Methods section should include details on the proposed approach and its justification within the relevant category. For analog proposals, this should describe how the analog will be achieved and why it recapitulates the retrograde venous flow or stasis characteristic of early spaceflight (for which preliminary data is highly encouraged). For pathophysiology proposals, this should describe the mechanistic questions being addressed and the model system or data source to be used. All proposals should include specific aims, preliminary data demonstrating feasibility, a clear description of methods, and potential challenges with mitigation strategies.
- Timeline and Milestones: Proposers should describe the project timeline along with quarterly milestones.
- Deliverables: Deliverables may include, as applicable: pathophysiological characterization data and analyses; analog development and validation protocols and associated findings; hardware, software, or implementation tools; reports documenting model or analog performance and participant responses; population variability characterization datasets and associated metadata; and a final report summarizing methods, findings, limitations, and recommended next steps.

c) References

References must be included and support the scientific and technical validity of the proposed research (no page limit).

d) Biosketches

PLEASE NOTE that these are new requirements consistent with the NASA GCAM.

The proposal should describe the participants who will have critical management or technical roles including their qualifications, capabilities, and experience. PIs or any Co-I, and any team members who would devote >10% of their time to the proposed work, must provide a biographical sketch or track record. See the "Categories of Proposal Personnel" section on page 25 of the

NASA GCAM for more details on team members. The current biographical sketch form is available on the NASA Grant Operations Management website under "Grant Forms."

e) Description of Institution/Organization, Resources, and Equipment

This section must describe the organization's current activities or projects, relevant partnerships and collaborations, and any features that differentiate the organization. It must also describe any existing facilities and equipment that are required for the proposed project and whether the team already has access or how they plan to gain access (no page limit).

f) Current and Pending Support

PIs must provide all ongoing projects and pending proposals (regardless of salary support) in which they are performing or will perform any part of the work. Co-investigators devoting >10% of their time to the proposed effort must provide ongoing projects and pending proposals (regardless of salary support) that require a significant share (more than 10%) of their time. For those investigators for whom it is required, this section must provide the following for each current and pending project:

- Title of funded project or proposal title;
- Name of PI on award or proposal;
- Program name (if applicable) and sponsoring agency or organization, including a point of contact with their telephone number and email address;
- Performance period;
- Total amount received by that investigator (including indirect costs) or the amount per year if uniform (*e.g.*, $50K/year); and
- Time commitment by the investigator for each year of the period of performance.

There is no page limit for this section. The proposing PI must notify TRISH (https://trish.my.site.com/s/concierge) immediately of any successful proposals that are awarded for substantially the same research as proposed from any time after the proposal due date and until the time that selections are announced.

g) Management Approach

The management structure for the proposal personnel should be provided. In particular, plans for distribution of responsibilities and arrangements for ensuring a coordinated effort should be described. The plan should include:

- A project schedule that identifies anticipated key milestones for accomplishments and dependencies between tasks;
- The management structure for the proposal personnel;
- Any substantial collaboration(s);
- Any proposed use of consultant(s); and
- A description of the expected contribution to the proposed effort, by task and sub-task, by the PI and each person identified in one of the additional categories.

h) Data Management Plan

Each proposal must include a Data Management Plan (DMP) including a Software Sharing Plan (if appropriate) that describes how data generated by the proposed research will be shared and preserved as well as how data collected will be made available to the public, in a reusable de-

identified format, on completion of experiments. The DMP should include justification if data sharing or preservation is not appropriate or possible. DMPs must provide a plan for making all research data underlying results and findings in publications digitally accessible at the time of publication. DMPs are expected to include publication in peer-reviewed journals as well as plans to deposit study data in NASA data archives, as requested. The DMP is limited to 2 pages and proposers must use the template provided.

TRISH has plans to store research-related data sets, and these data sets must be stored in a secure manner and for potential delivery of TRISH products to NASA. The data and information obtained from this program will be used to generate a knowledge base that will inform a unified human physiologic response to risks in spaceflight. Participation in the sharing of data will be expected from awardees.

Applicants must commit to sharing and making protocols and methodologies, data, biomaterials, models, reagents, tools, and resources available to TRISH as appropriate and consistent with achieving the goals of the program. Adjustments for coordination of research plans, validation of models, materials, methods, and data; and sharing with the research community will be established by TRISH and applicable NASA policies.

i) Statistical Approach

A thorough one-page statistical section must be included which includes a power analysis for the estimate of sample size. If a statistical section is not applicable, a justification statement must be included. Please see the Guidelines for Statistical Evaluation of NASA Human Research Studies posted alongside this document for additional information concerning sample size calculations.

j) Budget Form and Budget Justification

**Please fill out the TRISH budget form posted alongside the RFP.**

The proposal budget is made up of two parts: the budget details and the budget justification. Each proposal shall provide a proposal budget for the proposed effort that is supported by an appropriate budget justification. There must be a direct parallel between the items described in the budget justification (*e.g.*, written description of planned purchase), those given in the budget details (actual estimates of costs, in whole dollars, for the purchase) and the figures entered in the proposal cover page and TRISH GRID forms. The budget details are the actual or estimated costs, in whole dollars, that correspond with the budget narrative. In this section, the proposer must break out the costs, as needed, for the items listed in the general budget found on the proposal cover page. Cost sharing of 10% is expected to be included.

The proposer must break out the cost for each team member's efforts individually.

- All proposers are required to submit a thoroughly detailed cost breakdown.
- All proposed costs must be directly related to the proposed project and scope of work.
- All proposed costs must be allowable, allocable, and reasonable.

The budget justification must **not** include any information that belongs in the Project Description. It must:

- Cite the basis of estimate and rationale for each proposed component of cost, including direct labor, subcontracts/subawards, consultants, other direct costs (including travel), and facilities and equipment;
- Include costs to travel to annual NASA Human Research Program Investigators Workshop for each year.

The Budget and Budget Justification section length is as needed to properly understand the expected costs for the funded work.

TRISH awards are total costs (direct + indirect costs). TRISH caps indirect rates at negotiated federal rates.
A minimum of 10% cost sharing is required on all TRISH award amounts (direct and indirect costs). Cost sharing may be contributed in cash or in-kind (non-cash contributions) provided by non-Federal third parties. The 10% cost-sharing minimum must be added on top of the budget per year. Please refer to the FAQ for more details.

Do **not** include cost-sharing amounts in the TRISH Budget Form. Amounts (direct and indirect costs) entered in the budget should only be costs requested from the TRISH-funded award amount. The sample cost table (see example below) is a required element of the budget justification section. Details on how cost-sharing will be achieved are not required at the time of proposal submission.

**Cost Table**

| | |
|---|---|
| **Total Amount Requested from TRISH for Year 1 (direct and indirect costs)** | $500,000 |
| **Total Anticipated Cost-share for Year 1 (at least 10%; see above for examples;)** | $50,000 |
| **Total Value for Year 1 (sum of the two rows above)** | $550,000 |

Example of sample cost table

k) Letters of Collaboration and Resource Support

Every person who is expected to have a significant role (*i.e.*, assigned responsibilities appropriate to a defined category of personnel), regardless of their organizational affiliation, in the execution of the proposed effort, or who will be receiving payment for their contributions, should be identified by being added as a Collaborator on the proposal.

In GRID, PIs should click on the “Add Collaborator” button on the application’s first page. Adding a collaborator within the GRID application will generate an invitation to the individual who has been identified, facilitating account creation in GRID. Creation and verification of a GRID account from this email invitation will indicate collaborator acceptance.

Letters of resource support are only required if there is a facility or resource essential to the proposal not under the control of a Proposal Team member. Submitting the statement of commitment, the team member confirms that any facilities or resources needed for the proposal are readily available for the proposal team members(s) requiring its use. Appropriate institutional commitment to the program includes the provision of adequate staff, facilities, and educational resources that can contribute to the planned program.

TRISH funding through this TRISH Research Announcement may not be used to support research efforts by non-U.S. organizations at any level; however, the direct purchase of supplies and/or services that do not constitute research from non-U.S. sources by U.S. award recipients is permitted. Additional information on international participation can be referenced in the NASA FAR Supplement. If the proposal involves a non-U.S. organization, signed letter(s) of certification must be included that verifies that funding for their portion of the project will be provided by a responsible organization(s) or government agency(ies) should the proposal be selected by TRISH. Letters must be signed by an official at the organization or agency authorized to make such a commitment.

l) Special Matters (specific information on human subjects protocol approval, if applicable)
**For proposals using human subjects and/or animals, assurance of compliance with human subjects and/or animal care and use provisions is required.**

TRISH utilizes just-in-time practices for approval of the use of human subjects or animals. For proposals employing human subjects and/or animals, assurance of compliance with human subjects and/or animal care and use provisions is required within 90 days of notice of award. For such proposals, please state whether for the Institutional Review Board (IRB)/Animal Care and Use Committee (IACUC) is "pending," "approved," or explain why it is not required. If the IRB/IACUC certification is already approved at proposal submission, attach a copy of the certification as part of the proposal upload. This will not be considered part of the Project Description.

After award, a statement must be provided to TRISH from the proposing institution that identifies the selected proposal by name and certifies that the proposed work will meet all federal and local requirements for human subjects and/or animal care and use. This includes relevant documentation of IRB approval and/or approval by the IACUC.
TRISH will require current IRB or IACUC certification prior to each year's award, including commencement of the first year of funding.

Policies for the protection of human subjects in NASA-sponsored research projects are described in the NASA Policy Directive (NPD) 7100.8G "Protection of Human Research Subjects".

Animal use and care requirements are described in 14 CFR 1232 and NASA Procedural Requirements (NPR) 8910.1D "Care and Use of Animals".

**TRISH will require current IRB and IACUC certification prior to each year's start date of award.**

Each response to this solicitation that requires Vertebrate Animals and/or higher order Cephalopods Section (VACS) must address the five points outlined in the VACS instructional document posted alongside this document. This response should be presented as part of the main proposal upload and is limited to two pages. These two pages are not considered part of the project description. A sample VACS is provided in the VACS instructional document posted alongside this document.

m) Instructions for Preparation of Proposals

| Section | Required? | Page Limit | Location |
|---|---|---|---|
| Table of Contents | Optional | As needed | |
| Project Description | Yes | 10 pages | E.3.b |
| References and Citations | Yes | As needed | E.3.c |
| Biosketches | Yes | As needed | E.3.d |
| Description of Institution/Organization, Resources, and Equipment | Yes | As needed | E.3.e |
| Current and Pending Support | Yes | As needed | E.3.f |
| Management Approach | Yes | As needed | E.3.g |
| Data Management Plan | Yes (including Software Sharing Plan if experiment produces any software or code, including high-level languages) | 2 pages | E.3.h |
| Statistical Approach | Yes | 1 | E.3.i |
| Budget Form and Budget Justification | Yes | As needed | E.3.j |
| Letters of Collaboration and Resource Support | Yes, if resources or facilities are not directly under PI control | As needed | E.3.k |
| Animal Care or Human Subjects certifications | Yes, if applicable/available | As needed | E.3.l |
| Vertebrate Animals and/or higher order Cephalopods Section | Yes, if applicable | 2 | E.3.l |

Instructions for Preparation of Proposals

# F. Review and Selection

### 1. Compliance Matrix

All proposals must comply with the general requirements described below. Upon receipt, proposals will be reviewed for compliance with these requirements including:

- **Proposals will not be accepted after the due dates and times listed in this RFP.**
- The proposal project description must be no more than 10 pages in length (including all tables and figures).
- Submission of an appropriate and justified budget including the cost-sharing table on the first page of the budget justification section. The total for a funding period requested from TRISH should not exceed the total described in this document.
- A description that provides track record of delivering research products and outcomes from previously supported research.
- Submission of all other appropriate information as required in this document.

***Note: At TRISH's discretion, non-compliant proposals may be withdrawn from the review process and declined without further review.*** Excess material beyond the page limits specified in this document will be redacted and the PI notified. Compliant proposals submitted in response to this RFP will undergo an intrinsic scientific or technical merit review. Only those proposals most highly rated in the merit review process will undergo additional reviews for programmatic alignment and cost; however, at the TRISH science management's discretion, proposals with lower scores may also undergo additional reviews if they can be re-scoped and meet specific programmatic needs.

### 2. TRISH Initial Screening

All compliant proposals will be initially screened by the TRISH Science Office for availability of funds, programmatic relevance, and compliance with this RFP for the following attributes:

- Alignment to the topic;
- Inclusion of preliminary data to support the use of the method;
- Appropriateness of budget, timeline, and technical feasibility;
- Alignment of the proposed method with the TRISH mission; and
- Eligibility for federal funding support (see Eligibility Criteria for details).

For proposals declined during initial review the proposer will receive a notification by email indicating the proposal is not going to be reviewed.

### 3. Scientific and Programmatic Review

Proposals that are within scope of the TRISH mission and have programmatic relevance will be considered for technical and scientific merit review. It is the policy of TRISH to ensure impartial, equitable, and comprehensive proposal evaluations based on the evaluation criteria for scientific and technical merit, potential contribution, relevance to TRISH mission, and cost.

The overall evaluation process for proposals submitted in response to this RFP will include a First-Tier scientific merit review and a Second-Tier programmatic alignment and operational relevance review. The **First-Tier Review** will be a merit review conducted by a panel composed of scientific or technical subject matter experts. Proposals that are highly rated in the merit review process will undergo a **Second-Tier Review** for programmatic alignment and operational alignment. The Second-Tier review will be conducted by TRISH science management and overseen by TRISH's Scientific Research Director.

**All of the following criteria will be used in determining the merit score:**

**Significance:** Does the proposed analysis method meet the specific needs outlined in the RFP? Does it fit with TRISH's overall mission and goals? Does the proposal provide sufficient justification for the proposed approach, whether pathophysiology and/or analog development?

**Innovation:** Does the study include ideas or hypotheses that, if successful, would lead to knowledge regarding VTE pathophysiology in spaceflight-relevant conditions? Is the study likely to result in meaningful advances in mechanistic understanding or improved characterization of spaceflight-associated hemodynamic changes?

**Approach:** Does the proposed approach have the potential to meet the needs specified in the RFP? For analog proposals, is the proposed approach likely to recapitulate the retrograde venous flow or stasis changes observed in spaceflight? For pathophysiology proposals, is the model system, data source, or testing methodology well-justified and likely to yield interpretable results? Is the proposed approach likely to achieve its stated objectives within the proposed timeline? Where applicable, is the proposed approach likely to characterize changes in venous flow across a sufficient subset of the population to inform on anatomical variability? Does the proposed approach address potential problems and alternative solutions? Is preliminary data or evidence provided?

**Deliverables and Value:** Are the deliverables well-defined and aligned with TRISH's requested deliverables? Are there appropriate milestones that ensure timely completion?

**Proposing Team and Management:**
Have the proposing company or institution and individuals assigned to the effort demonstrated experience in completing similar projects on time and within budget?

**Non-merit:** Is the budget appropriate? Is the vertebrate animal and higher order cephalopod section (if corrections would not significantly affect the experimental design) appropriate? Are the plans for data management acceptable?

### 4. Selection

Award(s) will be made to proposers whose proposals are determined to be the most programmatically relevant to TRISH, as determined through internal and/or external review and consistent with instructions and evaluation criteria specified in this document, and availability of funding. Proposals may be partially funded. Proposers may be asked to modify sections of the research plan based on the review process, or to work with other experts to ensure the feasibility of the project.

## G. Award Information

### 1. Availability of Funds for Award

TRISH's obligation to make awards is contingent upon the availability of funds from which payment can be made and the receipt of proposals that are deemed acceptable for award in response to this RFP. It is possible that no award will be made; it is also possible that multiple awards may be awarded. Proposals may also be partially funded.

### 2. Award Notices

At the end of the selection process, each proposing organization will be notified of its selection or non-selection status. Selection notification will be made by a letter signed by the TRISH Selection Official. **Selection letters are not an authorization to begin performance**. The selected organization's business office will be contacted by a TRISH representative to negotiate an award. Any costs incurred by the investigator in anticipation of an award are at their own risk until contacted by TRISH. TRISH will determine the type of award instrument, request further business data, and negotiate the resultant action. TRISH awards will be issued and funded by TRISH.

TRISH reserves the right to offer selection of only a portion of a proposal. In these instances, the investigator will be given the opportunity to accept or decline the award.
Once an award is made, TRISH typically directly funds each collaborating institution participating in a joint project, as opposed to sending all funds through a prime awardee. Separate budgets will then be required from each participating institution.

Award recipients will be reimbursed for expenses incurred during the performance period. TRISH may, at its sole discretion, withhold payment of any expenditure that appears questionable or for which additional information or support is required. Final invoices will not be paid until the final annual project report has been submitted, reviewed by the institute's science management and deemed acceptable to TRISH in its sole discretion.

### 3. Administrative and National Policy Requirements

All grant awards are subject to the provisions detailed in 2 CFR Parts 200 and 1800 (*i.e.*, for higher education, hospital, and non-profit entities) and 14 CFR 1274 (*i.e.*, for commercial firms).

### 4. Investigator Requirements

Awarded PIs will be expected to follow a number of reporting procedures, as delineated below:

a) Publications

For TRISH funded research, please clearly identify support received from TRISH in all publications, invention disclosures, copyrights, and patents, using the following phrase: "This work is supported by the Translational Research Institute for Space Health through NASA Cooperative Agreement NNX16AO69A."

b) Intellectual Property (IP) Reporting

Institutions awarded TRISH funding must report each invention disclosure or patent application resulting from their TRISH research grant to **both** TRISH and NASA within 60 days of investigator disclosure to the home institution.

For NASA: Both the electronic and paper version of the NASA Form 1679 may be accessed at the electronic New Technology Reporting website at http://invention.nasa.gov. In the field designating contract number, please cite NNX16AO69A. See 2 CFR 1800.908 and 14 CFR 401.14 for additional information.

For TRISH: In addition to reporting on intellectual property on the annual project report, please also send copies of the institutional invention disclosure AND NASA Form 1679 or the summary from the online disclosure at NASA's New Technology Reporting System via email to spacehealth-info@bcm.edu.

c) Deliverables

Award recipients shall provide the specific deliverables proposed and accepted at the time of award, in accordance with the approved scope of work, project timeline, and milestones. Deliverables must be tangible products that demonstrate project progress and outcomes and may include, as applicable, pathophysiological characterization data and analyses; analog development and validation protocols; hardware, software, or implementation tools; reports documenting model or analog performance and participant responses; datasets and associated

metadata; results from population variability characterization. Awardees shall provide protocols, methodologies, data, models, reagents, tools, resources, and related materials to TRISH as appropriate and consistent with the approved Data Management Plan and applicable TRISH and NASA policies.

d) Final Report

A final report must be provided to TRISH at the end of the funding period, including a detailed listing of all peer-reviewed publications and IP. The final report is a requirement for eligibility for future TRISH solicitations as well as for the payment of final invoices.

The information in the final report will consist primarily of:

1. A statement of the specific objectives;
2. The significance of the work;
3. The background;
4. An overall progress during the performance period;
5. A narrative discussion of technical approaches, including problems encountered;
6. The accomplishments and impacts related to approach, including any quantitative and qualitative metrics collected; and
7. An appendix with bibliography, copies of all publications and reports, and intellectual property disclosures. Any publications or other public materials containing data are particularly important to include in this section.

TRISH encourages interface between the awardee and TRISH to ensure timely completion of the work, as needed. TRISH reserves the right to terminate projects deemed to have missed key aims, deliverables, timelines after TRISH review, as per NASA regulations, Section § 1260.161. **Resolution of concerns during the pre-award and post-award phases is under the purview of the TRISH Science Office at https://trish.my.site.com/s/concierge.**

## H. Section VII. Summary of Key Information

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|---|---|
| Review considerations | TRISH will consider competitive and efficient cost during programmatic review. |
| Duration | Up to 15 months |
| Last day for submission of proposals | August 18, 2026 at 11:59 pm ET |
| Selection Announcement | December 2026 |
| Submission Medium | Electronic proposal submission through the TRISH GRID is required. |
| Web site for submission of proposal via TRISH GRID | https://spacehealth.bcm.edu/ |
| TRISH point of contact concerning this call for proposals | Contact TRISH's Deputy Director, Chief Engineer, Jimmy Wu, by selecting "Open Solicitation" from the drop-down menu at TRISH's Cosmic Concierge website: https://trish.my.site.com/s/concierge |