



USC University of Southern California

RESEARCH AND INNOVATION

Request For Proposals – Special Solicitation Alternative Methods to Animal Research Award

FUNDING ORGANIZATION	USC Research and Innovation (R&I)
APPLICATION DEADLINE	5 PM Pacific Time on September 11, 2023. Proposals submitted after this deadline will be rejected without review. When a due date falls on a weekend, federal holiday, or when USC offices are closed due to weather or other circumstances, the application deadline is automatically extended to the next business day.
SCIENTIFIC MERIT REVIEW	September - October
PROGRAMMATIC REVIEW	October – November
NOTIFICATION	November
EARLIEST AWARD DATE	December
EARLIEST START DATE	December 1
AWARD PROJECT PERIOD	Maximum project period is one year
FUNDS AVAILABLE	\$250,000 This is a one-time solicitation and subject to the availability of funds, terms and conditions, cost principles, and other considerations.
ANTICIPATED AWARDS	1-2 The number of awards is contingent upon the receipt of a sufficient number of meritorious applications.

BACKGROUND

The USC Research and Innovation (R&I) Alternative Methods to Animal Research Award supports innovative, interdisciplinary, collaborative research that involves faculty groups across USC schools to develop alternative methods to animal testing, based on the concept of the “3Rs” (Replace, Reduce, and Refine).

We encourage applicants to visit the National Institute of Environmental Health Sciences [Alternatives to Animal Testing website](#), as well as the [National Toxicology Program \(NTP\) Test Method Evaluations](#) for recommendations on test methods accepted by the [Interagency Coordinating Committee on the Validation of Alternative Methods \(ICCVAM\)](#) and U.S. and international regulatory authorities. The ICCVAM is focused on the development and evaluation of

alternatives to animal use for chemical safety testing and provides guidance to evaluate new methods and approaches, develop tools, and compile reference data for use by test method developers. The NTP Interagency Center for the Evaluation of Alternative Toxicological Methods (NICEATM) supports the [Interagency Coordinating Committee on the Validation of Alternative Methods \(ICCVAM\)](#), which evaluates and prepares recommendations on test methods proposed for regulatory use.

[Test methods](#) recommended by ICCVAM and accepted by U.S. and international regulatory authorities include ways to assess hazards for eye and skin irritation, acute toxicity, and skin sensitization.

OPPORTUNITY

The R&I Alternative Methods to Animal Research Award supports research projects that promote the development, validation, and adoption of non-animal methods in biomedical research, product testing, and education, among other fields. Examples of projects that would align with the objectives of this program include, but are not limited to: testing cells and tissues in test tubes or cell cultures; 3D tissue culture, also referred to as organs-on-a-chip; computational and mathematical models; stem cell research; or non-invasive diagnostic imaging. Successful applicants are strongly encouraged to develop novel methodologies and technologies that can be used as a complementary approach to ensure rigorous and reproducible research outcomes.

To be considered for this award, applications must (a) provide a realistic plan for sustained funding or support beyond the end of the award (see Funding Targets and Return of Investment sections below) and (b) commit to applying to a specific externally-funded grant.

FOCUS

The concept of **replacing, reducing, or refining** animal use in research and testing was first described more than 60 years ago and is commonly referred to as the 3Rs:

- i Replacing: A test method that substitutes traditional animal models with non-animal systems such as computer models, biochemical, or cell-based systems, or replaces one animal species with a less developed one (for example, replacing a mouse with a worm).
- ii Reducing: A test method that decreases the number of animals required for testing to a minimum while still achieving testing objectives.
- iii Refining: A test method that eliminates pain or distress in animals, or enhances animal well-being, such as by providing better housing or enrichment.

For the purpose of this Request for Proposals, the R&I Alternative Methods to Animal Research Award is limited to and specifically focused on methods **(i) that fully or partially replace or substitute traditional animal testing models with non-animal systems, and/or (ii) that reduce the number of animals required for testing while still achieving testing objectives.**

Applications that are responsive to this funding opportunity will propose methodologies aligning with one or both of these areas of focus. Applications may also include methods that explore the “refining” concept and replacing one animal species with a less developed species, provided that they also focus on (i) and/or (ii) above.

FUNDING TARGETS

Applicants who apply to this program are required to identify an external, federally funded opportunity to which they intend to apply to in the future if funded by the R&I Alternative Methods

to Animal Research Award. Funding targets may include the National Institutes of Health (NIH) and the Environmental Protection Agency (EPA), among others. Funding targets may also include other external sponsors. Examples of active federal funding opportunities that would be ideal future targets for recipients of this award include:

- NIH R01 – Cancer Tissue Engineering Collaborative: Enabling Biomimetic Tissue-Engineered Technologies for Cancer Research (<https://grants.nih.gov/grants/guide/pa-files/PAR-22-099.html>)
- NIH R41/R42 – Novel Tools and Devices for Animal Research Facilities and to Support Care of Animal Models (<https://grants.nih.gov/grants/guide/pa-files/PAR-21-226.html>)
- NIH R01 – Development of Resources and Technologies for Enhancing Rigor, Reproducibility, and Translatability of Animal Models in Biomedical Research (<https://grants.nih.gov/grants/guide/pa-files/PAR-23-040.html>)

RETURN ON INVESTMENT

It is expected that projects funded will yield a return on investment of at least 10 times the funding received for an application submitted to this Request for Proposals. This will be determined by considering the magnitude of future funding awarded by federal agencies or other external sponsors that was enabled by the inclusion of preliminary data and publications generated through this award. A return on investment also may be provided by future revenue from the commercial licensing of intellectual property (IP).

RESEARCH & INNOVATION RESOURCES

Applicants selected for funding are strongly encouraged to contact Research Strategy & Development (RSD), a Research and Innovation suboffice dedicated to supporting faculty in the preparation of competitive applications to federal funding agencies. RSD has considerable experience in generating and submitting institutional proposals to the NIH. RSD services include science writing, budget preparation, and supporting documentation collection. Contact RSD for assistance by sending an email to robyngil@usc.edu.

ELIGIBILITY REQUIREMENTS

Tenured, tenure-track or RTPC (non-tenure track) faculty of any rank are eligible. Visiting and adjunct faculty are not eligible to apply. Among eligible faculty, the potential for future external funding is an important consideration in making awards, with priority given to awards that make an appreciable difference in faculty research potential.

Proposals must designate a team that includes one Principal Investigator (PI) and at least one co-Principal Investigator; at least two separate schools within USC must be represented between the primary appointments of the PI and Co-PI. Faculty teams are strongly encouraged to include at least one Assistant Professor. Applications should also specifically describe the involvement of other faculty or key personnel who have agreed to participate in the project.

To encourage research sustainability, the teams are expected to provide specific external funding targets for continuing the research beyond the end of the award, including the funder, program name, and application/proposal submission dates.

PROPOSAL REQUIREMENTS

Applicants must carefully follow instructions. Information uploaded beyond what is requested will not be included in the proposal package provided to reviewers.

- a) **Brief Description** (not to exceed 60 words) A succinct description of the proposed work.
- b) **Abstract** (not to exceed 20 lines of text) A stand-alone succinct description of the proposed work.
- c) **Program Plan:** (not to exceed 5 pages): Page limits are inclusive of figures and tables and include 1” margins of single-spaced text in 11-point standard font (Arial, Times New Roman, etc). The following headers should be included:
 - a. **Introduction:** Provide a brief background and the specific aims of the project. Explain the project’s specific innovations and significance for improving the treatment and diagnosis of the targeted disease.
 - b. **Scientific Expertise:** Provide the qualifications of the research team for the proposed work and describe how the skills of the PI team complement each other to achieve the project aims. Describe how the project will be organized and the contributions of each participant. Proposals should include a discussion of the PD(s)/PI(s) past and current funding history. Discuss why the proposal team would be successful in pursuing this opportunity, and how the research expertise of the PD(s)/PI(s) will be integrated through the proposed project.
 - c. **Methodology:** Present the technical approach that will be followed in the project, including any aspects of experimental design.
 - i. **Toxicology:** If the focus of the proposed research is the development and evaluation of alternatives to animal use for chemical safety testing, as defined by the National Toxicology Program (NTP) Interagency Center for the Evaluation of Alternative Toxicological Methods (NICEATM), identify the [Alternative Methods Accepted by US Agencies](#) to be used.
 - 1. **Test Methods:** Identify the test method to be used, as defined by the NICEATM [Test Method Evaluations](#).
 - d. **Outcomes:** Describe the expected outcomes from the research funded under the award. Importantly, explain how the project and its findings will help undeveloped areas of USC’s interdisciplinary strengths and present new opportunities for cross-school collaboration.
 - e. **Sustainability of the Research with External Funding:** Describe how this grant will help to secure subsequent external funding. Describe specific funding sources and timelines for planned external proposals.
- d) **Budget and Budget Justification** (not to exceed 2 pages): Specify a project start and end date. Utilize standard budget categories, only including the allowable budget cost categories as detailed in the **Grant Conditions** section below.
- e) **Return on Investment** (not to exceed 1 page): Identify a federal agency Funding Target (including URL), of at least 10x the funds requested under this RFP. For example, proposals requesting \$60,000 in funding from this opportunity would need to identify an NIH grant that will generate a cumulative award of \$600,000 or more (this includes total costs summed over all award years).
- f) **Grant Submission Commitment:** The proposal must include a statement in which the applicant commits to submit a proposal to the opportunity identified as the Funding Target.
- g) **Innovation Ecosystem Commitment** (not to exceed 1 page): USC Research and Innovation is committed to establishing a thriving innovation ecosystem at USC that will build

collaborations between USC researchers and venture capital firms, accelerators, incubators, small and large businesses, and foundations. R&I is working closely with USC University Advancement to develop these partnerships. The proposal must include a statement in which the applicant commits to contacting USC University Advancement at hpourman@usc.edu to discuss the potential for obtaining funding for research from venture capital firms, accelerators, incubators, small and large businesses, and foundations that are part of USC's developing innovation ecosystem that may arise from the research activities funded under this award. It is expected that such funding ultimately will lead to the commercial licensing of IP.

- h) **Active Funding:** List all sources of active internal and external support awarded during the past five years, current or pending, for the PD(s)/PI(s) and key personnel. For each source, specify who on this proposal was involved, their role on the project, title of the award, period, award amount, and sponsor (including subagency).
- i) **Letter(s) of Support:** Provide letters of support from a USC school and department head.
- j) **Scientific References** (not to exceed one page): This includes citations listed in the narrative.
- k) **Curriculum Vitae** (not to exceed 5 pages per PD(s)/PI(s)/key mentor): Applicants may use any standardized CV format (e.g., NIH Biographical Sketch, NSF Biographical Sketch, etc.).

GRANT CONDITIONS

R&I's awards and grants programs are administered by the Research Initiatives and Infrastructure (RII) office.

- If a faculty has an industry relationship, an approved management plan must be in place prior to receipt of award (<https://disclose.usc.edu>). Teams that will form a startup should anticipate submitting a conflict of interest disclosure. Questions regarding conflict of interest and disclosures can be directed to Ben Bell in the Office of Compliance (benjamab@usc.edu).
- At the time of being notified by RII that an award will be made and as a condition of funding, awardees will provide to RII the name, title, and email address of a USC senior business official who will establish an internal funding account in which R&I funds for the award will be transferred.
- Within one month of being notified by RII that an award will be made and as a condition of funding, awardees will provide RII with an account number and enable view access for the account, such that RII staff will be able to view the account balance. If this information is not provided to RII within this timeframe, RII may elect to rescind the award and use the funds to make an award to another applicant.
- Awardees commit to submitting a future application or applications to a funding opportunity (Funding Target) sponsored by a federal agency.
- Prior to release of funds, all awardees will attend an in-person ceremony with Research & Innovation leadership.
- Failure to spend at least half of the awarded funds within six months of the project start date may result in the suspension of the remaining funds.
- The Alternative Methods to Animal Research Award is not intended to duplicate currently funded efforts or to provide interim bridge funding.
- This award will not provide financial support beyond the duration of the award and does not carry the opportunity for renewal.

- Awardees have 12 months from the date funds are received to complete projects. Funds not expended by that time are returned to R&I to support other Alternative Methods to Animal Research Awards.
- Awardees have discretion in the budgeting and re-budgeting of funds to meet their research needs within the guidelines of the fund and the terms of the proposal. However, funds may not be transferred to another project or other researchers or institutions.
- Awards include fringe benefits but are not assessed Facilities & Administration Costs (formerly known as Indirect Costs).
- Allowable budget expenses:
 - Postdocs/graduate/undergraduate student RAs/administrative personnel salary and fringe, excluding funding student tuition and other student-related fees
 - Materials and Supplies
 - Research expenses related to data acquisition, including research participant incentives, and use of core or shared resource facilities.
 - Other expenses (equipment purchases require pre-approval)
- Non-allowable budget expenses:
 - Faculty salary and fringe
 - Student tuition and other student fees (such as health insurance).
 - Travel
 - Consultants
 - Subcontracts
- All USC rules, concerning conflict of interest, human subject research, animal research, etc., apply to projects funded under this program. Funding only will be provided following confirmation that all pertinent reviews have been submitted for approval by relevant committees (e.g., IRB, IACUC).

SCIENTIFIC REVIEW CRITERIA

Applications will be reviewed by a standing committee of researchers with expertise in the research focus area. Review criteria will be based on the following:

1. *Research Focus*: The significance of the proposed scientific research; the originality of the proposed scientific research; the potential to make a measurable impact in advancing research to develop alternative methods to animal research.
2. *Scientific Expertise*: Applicants describes their relevant and necessary experience in research and administrative duties in direct relevance to the research focus area and regarding potentially leading to future research support and the development of commercialized products.
3. *Impact*: The potential to make a measurable impact in advancing research to develop alternative methods to animal research.
4. *Funding Target and Potential for Future Funding*: The application identifies an appropriate federal agency Funding Target and a realistic plan for sustained funding or support beyond the end of the award. A Funding Target expecting to yield a return on investment of at least 10x the funding requested has been specified, and this is an appropriate and realistic Funding

Target based on the PD(s)/PI(s)/key personnel's expertise and funding history with the specific subagency sponsoring the Funding Target.

5. *Budget*: Reviewers will consider whether the budget and the requested period of support are fully justified and reasonable in relation to the proposed activities.

PROGRAMMATIC REVIEW

We will incorporate aspects of existing policies and procedures regarding funding decisions that are utilized by major federal funding agencies like NSF and NIH, i.e., proposals will be subject to scientific peer review and programmatic review. Programmatic review assures maximum efficiency for funding awards and strategic alignment with this program's and the university's strategic research priorities. While financial support may be obtained from any external sponsor, proposals that target federal funding agencies are of greatest interest.

Ultimate funding decisions will be made based on both scientific peer and programmatic reviews.

DIVERSITY, EQUITY, AND INCLUSION

Research and Innovation and RII strongly support a culture of diversity, equity, and inclusion. Proposals should incorporate meaningful DEI practices across the project team and proposed activities. This will be a consideration during the programmatic review.

REPORTING AND ACKNOWLEDGEMENT OF SUPPORT

Awardees will be required to submit a one-page progress report, which will be due six months into the project period and at the point of project period completion. This report must detail scientific, financial, and research performance over the preceding months. All publications arising from the must acknowledge the *USC Research and Innovation Alternative Methods to Animal Research Award*.

PROPOSAL SUBMISSION

Submit your proposal application utilizing the RII application submission and reporting portal. Go to <https://rii.usc.edu/funding/oor-portal/> to log in or create an account using your USC email address.

FURTHER INFORMATION AND PROGRAM CONTACT INFORMATION

We encourage inquiries to RII concerning this funding opportunity and welcome the opportunity to answer questions from potential applicants. For additional information or inquiries, please send an email to rii@usc.edu with "Alternative Methods to Animal Research Award" in the subject line.

APPLICATION CHECKLIST

- | | |
|---|--|
| <input type="checkbox"/> Brief Description | <input type="checkbox"/> Budget and Budget Justification |
| <input type="checkbox"/> Abstract | <input type="checkbox"/> Return on Investment |
| <input type="checkbox"/> Program Plan | <input type="checkbox"/> Grant Submission Commitment |
| <input type="radio"/> Introduction | <input type="checkbox"/> Innovation Ecosystem Commitment |
| <input type="radio"/> Scientific Expertise | <input type="checkbox"/> Active Funding |
| <input type="radio"/> Methodology | <input type="checkbox"/> Letter(s) of Support |
| <input type="radio"/> Outcomes | <input type="checkbox"/> Scientific References |
| <input type="radio"/> Sustainability of the Research
with External Funding | <input type="checkbox"/> Curriculum Vita |

FREQUENTLY ASKED QUESTIONS

Q1: Can I request all the available funding, or should I ask for an average amount based on the number of anticipated awards and the funding? Could you fund more or less than the anticipated awards?

A1: The budget you submit will be subject to both a scientific peer and programmatic review. You are expected to provide a scientific justification for whatever budget that you request. We have deliberately avoided giving more specific advice or guidelines on the budget, to promote maximum flexibility, creativity, and innovation in submitted proposals. For these reasons, the number of anticipated awards is meant to be a general estimate to give applicants some sense of the scope of work. It is certainly the case that we could receive more (or fewer) applications than are specified; in addition, anticipated funding may be increased (or decreased) depending on the availability of funding and other factors.

Q2: If my proposal is selected for funding, will I automatically receive my requested amount?

A2: Not necessarily. The budget is subject to scientific peer and programmatic review, and a recommended award may be for less than what was requested.

Q3: I am dissatisfied with my review. Can I rebut the review and get a new one?

A3: RII goes to considerable effort to ensure that the scientific peer review is fair and impartial. Constituting review committees and organizing reviews takes considerable time and effort. Thus, RII does not have the resources or a mechanism to re-review proposals. Thus, the results of the scientific peer review are final.