

Merck Research Laboratories

SSF Emerging Discovery Science (SEEDS) Program

Bringing together the most promising academic research with Merck R&D capabilities to validate and advance emerging therapeutic targets, pathways and technologies that show potential relevance to treat human disease.

About Us

Merck Research Laboratories (MRL), the arm of Merck & Co., Inc. focused on discovering and developing therapies to improve patients' lives, has expanded its discovery capabilities in South San Francisco (SSF) by opening a new, cutting-edge research facility.

The new nine-story, multi-disciplinary discovery research hub, accommodates more than 350 scientists and support research spanning exploratory biology through early clinical development. The building was custom designed with an open atmosphere that encourages collaboration and teamwork. The site also boasts a large auditorium to provide space for nearby academics, scientists and entrepreneurs to convene and engage in scientific dialogue.

About the MRL SEEDS Program

The MRL SEEDS program is a MRL SSF initiative seeking research collaborations with academic researchers to advance the most innovative discoveries for therapeutic targets, pathways and technologies.

The MRL SEEDS program launched in 2020 with the selection of research collaborations with three San Francisco Bay Area universities: **Stanford University, the University of California, Berkeley and the University of California, San Francisco**. New for 2022, we are excited to announce we are expanding the program to Southern California to include **the University of California, Los Angeles and the University of California, San Diego**. The MRL SEEDS program and subsequent collaborations underscore the importance of industry and academic interactions in the early discovery space.

As a first step in a potential collaboration, ideas for proposed projects should be submitted for evaluation by the MRL SEEDS Scientific Review Committee (SRC) comprised of MRL Scientists. Ideas are to be submitted in the form of a brief **non-confidential pre-proposal form by June 17, 2022**. Pre-proposals will be evaluated for selection for full proposal development as a 1-year pilot program (up to \$125,000 USD in direct costs plus institutional indirect costs) based on recommendations by MRL SEEDS SRC. 1-year pilot programs have the potential opportunity for extension at the discretion of the MRL SEEDS program SRC.

At the discretion of Merck, MRL Scientists will work closely with investigators to make available relevant capabilities and technologies that will enhance the success of the joint research program. As part of the full proposal development process, scientists from MRL will engage with lead investigators to ensure expertise and capabilities of both parties are incorporated into the project plan as applicable.

To define the current research areas of interest and/or specific challenges to address, Merck has published 3 Active Requests for Proposals (RFPs) in Section 3 of this document.

MRL SEEDS Research Project Proposals

Who can apply?

MRL SEEDS program RFPs are open to researchers at the following universities collocated in California with our MRL SSF Discovery Hub: **Stanford University, the University of California, Berkeley, the University of California, San Francisco, the University of California, Los Angeles and the University of California, San Diego.**

Why apply?

The MRL SEEDS program is an effort to jointly advance high-quality science. All proposals submitted will be reviewed for scientific merit, tractability for drug discovery and alignment with the published areas of interest. The strongest proposals with the most compelling cases to experimentally address areas of significant medical benefit will be considered for funding, collaboration and/or sharing of Merck's R&D capabilities.

1. Getting Started

Review the current active MRL SEEDS program RFPs (Section 3). To respond to an RFP please complete the pre-proposal form. The pre-proposal form includes the required elements for completing and submitting your initial 1-2 page response.

Requirements for Submitting a Pre-proposal Form

A pre-proposal form is a brief 1-2 page non-confidential summary of your project proposal that should provide sufficient information for a pre-review by the MRL SEEDS Scientific Review Committee. If the pre-proposal is of interest to MRL, you will be notified that your pre-proposal has been selected. As required, you may be contacted by an MRL SEEDS program representative for clarification of the pre-proposal or further discussion of the concept. A full project proposal and plan will be developed by the applicant or may be co-developed with Merck's Scientists and the applicant.

A pre-proposal must not contain any confidential information. Merck will not be responsible for the confidentiality of any information that is included in the pre-proposal.

A detailed view of the request for proposal process can be found in the RFP Process section (Section 4).

Submission of a full proposal does not imply or guarantee approval. Financial and/or reagent support is contingent upon full execution of a contract between Merck and the academic institution in accordance with standard practices and terms for sponsored research agreements.

2. MRL SEEDS Contact Information

To learn more or to ask a question, please contact the Merck SEEDS Program at mrlseeds@merck.com

3. MRL SEEDS: Active Requests for Proposals

The current MRL SEEDS Requests for Proposals (RFPs) are described below. All proposals submitted will be reviewed for scientific merit and tractability for drug discovery. The strongest proposals with the most compelling cases to experimentally address areas of significant medical benefit will be considered for funding, collaboration and/or sharing of MRL capabilities. Priority will be given to innovative proposals employing cutting-edge technologies, modalities, and hypotheses.

▪ RFP-01: Tackling fibrosis to enhance tissue regeneration

Fibrosis is a cardinal feature of many cardiometabolic diseases, including cardiac, liver, kidney, and lung diseases. Despite advances in the field, our understanding of tissue fibrosis, including fibroblast development, heterogeneity, and scar resolution, is incomplete. We seek proposals that will provide insights into the underlying molecular mechanisms and therapeutic targets regulating tissue fibrosis. In particular, we are interested in proposals that address the following areas.

- Single Cell approaches that aim to understand phenotypic and functional heterogeneity of fibroblasts during disease
- Unbiased approaches to elucidate pathogenic mechanisms regulating heart, liver and lung fibrosis
- Mechanisms controlling conversion of mesenchymal cells to myofibroblasts with particular focus on new therapeutic targets
- Dynamics of fibrotic niche and mechanisms of scar resolution

▪ RFP-02: Role of immune and endothelial cells in tissue regeneration

Immune and endothelial cells orchestrate tissue regenerative programs. However, chronic degenerative diseases affecting liver, heart, lung, and retina are associated with tissue inflammation and vascular dysfunction. We seek proposals that will identify new therapeutic targets in the following areas:

- Novel immune pathways regulating tissue repair after acute or chronic injury
- Mechanisms regulating vascular aging and identification of regenerative angiocrine factors
- Novel mechanistic insights into the role of perivascular cells and pericytes in tissue repair
- Mechanisms by which innate inflammation limits tissue regeneration during aging

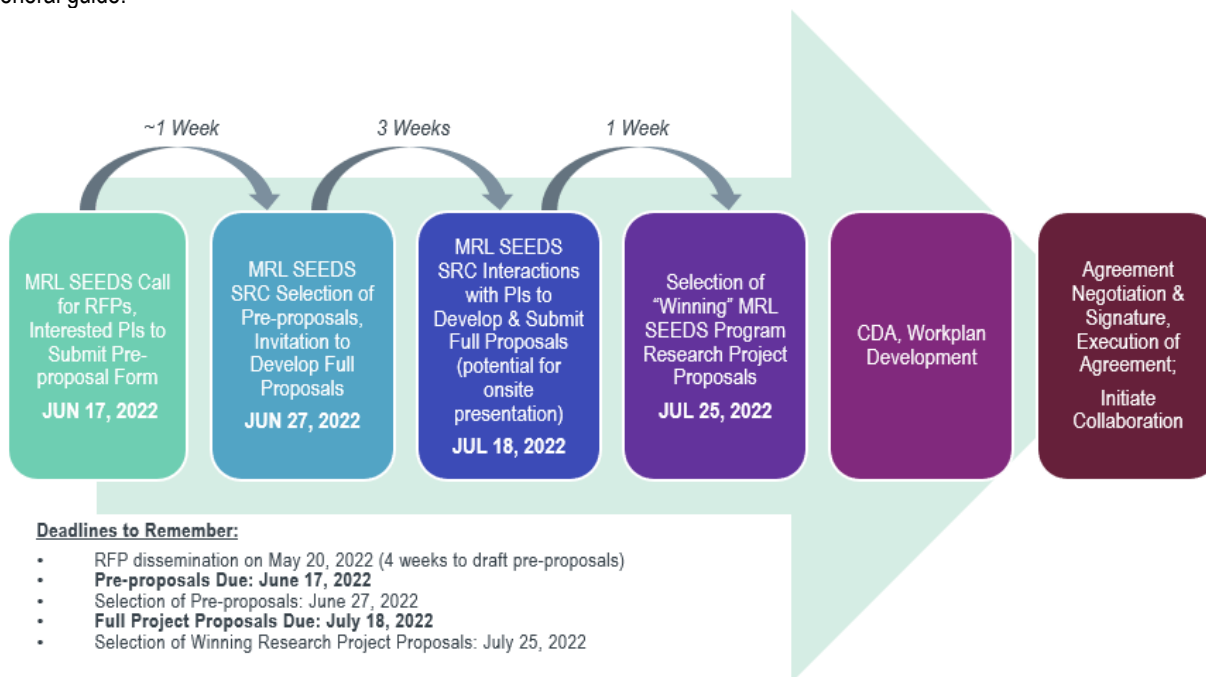
▪ RFP-03: Endogenous mechanisms of cell plasticity and regeneration

Mammalian organs can regenerate using tissue resident stem cells or via proliferation of differentiated or dedifferentiated parenchymal cells. Skin and intestinal epithelia are examples of highly regenerative tissues that employ tissue resident stem cells, whereas liver regeneration is dependent on activation of differentiated parenchymal cells. Therapeutic targeting of endogenous signals that regulate proliferation, differentiation and plasticity of stem and parenchymal cells holds great promise to repair damaged tissues. We are interested in proposals that focus on liver, retina, heart and lung and address the following topics:

- Mechanisms regulating cellular dedifferentiation and trans-differentiation in regenerating tissues
- Single cell approaches to identify progenitor stem cells activated during tissue injury and repair (acute and chronic)
- Identification of cellular interactions and extracellular matrix factors that modulate tissue repair
- Modulation of endogenous tissue repair mechanisms by aging

4. MRL SEEDS: Request for Proposal (RFP) Process

The MRL SEEDS RFP process involves several steps illustrated in the diagram below. The timeline outlined below is meant as a general guide.



MRL SEEDS: Frequently Asked Questions

Questions and responses are divided by each phase of the MRL SEEDS program. To learn more or to ask a question, please contact the Merck SEEDS Program at mrlseeds@merck.com. Your disclosure of information does not grant you any ownership interest in future Merck company inventions.

Submissions

1. Is there any flexibility regarding the identified Active Request for Proposal statements (RFP 01 - 03)? If so, how is this determined and who might an investigator speak to about this?

The vast majority of funded requests for proposals will fall within the Active Request for Proposal descriptions; However, the MRL SEEDS SRC may consider proposals outside the defined problem statements if they are scientifically relevant. Before submitting a proposal that is outside the published Active Request for Proposals, it is best to contact the Merck SEEDS Program at mrlseeds@merck.com to bring any requests to the attention of the MRL SEEDS SRC.

2. Is there someone within Merck I can speak with to see if there is interest in my study idea (before submission of a pre-proposal form) or in case I have any questions in preparing the pre-proposal?

Yes. Please contact the Merck SEEDS Program at mrlseeds@merck.com

3. How do I submit a proposal?

Review Section 3, MRL SEEDS: Active Requests for Proposals and submit a completed pre-proposal form to the Merck SEEDS Program at mrlseeds@merck.com by June 17, 2022.

4. What is the difference between a pre-proposal and a full proposal?

A pre-proposal is a brief 1-2 page form outlining a non-confidential summary of your proposal that will be reviewed by the MRL SEEDS SRC. The pre-proposal will provide sufficient information for a pre-review of your proposal. Therefore, if the pre-proposal is rejected, requestors will not have spent a significant amount of time developing the proposal. If the pre-proposal is found to be of interest, the SRC will request a full proposal for further review. The SRC also may potentially contact the requestor for additional information and/or to co-develop the full proposal with the requestor. Full proposals may or may not be accepted for approval and therefore are not guaranteed funding. As part of the full proposal, there may be a request from the MRL SEEDS SRC for an optional virtual or onsite presentation at the MRL campus in South San Francisco, CA.

5. Who should I contact if I need information regarding the MRL SEEDS program?

Please contact the Merck SEEDS Program at mrlseeds@merck.com

6. Will Merck contribute any capabilities to the project?

Access to specific capabilities will be discussed and agreed upon for accepted proposals as part of the confidential discussions and workplan development process after acceptance of the pre-proposal.

7. Will Merck contribute any funding to the project?

Funding for approved collaborative 1-year pilot research projects is anticipated (up to \$125,000 in direct costs plus institutional indirect costs) in order to facilitate execution of the agreed upon specific aims of the project in the principal investigator's laboratory or at a third-party establishment. The amount of funding will be project-specific and will be discussed and agreed upon for accepted proposals as part of the confidential discussions and work plan development process after acceptance of the pre-proposal. Our goal is to enable the specific aims of the selected proposals.

8. How should I manage and communicate confidential information?

Only non-confidential information should be included in the pre-proposal form. If your pre-proposal is selected to develop a full proposal requiring disclosure of confidential information, please contact the Merck SEEDS Program at mrlseeds@merck.com so that a Confidential Disclosure Agreement (CDA) can be put in place to protect any confidential information.

Review & Decision

9. Who reviews the applications?

A Scientific Review Committee (SRC) comprised of Merck Research Laboratories Scientists will review all proposals.

10. What does Merck expect from investigators submitting a pre-proposal?

The MRL SEEDS program funds proposals of scientific interest that can be conducted professionally and within the agreed timeline. Our expectations: 1) to receive a well-written pre-proposal that is scientifically relevant and concise; 2) that investigators demonstrate the ability to conduct a study within the agreed timelines; 3) that, if approved, investigators agree to provide quarterly status updates and a final report of manuscript quality; 4) that part or all of the results generated during the collaboration are disseminated in peer-reviewed publications.

11. What can investigators expect from Merck?

Prompt and courteous response to submitted pre-proposals or full proposals; 2) thorough scientific review of the pre-proposal and proposal; 3) timely decision on acceptance or rejection; 4) confidentiality of information under a Confidential Disclosure Agreement (CDA) as applicable

12. What scientific points are considered when assessing a submitted protocol?

The following scientific points are considered: 1) the study is aligned with the published Active RFP statements; 2) the specific aims answer the scientific/medical questions with a well-organized study plan 3) a data analysis plan is included with the full proposal and work plan.

13. If there are questions regarding the pre-proposal, will I have a chance to address them prior to a final decision being made?

Yes. If your pre-proposal is not rejected and questions arise or clarifications are needed, you have the option of interacting with the MRL SEEDS SRC before a full proposal and work plan are completed.

Contract Negotiations and Terms

14. How much will my lab be awarded if my full proposal is selected for collaboration?

After a sponsored research agreement is executed between Merck and the academic institution, in accordance with standard practices and terms, Merck will fund up to \$125,000 USD in direct costs for a 1-year pilot program plus institutional indirect costs.

15. What are the terms of the sponsored research agreement between Merck and the academic institution if my full proposal is selected for funding?

Once your full proposal is selected for contract negotiation and funding, a Merck Discovery Transactions Manager will contact the academic institution's Technology Transfer Office to negotiate a sponsored research agreement in accordance with established and reasonable practices and terms. Financial and/or reagent support of a full proposal is contingent upon execution of a contract between Merck and the academic institution.