REQUEST FOR APPLICATIONS (RFA)

MSCRF Manufacturing Assistance Program

INTRODUCTION

Cell-based technologies offer extraordinary promise for new medical therapies and a better understanding of debilitating human diseases, injuries, and conditions. The development of new medical strategies for the prevention, diagnosis, treatment and cure of human diseases, injuries and conditions through human stem cell research is a high priority for the State of Maryland. As treatments and cures advance to the clinic, manufacturing of cell therapies remains a key challenge in this growing industry.

FUNDING OBJECTIVES

The Maryland Stem Cell Research Fund (MSCRF) Manufacturing Assistance Program was created to provide initial resources to enable companies to advance GMP production of cell therapy products in the State of Maryland. This program will accelerate the timely and cost-effective manufacturing of cell-based products that meet identified market needs and will support and retain an advanced manufacturing workforce in Maryland. It is also the intent of the Program to foster collaborations between various schools, departments, and institutions within academic research organizations, and between public and private sectors.

Grants awarded under this RFA will fund projects involving human stem cells, stem cell derivatives (including extracellular vesicles), or other technologies enabling or supportive of human stem cells.

Important note: Revised and improved RFAs.

Funding applications have been modified to include revised and/or new submission fields. Please peruse the recently revised RFAs to be appropriately informed of the changes to prevent delays in the application submission process.

ELIGIBILITY INFORMATION

The Manufacturing Assistance Program is open to companies or organizations located in Maryland. Companies/Organizations that meet the eligibility requirements, and have the skills, experience, resources and support necessary to carry out the proposed research ("Research Project") may apply for a Manufacturing Assistance Grant.

Program awardees must conduct all MSCRF-funded work pertaining to the Research Project in the State of Maryland. MSCRF reserves the right to request additional documentation for its presence and for its intention to remain in Maryland.

The Manufacturing Assistance Program is for stem cell companies or organizations to build or acquire modular manufacturing facilities, prefabricated clean rooms, closed systems, or similar manufacturing platforms to enable GMP production of cell therapy products in Maryland.

All Research Projects shall require, at a minimum, a 1:1 match of non-state money, with up to 24 months from the effective date of the award to make the funded manufacturing platform operational.

The physical location of the manufacturing facility must be in the State of Maryland. If not provided in the application, the location must be reported to, and approved by, the MSCRF within 30 days of notification of award.

Companies/Organizations owned by women, underrepresented minorities and individuals with disabilities are encouraged to participate in this program.

Each application for an award funded by the MSCRF shall have only one (1) PI, but may have multiple Co-PIs, Investigators and/or collaborators. PIs may participate as collaborators in any number of MSCRF-funded projects in the same funding cycle. However, they may apply to the MSCRF as the lead PI for only one new award in any given cycle.

ELIGIBLE RESEARCH AND CELL TYPES:

Only applications with a Research Project that include clearly defined and achievable milestones will be considered for review.

All research funded by the MSCRF must involve human stem cells. All types of human stem cells, as defined in the Stem Cell Act, are eligible without preference. The Stem Cell Act defines eligible human stem cells as follows: A human cell that has the ability to: (1) divide indefinitely; (2) give rise to many other types of specialized cells; and (3) give rise to new stem cells with identical potential. The full text of the Stem Cell Act is available on the MSCRF Web site (see www.MSCRF.org).

AWARD INFORMATION

AVAILABLE FUNDS

The MSCRF is currently budgeted to commit up to $20.5 million, in aggregate, in FY 2025 to fund grants under all of its RFAs. The number of grants awarded will depend upon the quality, size and mix of applications received.

AWARD SIZE, DURATION & TERMS

Subject to meeting the Program requirements, funds of **up to $1,000,000** may be made under this Program directly to the company/organization.

Research Project funding will be subject to the successful completion of a number of proposed Research Project milestones. The Manufacturing Assistance Program is a reimbursable grant, and as such, proposed milestones should be tied to specific timelines with justifiable use of budgeted funds. Payments will be disbursed at the completion of each milestone upon proof of proposed expenditures (e.g., receipts). Applicants should be aware that project funding could be terminated at any point during the project if early manufacturing milestones suggest that the technology will not reasonably progress as originally proposed.

Because the nature and scope of the proposed manufacturing plan and product will vary between applications, the size and duration of awards may also vary, but may not exceed 24 months in duration. Approved applications may be funded at or below the requested/proposed amount, for a number of reasons, including potential reductions in State appropriations or funding otherwise available to MSCRF.

Manufacturing Assistance awards will be made in the form of a **grant**. All projects shall require, at a minimum, a 1:1 match of non-state money, with up to 24 months from the effective date of the award to make the funded manufacturing platform operational.

The awards are capped at $1,000,000. The Research Project, including all subcontracts, must be completed within 24 months of the date of the award. The execution of any subcontracts and joint arrangements included as part of an application are ultimately the responsibility of the awardee. Each entity involved in the proposed project set forth in the submitted application is expected to meet the timelines and milestones, as submitted by the PI, who will be held accountable as part of the mid-term and final report review.

APPLICATION AND SUBMISSION INFORMATION

CONTENT & FORMAT OF APPLICATION

All Sections of the application must be submitted through the MSCRF submission site. The document must be formatted using point size 12 Arial font with margins no smaller than one-half (0.5) inch on all sides. The applications not meeting the minimum requirements will be rejected without further consideration and the Applicant will be so notified.

APPLICATION COMPONENTS

The intent of the application is to provide enough information so a group of reviewers can sufficiently evaluate the scientific merit of the Research Project, the product/process outlined in the Research Project, its manufacturing, and the business plan of the Organization/Company pertaining to the product/process included in the Research Project. Application must include the following information:

Section I. Title of the Research Project

Section II. Web form Questions: Applicant must respond to the following questions:

- New application or resubmission and the prior application number (s) for prior MSCRF applications
- Proposed period of performance for the Research Project
- The total amount of funding requested, broken down into direct and indirect costs.
- IP status- whether there is a pending or issued patent application (s) directed to the Research Project
- Type of stem cell type that will be used for Research Project
- List the disease indication and disease category for the Research Project
- List Keywords for the Research Project (100 characters limit)
- Short non-confidential summary of the Research Project. If awarded, this information becomes public. Do not include any confidential or proprietary information. (1800 characters limit)
- Public Health Impact Statement: 2-3 sentences on public health impact. If the Research Project outcome will inform the development of a product that serves medically underserved communities or a rare disease, please also specify. (500 characters limit)

- Bioethics statement: describing the ethical issues relevant to the proposed research and how these issues will be addressed, including, but not limited to, a discussion of the ethical issues related to the cell type(s) and cell line(s) to be used; animal welfare (i.e., IACUC); IRB review and related concerns regarding human subjects, if applicable. (1800 characters limit)
- Impact on Biotechnology in Maryland. Describe the potential of this application to impact the biotechnology sector in the state of Maryland. Some examples may include IP that may be licensed or lead to commercialization, existing or proposed collaborations, creation of new jobs, and workforce development. (1800 characters limit)
- PI Areas of scientific expertise (100 characters limit)
- PI Primary research focus (500 characters limit)
- Areas of potential collaboration that the PI is seeking (500 characters limit)
- Indicate the PI's previous experience as an MSCRF applicant and provide the application number if previously funded.
- Enter the URL address of your laboratory/company website.

Section III: People: create records for ALL people associated with your submission. Other than the Institutional Official/Authorized Representative, for every person people record created, a corresponding Biosketch must be included in the Biosketches attachment section of the site. At a minimum, the system requires records for a PI and an Institutional Official/Authorized Representative. **Institutional Official authorization is required for submission.**

Section IV. Attachments: Ensure strict adherence to the page limits. Incompliance with the application requirements will result in disqualification.

1. **Technology Description, Project Description, and Milestones - Limited to twelve (12) pages.**
   - Describe the technology, its scientific basis, and the product to be manufactured. The description should include how the technology is unique/novel in its approach to solving an important commercial problem relative to other approaches in the scientific literature and other commercial products.
   - Describe current status of technology/product development (include any data suggesting that the technology is likely to work as predicted). Summarize the research/product development studies completed to date, the conclusion derived and the rationale for the Research Project as the necessary step for the advancement of the technology towards commercialization.
   - Include a summary of any pertinent data suggesting the technology is likely to work as predicted.
   - Briefly describe the intellectual property secured for the technology and strategies for strengthening the technology's intellectual property portfolio.
   - Briefly describe addressable market, competition and competitive advantages.
   - Describe the manufacturing plan including a description of system/components being acquired for manufacturing the cell therapy product. Address metrics such as performance, productivity, efficiency, acquisition costs, labor costs, time to market and data collection. Provide baselines/industry standards as applicable.
   - Include a summary of the proposed MSCRF project tied to quantifiable milestones and a clear timeline and budget attributable to achieving each milestone. Indicate which milestones will be completed by the project's mid-term timepoint.
   - Describe how the milestones lead to clear development of the technology and how it brings the product closer to the commercial market.
   - Describe the commercialization approach.

- Describe the key technical challenges and risks in bringing the innovation to market. The major risks of failure (beyond the proposed MSCRF project, e.g., technology risk, market risk, etc.) should also be described along with the applicant's plans to manage those risks, i.e., what will be done if the proposed manufacturing and commercialization approach is not successful.
- Post-award Operational Plan: describe the manufacturing plan following award completion. This section should address the amount of time the platform will be operational, type of product/s and its intended use (i.e., clinical trials, product offerings, etc.), follow-on investment, scale up/out, IND/BLA status (if applicable), and potential collaborations. Supplemental material to demonstrate product demand post-award, such as letters of intent from potential customers, plans for clinical trials, as well as the financial plan to support its operation should be included as applicable.

2. **Executive Summary - Limited to two (2) pages.** Provide an executive summary. This executive summary must include:
   - A clear outline of the management team expected to execute the manufacturing strategy and move the product forward (beyond MSCRF funding).
   - A description of the key players, including external consultants.
   - A description of the company operations including location and facilities, marketing strategy, product development, and other operations should be provided.
   - A detailed description of the market opportunity, including a segmentation analysis.
   - An overview of the fundraising strategy.

3. **Resubmission - Limited to two (2) pages.** If an applicant PI's proposal is initially rejected, and the applicant PI chooses to reapply for the Program funding, the Applicant PI must submit a written response to the reviewers' comments including how those comments were addressed in the resubmitted application. Please include an introduction to the revised Application, including the Application Number of the previous MSCRF submission, and a point-by-point response to the prior scientific review.

4. **Key Research Project Personnel - Limited to two (2) pages.** If not already provided in other sections please provide a list of the names, affiliate organizations, and roles of all key personnel who contribute to the development or execution of the Research Project in a substantive way.

5. **Supporting Literature - Limited to two (2) pages.** Provide a list of scientific Literature in support of the Research Project.

6. **Biosketches**: Do not exceed five (5) pages for the PI and two (2) pages each for other key Research Project personnel.

7. **Other Support**: List Other Support for the PI, including both current and pending support as described in the instructions.

8. **DEI Registration**: Pursuant to its enabling legislation, TEDCO is required to foster inclusive and diverse entrepreneurship and innovation throughout Maryland. Accordingly, TEDCO is now collecting race, gender, and ethnicity data, to better understand the communities that are accessing MSCRF resources/funding. This data will not be accessible to MSCRF/TEDCO program/fund managers and will only be provided to them in an aggregated (anonymous) form. The data will not be used for funding consideration.

9. **Budget & Budget Justification:** A detailed budget of the costs required to conduct the project should be provided in the general format provided in the application portal. In preparing the budget section, please correlate the detailed budget to a specific and quantifiable set of milestones. **The Manufacturing Assistance Program is a reimbursable grant, and as such, proposed milestones should be tied to specific timelines with justifiable use of budgeted funds.** Payments will be disbursed at the completion of each milestone upon proof of proposed expenditures (e.g., receipts). It is recommended that milestones be equally spaced such that installments can be disbursed upon verification of completion of each set of milestones. Applicants should request only the funds needed to complete the Research Project. Requests for less than the maximum allowable amount will not be considered as a weakness. Applicants must provide matching funds details in the budget. MSCRF funds must not be used to cover personnel costs of Investigators who are located and/or conduct the work outside the State of Maryland.

   Up to 10% of Manufacturing Assistance awards may be used for indirect costs. Fringe benefits are capped at 25% of the direct salary. Expenses for domestic travel are capped at $5000. International travel is not an allowable expense.

   All expenses directed to the Research Project should adhere to the specific line items listed in the proposal. Any budget changes or reallocation of funds between budget categories over 10% of the overall budget must be approved by MSCRF **prior to** reallocation. In the event of remaining unspent funds from one installment, a carryover request must be submitted to MSCRF for approval to carry the funds to the next installment with a justification of why the funds were not used and how they will be used in the next installment.

10. **Appendix: Collaborator/Recommendation/Support Letters.** Limited to one (1) page per letter. The PI should include Letters of Collaboration/Recommendation, if applicable.

11. **Appendix: Other supporting materials**. This section may not be used to circumvent the length limitations of the Application. Do not include information that should be in the main proposal application. Complete the checklist template on the portal to list the documents included in this section. Compile all supporting documents into a single PDF file. Do not include information that should be in the main proposal.

12. **Photo:** Upload a headshot photo of the PI for publishing on the MSCRF Website if awarded.

Applications that are incomplete, do not meet the format and/or content requirements, exceed specified length limits, are non-responsive to this RFA or are from ineligible applicants will not be reviewed.

APPLICATION AND SUBMISSION INFORMATION

SUBMISSION DEADLINES & REVIEW DATES

- **Application Submission Deadline**: July 9, 2024, by 12:00 p.m. EST
- **Peer review date(s) and presentation by the Applicant:** Second week of August 2024
- **Commission Review and Announcement of Awards:** September 2024

Late submissions will not be considered, and the application will be withdrawn. Any sections or page that exceeds in words or length the limit stated in the RFA will not be reviewed. Do not use the appendix to circumvent any page limits either. Any such information provided will not be reviewed.

METHODS OF SUBMISSION

Applicant PIs are encouraged to register in the MSCRF submission site a month before the Application Submission Deadline. Grant Applications must be submitted through the MSCRF submission site by July 9, 2024, no later than 12:00 p.m. **Late submissions will not be considered.**

REVIEW INFORMATION

REVIEW PROCESS

All applications for the Manufacturing Assistance Program will be initially reviewed by the MSCRF staff to ensure that they meet the minimum requirements, as specified in this RFA (the "Compliance Review"). Applications not meeting the minimum requirements will be rejected without further consideration and the applicant will be so notified.

APPLICATION REVIEW PROCESS

Following the Compliance Review, all applications will be assigned by the MSCRF Scientific Review Officer to several reviewers for review and preliminary scoring. All applications receiving average scores above a threshold as determined by the Program will be brought to the full MSCRF Review Committee.

The MSCRF may bring applicants who scored below the Program threshold to the Review Meeting under special circumstances, which shall be determined at the sole discretion of the Program. All applications will be ranked according to their final scores and the top scoring applications will be recommended to the Commission, which will have the final authority to approve funding.

The MSCRF Review Committee will consist of representatives of the research, business and investor communities and are all from outside of the state of Maryland. Each applicant will receive a copy of the reviewer comments and scores at the end of the process, whether the applicant is approved or declined.

REVIEW CRITERIA

Applicants will be evaluated on each section of their proposal. Consideration will be based on how completely the applicant has provided information requested for the section and how convincingly the applicant has made a case for the manufacturing opportunity of the subject technology.

Moreover, the applicant's ability to meet the program requirements on a timely basis, including the milestones, mid-term reporting and final reporting (including accounting and budget submissions) will also be considered when reviewing applications.

Other criteria that will be considered:

- **Bioethics**
- **Significance of the project**
- **Technology and status of development**
- **Manufacturing metrics such as:**
  - **Performance**: Measures of the characteristics of the entire system, its components, or the execution of a manufacturing task. Types of performance metrics include accuracy, capabilities, completeness, ergonomics, generalizability, quality, reconfigurability, success/error rate, and usability.
  - **Productivity**: The rate at which a manufacturing process is occurring, expressed in units (e.g., items, articles, batches) per time interval (e.g., minute, hour, day). Types of productivity metrics include defect rate, first time yield, and throughput rate.
  - **Efficiency**: The amount of time required to perform a manufacturing task, or the percentage of time spent in set-up, calibration, transition, production, etc., compared to total cycle time of a manufacturing process. Units for these metrics should be time intervals (e.g., minutes, hours, days). Types of efficiency metrics include performance time, set-up time, and touch time.
  - **Acquisition**: Cost for initial acquisition of the proposed system. Types of acquisition cost metrics include capital cost and implementation cost.
  - **Cost**: Costs, labor, and/or time measures associated with continued operation of the manufacturing process using the proposed system. Types of cost metrics include involved labor, operational cost, process cost, safety, training time, and return on investment.
  - **Timeline:** Estimated time for manufacturing facility/arrangement to be functional and any anticipated scale up or tech transfer.
  - **Data collection:** If applicable, description of any real-time data collection and analysis.

SCORING

The Scientific Peer Review Committee will review all applications and rank them based on scientific merit. Similar to the NIH, a scoring system of 1-9 will be used to rate the overall impact/priority of the proposed project. In this system, “1” indicates the highest impact/priority and “9” indicates the lowest impact/priority. The Commission will then review the ranked applications and will make the final funding decisions.

Applicants Selected for Review: All applicants achieving a high enough preliminary score may move on to the full committee review and may be required to present in person at the MSCRF Review Meetings. If so required.

- The PI and the CEO (if not the same person) listed on the Manufacturing Assistance application must present in person on the stated review dates. Other team members may attend; however, the PI and CEO must attend.
- All presentations will be scheduled as part of the standing MSCRF review days listed below. Due to the number of applications on any given review day, presentation times will be assigned by MSCRF.
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- The PI will need to hold the review day open until the time is assigned. This may be confirmed as little as a week before the review day, so PIs will need to remain flexible during this process. **Applicant PI should plan for and secure the second week of August for the in-person presentation.**
- The PI will need to hold the review day open until the time is assigned. This may be confirmed as close as a few days before the review day, so PIs will need to remain flexible during this process. **Applicant PI and CEO should plan for and secure the second week of August for the in-person presentation.**
- Company PI will be required to submit the presentation directed to the Research Project to MSCRF at mscrfinfo@tedcomd.com one week in advance of the meeting.
- The applicant will be allotted a **15-minute timed presentation, followed by up to 20 minutes for Q&A**. The following information must be included in the presentation:
- Technology
    - Describe the technology and its commercial applications
    - Summary of the development status of the technology
    - Intellectual Property on the technology: scope and status
    - Describe the Research Project if it is narrower in scope compared to the Technology
- After the presentation of the preliminary scores and discussion of applications at the MSCRF Review Committee Meeting, applications will receive a final score based on an average of all the overall scores provided by the MSCRF Review Committee Members.

Applications will be ranked by average final score and submitted to the Commission for programmatic review and final approval.

The Commission reserves the right to pursue collaborative funding arrangements with third parties and, in such an event, the further right to share the application materials and/or the review summaries with those potential co-funders upon the execution of a Confidentiality Agreement restricting their further disclosure.

AWARD ADMINISTRATION INFORMATION

NOTIFICATION

The PI's affiliate organization will be notified electronically when the application is received. A formal notification, in the form of a Notice of Award ("NOA"), signed by the MSCRF Executive Director, will be sent via email to successful applicants.

CLOSING AND AWARD PAYMENTS

Once the proper approval for a project has been obtained, applicants will be asked to execute an agreement and **the PI will be asked to immediately start working on the project**. The agreement will detail the conditions of the award and it will include an agreed upon number of mid-term and final milestones for each project and the dates that midterm and final project reports (as described below) are due. In all cases, any unused funds must be returned to TEDCO serving in its capacity as the administrator of the Program.

Furthermore, the applicant must furnish specific regulatory compliance documents listed below before commencing the Research Project. Once these compliance documents are received and approved by MSCRF, the applicant's Principal Investigator (PI) must promptly initiate work on the Research Project.

Regulatory Compliance Documents list:

- Institutional Review Board (IRB) approval or exemption, including the Applicant's name, project title (matching the title of the Award), and expiration date.
- Institutional Animal Care and Use Committee (IACUC) approval if animal work is to be conducted, including the Applicant's name, project title, and expiration date.
- Stem Cell Research Committee (SCRO) approval or exemption including the Applicant's name, project title, and expiration date if the research involves embryonic stem cells.

POST AWARD REPORTING

To ensure each set of milestones is met, MSCRF staff may require an onsite visit prior to releasing an installment. At a minimum, the applicant must demonstrate that the proposed milestones were successfully met via a 'Request for Disbursement' form included as an exhibit to the Grant Agreement. Manufacturing Assistance Program awardees must submit the following reports to MSCRF:

a. **Midterm Progress Report**: At the midterm, the applicant must present their progress either in person, if an onsite meeting is requested by MSCRF, or virtually via a video conferencing platform. The progress report is a PowerPoint presentation to MSCRF, which must include a description of project activities and results to date; the progress toward meeting mid-term milestones; an accounting of expenditures charged to the award; and details on the proposed manufacturing plan and budget.

b. **Final Report**: The final report must provide an overview of all activities that were undertaken during the course of the funded project; a description of the results of the project; the impact on manufacturing; the success with achieving the proposed milestones; jobs created; follow-on-funds raised during the project; and full accounting of all expenditures charged to the award.

The final report must be submitted together with the financial statement and a formal close-out letter as a packet through the online application portal.

COMPLIANCE

A Principal Investigator not in compliance with the reporting obligations under the Manufacturing Assistance Research Grant shall not be eligible to apply for continued or subsequent MSCRF funding.

AGENCY CONTACTS

- Inquiries regarding this RFA or other programmatic matters should be submitted by email to: mscrfinfo@tedcomd.com

- Inquiries regarding technical assistance with the application portal should be submitted by email to: mscrf@aibs.org