The GEM Challenge 2026 – Engineering Novel Solutions to Clinical Problems

The Institute of Engineering in Medicine (IEM) along with the Jacobs School of Engineering and Health Sciences is pleased to announce the thirteenth round of the **Galvanizing Engineering in Medicine (GEM)** competition to identify clinical challenges for which novel, early phase technology solutions can be developed and implemented by an interdisciplinary team of UC San Diego engineering and health science researchers. GEM has the overarching goal of building a collaborative ecosystem that leverages UC San Diego's outstanding strengths in clinical care and engineering to solve important healthcare problems. Awards will be made up to **$40,000 for one year**. Upon successful completion of milestones, successful applicants will also be eligible for a **second-year follow-on award of up to $15,000** for specific activities intended to generate additional funding for phase II research, technology transfer and/or commercialization.

From year to year, additional GEM awards in specific clinical and technology areas may be available. In 2026, we encourage applications related to cellular or medical biophotonics for the Michael Berns GEM Award.

We invite teams that include at least one **Clinically Active Faculty Member** and one **Engineering Faculty Member as PIs** to submit a proposal. Applicants need not be members of the IEM, but priority for support will be given to active members of the IEM and its research centers. Fellows and Project Scientists who would like to be PIs must contact **Dr. Deborah Spector (dspector@health.ucsd.edu) or Dr. Andrew McCulloch (amcculloch@ucsd.edu)** prior to submission.

Clinical Faculty who are looking for an Engineering Faculty partner or *vice-versa* should contact Dr. Deborah Spector or Dr. Andrew McCulloch after reviewing the center pages and membership listings on the IEM website:
https://iem.ucsd.edu/researchers/centers/index.html.

The proposal must include two sections. **Section One** should describe a specific medical challenge or unmet need that presents an opportunity for innovation involving an engineering or technology solution to improve patient care and outcomes, including reducing healthcare costs. Healthcare improvement may be achieved through innovation in disease prevention, diagnosis, monitoring and/or treatment. In **Section Two**, the team should describe the engineering technology that will be developed to solve the problem and specific plans for the award period.

Priority will be given to investigators who did not receive a GEM award in the 2025 round of competition.

A description of GEM Challenge projects that have previously been selected for funding can be found on the IEM web site under the GEM Program.

https://iem.ucsd.edu/programs/gem/past-gem-projects.html

After an initial round of review for competitiveness and responsiveness to these guidelines, an expert panel of clinicians, engineers, entrepreneurs, and representatives from the Office of Innovation and Commercialization will evaluate proposals based on the following criteria:

> **Significance:** To what extent does the problem or challenge focus on an unmet medical need and what are the prospects that the proposed engineering technology solution will improve patient care or outcomes or lead to new research funding that further addresses the problem?
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> **Investigators:** How well qualified is the team of clinical and engineering investigators to solve the problem? Are the investigators active members of the IEM or one of its centers?

Innovation: What new intellectual property is expected to arise from the project? How novel is the engineering approach, and does it take advantage of unique resources at UC San Diego – such as specialized expertise, infrastructure, and core facilities?

Feasibility: Can sufficient progress, such as development of a prototype, be made in 12 months to support a successful extramural application for continued research funding? Does the project leverage other resources that will improve the likelihood of success?

Milestones, and Future Funding: Are realistic milestones and deliverables clearly defined? What specific campus resources for accelerating translation and commercialization have or will be used, such as the Institute for the Global Entrepreneur, the Medtech Accelerator, the Rady School of Management, and the Office of Innovation and Commercialization? Is there a clear plan for next phase activities including specific plans for a $15,000 year two, follow-on award? What continued funding strategies are planned such as new research grants, SBIR/STTR grants, industry contracts, licensing agreements. Second year phase 2 support will normally be contingent on demonstrated progress towards external funding for the project at the end of year 1. Priority for phase II funding will go to projects for which the investigators have submitted a proposal for extramural funding addressing the unmet need or advancing the new technology *via the Institute of Engineering in Medicine*.

APPLICATION GUIDELINES

Applications should be well-written, precise, and succinct and include the following:

- Title Page - Name, Department Affiliation(s), and email address of all PIs and Participating Investigators, Project Title
- Abstract and Specific Aims (**500-word maximum**)
- Research Design and Methods (**six pages maximum – excluding literature cited**)
    - **Section One** - Describe the specific medical challenge or unmet need that presents an opportunity for innovation involving an engineering solution. (one page maximum).
    - **Section Two** - Describe in detail the engineering technology that will be developed to solve the problem. The narrative should include the rationale for its potential effectiveness, preliminary data, feasibility (over 12-month time frame), existing intellectual property (disclosures and patents filed), parameters for evaluating success, and potential for commercialization. Also summarize competing technologies and explain why the proposed technology is superior. (four pages maximum).
    - **Section Three** - Describe milestones and deliverables for the first 12 months including how a $15,000 phase II award will be used to transition the project to sustained funding (1 page maximum).
- Area of Technology – State which of the following IEM Centers your project is most closely related to.
    - Cellular Photonics and Biophotonics
    - Human Performance Research

- Biomaterials and Tissue Engineering
- Advanced Neurological Engineering
- Cardiac Biomedical Science and Engineering
- Engineering in Cancer
- Engineering in Diabetes
- Medical Device Engineering and Biomechanics
- Mobile-Health Systems and Applications
- Musculoskeletal Research
- Nano-Medicine and Engineering
- Cardiovascular Biomedical Imaging
- Infectious Disease Engineering Advances
- Technologies for Healthy Aging
- AI in Biomedicine

- Utilization of Core Facilities and Innovation Resources - State which of the following core facilities you have already used or plan to use for your project (Vouchers may be available for in-kind services).

  ACTRI Device Accelerator Center
  ACTRI Biostatistics Core
  ACTRI Clinical Facilities and Resources
  Irwin and Joan Jacobs Center for Health Innovation
  Institute for the Global Entrepreneur
  Office of Innovation and Commercialization programs and incubator
  UCSD Center for the Future of Surgery
  UCSD Mechanical and Aerospace Engineering (MAE) Machine Center
  Nano3 Nanofabrication Cleanroom Facility

- State whether and how you plan to participate in innovation programs on campus including the Institute for the Global Entrepreneur (IGE) MedTech Accelerator Program or NSF I-Corps Program, the Office of Innovation and Commercialization, or the Rady School of Management, and how they will benefit the project goals..
- Qualifications of the investigators (**one page maximum**)
- NIH-style biographical sketch including current and pending support (**four pages maximum per investigator**) for each member of the submitting team.
- Summary of outcomes and commercial status of prior GEM projects involving any member of the submitting team.
- Budget and Justification (total amount not to exceed $40,000 for one year) – Funds may only be used for supplies, trainee or technician salary, core lab fees, statistical support for study design, and essential equipment for prototype development. A small amount of funds may be allocated for pilot clinical studies. **Note** - No funds may be used for faculty salary, travel, clerical help, office supplies, books and subscriptions, publication expenses, or graduate student's tuition remissions or fees.

Applications should adhere to the following formatting specifications:

- 11-point Arial font
- Single-spaced
- 0.5 inch margins on all sides
- 8 ½" x 11" (i.e., standard size) paper
- Number all pages

- No appendices are allowed

HOW TO SUBMIT YOUR APPLICATION
All sections must be collated into a single document (docx or pdf) and submitted as an attachment. Please submit your proposal here.

Please contact **Dr. Deborah Spector (dspector@health.ucsd.edu) or Philip Godfrey (phgodfrey@ucsd.edu)** with any questions about this RFA or the application process.

The deadline for the submission of entries is 5:00 pm on Monday, June 22, 2026.

A selected group of experts from the ACTRI, IEM, and Rady School of Management will work with the PIs of the winning proposals to help establish a team and budget to accomplish the goals of the project over a 12-month period.

Application Deadlines, Notices of Awards, and Funding Cycle

Application Deadline: Monday June 22, 2026, 5:00 p.m. PT

Notice of Awards: September 1, 2026

Funding Cycle: September 1, 2026–August 31, 2027