

**Biomedical Engineering Technology Accelerator (BiomedX)
Request for Proposal: Pre-Proposal Instructions**

Department of Biomedical Engineering

2024 – 2025

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PROGRAM OVERVIEW:

The Columbia BiomedX program (formerly the Columbia-Coulter Translational Research Partnership) is a biomedical engineering technology accelerator that aims to catalyze the advancement of Columbia University technologies from the lab to the market. The program provides funding, education, resources, and mentorship to teams of clinicians, engineers, and scientists to develop solutions for unmet clinical needs, with the ultimate goal of bringing innovative research out of the lab to benefit society. Project support serves as a bridge to commercial investment, with awards granted to perform specific tasks needed to validate a commercial hypothesis (vs. a scientific hypothesis). We work closely with Columbia Technology Ventures (CTV), Accelerating Cancer Therapeutics (ACT), and the Translational Therapeutics Accelerator (TRx) to provide early-stage funding and project development resources to investigators with promising scientific ideas who aim to commercialize their technologies. The BiomedX program is inviting Columbia University Faculty to submit pre-proposal applications for its annual awards. Investigators with technologies that may have a direct impact on human health are encouraged to apply. Funding from this award is intended to move projects forward to a value inflection point so that they are eligible to explore later stage funding opportunities through Government or Foundation grants, industry partnerships, and/or professional investors.

APPLICATION PROCESS AND PROGRAM STRUCTURE:

Pre-Proposal Submission: The application process is multi-stage, starting with the submission of a Pre-proposal. Applicants should submit pre-proposals for their medical device technologies through the submittable platform as described below.

Lab-to-Market Life Science Accelerator Boot Camp: Teams whose pre-proposals are selected will be invited to attend a Lab-to-Market Life Science Accelerator Boot Camp, which consists of interactive sessions, running from January through April 2025, that will aid in the preparation of the full-proposal submission. See below for full-proposal details.

At least one member the project team (including graduate students and post-docs) must participate in the core boot camp sessions.

As an additional resource during the boot camp, we can assign graduate students (including MBA, engineering, and biotechnology students) who are enrolled in the course for credit to faculty-led project teams to help research the business case for their technology. Students are overseen and managed by the course instructors. Project team PIs are required to meet with their assigned students 2-3 times (outside of regular class time) over the course of the boot camp to discuss their project and provide direction for the student research. In past cohorts, students have been an invaluable resource to team success. Teams accepted to the boot camp will have the opportunity to “opt-in” to confirm participation in this aspect of the program prior to kickoff.

Full Proposal Submission: Teams then submit full written proposals in March 2025 which will be evaluated based on: (1) the potential health care and patient care impact, (2) the timeline and pathway to commercialization, (3) the technical feasibility, and, most importantly, (4) the potential of obtaining further financial investment to bring the technology to the clinic. Details of the full proposal application requirements and format will be provided at a later date. Following full proposal review, finalist teams will be invited to ‘pitch’ their projects (including a plan for a one-year “killer experiment”) to a panel of industry, clinical, and medical device experts.

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ELIGIBILITY:

- Eligible teams must include an engineer or scientist **AND** a practicing clinician.
- Applicants must have a **full-time faculty** appointment, and **at least one** of the lead investigators should be from Columbia University. Graduate students and post-doctoral trainees can act as a project lead, with permission from the principal investigators (PIs).
- The technology must be based on Columbia Intellectual Property. We suggest discussing the application and project with your Columbia Technology Ventures licensing officer before applying. If you do not have a licensing officer, please reach out to techventures@columbia.edu.

If you need an engineering or clinical collaborator, we may be able to facilitate introductions. All members of the team should be committed to commercialization objectives and be open to receiving mentorship, coaching, and oversight of their projects.

AREAS OF INTEREST:

All technologies that may have a direct impact on human health will be considered (e.g., medical devices, diagnostics, software, platform technologies, etc.). However, the most relevant are those where translation to market can be achieved in a short time frame (e.g., 3-5 years). Projects that propose to undertake discovery research will not be considered. Successful proposals must be translational in nature, i.e., the proposals must focus on efforts to translate research results into innovative clinical products and applications that have commercial potential and societal benefit. In partnership with the Columbia Clinical Innovation Lab, we especially encourage proposals related to remote coordination of clinical care.

FUNDING:

After the Lab-to-Market Life Science Boot Camp, participating teams will be eligible to submit a full proposal application for a one-year grant of up to \$100,000 per project, based on the project's needs. The funds are intended to support a specific, determinative "killer" experiment(s) that will be critical in paving the way for first-in-human studies (as required) and eventually into clinical practice. The budget may include support for experimental and commercialization milestones including contract manufacturing, regulatory consulting, etc. Funding **cannot** be used to support faculty salaries or graduate student tuition.

PRE-PROPOSAL INSTRUCTIONS:

Pre-proposals are due **by 5:00PM ET on Tuesday, October 29, 2024**. Pre-proposals should be completed and submitted through an online form found at ColumbiaLSA.submittable.com. *Please allow time to create a Submittable account if you do not already have one.*

Areas that will be covered on the application include:

- Project Title
- PI Name(s)
- Brief Non-Confidential Abstract
- Clinical Problem and Unmet Need: *A brief description of the clinical problem or need that your envisioned product intends to address.*
- Standard of Care: *A summary of how the clinical problem/unmet need is currently addressed*
- Value Proposition: *A description of how your envisioned product will address the problem/unmet need better than the current standard of care.*
- Envisioned Product: *A description of your envisioned product and its unique or innovative properties.*
- Enabling Technology: *A summary of the innovation you have discovered or technology you have developed that will enable your envisioned product*
- Intellectual Property: *List if there are patents covering this idea or invention reports with Columbia Technology Ventures.*

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REVIEW PROCESS:

Pre-application proposals will be reviewed for eligibility and feasibility. Full proposals will be reviewed by our [Oversight Committee](#) and will be judged on translational and commercialization potential, scientific and medical merit, and feasibility. Proposals aligning with the unmet needs, outlined above, will be reviewed by a discipline specific advisory committee before review by the BiomedX Oversight Committee.

QUESTIONS:

For questions about the application process, please contact:

Meghan Pinezich, PhD

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Columbia Department of Biomedical Engineering

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For questions about the scientific content, please contact:

Andrew Laine, PhD

Percy K. and Vida L. W. Hudson Professor of Biomedical Engineering

Professor, Radiology (Physics)

Director, Heffner Biomedical Imaging Lab

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RECENT AWARD RECIPIENTS:

2023 – 2024

- David Kalfa & Gordana Vunjak-Novakovic – Surgery & Biomedical Engineering
- Tongalp Tezel & Jeffrey Kysar – Ophthalmology & Mechanical Engineering
- Sam Sia & Daichi Shimbo – Biomedical Engineering & Cardiology
- Julia Wattacheril & Nicholas Tatonetti – Medicine
- Lance Kam & Nicole Lamanna – Biomedical Engineering & Medicine

2022 – 2023

- Wei Min & Zhilun Zhao – Chemistry
- Deepak Saluja & Christine Hendon – Medicine & Electrical Engineering
- Nischay Mishra & Kiran Thakur – Epidemiology & Neurology
- Harris Wang & Alejandro Chavez – Systems Biology & Pediatrics

2021 – 2022

- Elisa Konofagou & Lawrence S. Honig – Biomedical Engineering & Neurology
- Brett Youngerman & Kenneth Shepard – Neurosurgery & Electrical Engineering
- Helen Lu, Sunil Wadhwa, Michael T. Yin – Biomedical Engineering & Dental Medicine
- Kam Leong – Biomedical Engineering
- Peter Quinn & Stephen Tsang – Ophthalmology

2020 – 2021

- Virginia Cornish, Alastair Ager, & Thomas Briese – Chemistry, Systems Biology, & Public Health
- Gordana Vunjak-Novakovic, Robert Winchester, & Laura Geraldino-Pardilla – Biomedical Engineering & Medicine
- Keith Yeager & Anjali Saqi – Biomedical Engineering, Pathology, & Cell Biology
- David Kessler & Ken Shepard – Emergency Medicine & Electrical Engineering
- Mohsen Maharlooei & Megan Sykes – Medicine, Microbiology, & Immunology
- Harris Wang & Mary Rosser – Systems Biology

2019 – 2020

- Stavros Thomopoulous & William N. Levine – Biomedical Engineering & Surgery
- Giovanni Ferrari & Antonio Frasca – Surgery
- Daniel Javitt & Paul Sajda – Psychiatry & Biomedical Engineering
- Jeffrey Kysar & David Kalfa – Surgery & Mechanical Engineering
- Christine Hendon & Hanina Hibshoosh – Electrical Engineering & Pathology