

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

Department of Biomedical Engineering

2021-2022

2021-2022
BiomedX Pre-Proposal Instructions

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 to 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 advance their discoveries through the translational spectrum toward commercialization. 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. Applicants are required to have a complementary team comprised of an engineer/scientist and a practicing clinician.

APPLICATION PROCESS:

The application process is multi-stage, starting with the submission of a Pre-proposal. Teams whose Pre-proposals are selected are invited to participate in a multi-session Lab-to-Market Life Science Boot Camp, which consists of interactive sessions that will help prepare the full proposal. During the training period, additional resources (business consultants, technology transfer specialists, etc.) will be offered to the project teams as needed. Teams then submit full proposals, “pitch” their projects, and plan for a one-year “killer experiment” to a panel of experts. The evaluation criteria consist of (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 proposed solution to the bedside. Details of the full proposal application requirements and format will be provided at a later date.

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-doctorate 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 related to the diagnosis and treatment of COVID are encouraged to apply. 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.

**2021-2022
BiomedX Pre-Proposal Instructions**

In addition to the above Areas of Interest, we are also seeking teams to address the following specific unmet needs:

1. **Coordination of care:** Proposed projects should aim to expand our efficiency at identifying patient needs and ensuring there is equitable and efficient access to care. We will consider all proposals within the theme of enhancing care delivery via improved coordination of care for patients, including through hospital scheduling and appointment availability. While we will consider all proposals in this space, we are specifically interested in those that incorporate the following:

Artificial intelligence algorithm for optimized scheduling - A growing trend in healthcare is the incorporation of artificial intelligence and machine learning to support better coordination of care for patients. We are specifically looking to use Artificial Intelligence or Machine Learning to automate and prioritize schedules for diagnostic testing and initial and follow-up patient encounters. Specifications include:

- Integration with Epic EHR
- Same-day scheduling options
- Scheduling across multiple departments, providers, and resources (ex. imaging machines)
- Incorporate workflow to account for patient preference

2. **Remote medicine:** Telemedicine offers a means to address the rising demand for socially-distanced healthcare. A limiting factor to the expansion of telemedicine in all healthcare specialties is the ability of the technology to support accurate diagnosis and comprehensive medical decision making. Proposals should aim to increase volume and reliability of remote care, including through mobile apps and improved image capture capability. While we will consider all proposals in this space, we are specifically interested in those that incorporate the following:

High-Resolution video or image quality (1080p) to support medical care - Improvements to the quality and ease of remote image acquisition could aid in accurate diagnosis and patient care in socially-distanced settings. Specifications for high resolution video or imaging platforms include:

- Integration with Epic EHR
- Functional on a mobile device (e.g., Smartphone, tablet) with ability to use front and back camera
- Image capture capability (and subsequent image storage in Epic)
- Note: Vonage Video/TokBox OpenTok Technology has an API available that can be leveraged for app development. To connect with Vonage, contact Ed Gibbs at ed.gibbs@vonage.com.

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 commercialization milestones including contract manufacturing, regulatory consulting, etc. Funding **cannot** be used to support faculty salaries.

PRE-PROPOSAL DIRECTIONS:

*Pre-proposals are due **by 11:59PM ET on Monday, November 15, 2021**. Pre-proposals should be completed through an online form found at ColumbiaLSA.submittable.com*

Please allow time to create a Submittable account if you do not already have one.

- 1) **Areas that will be covered on the online form 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.

2021-2022
BiomedX Pre-Proposal Instructions

- 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.

2) Complete the online form and submit by 11:59PM ET on Monday November 15, 2021 to:

ColumbiaLSA.submittable.com

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.