



KILACHAND CALL FOR MDP ACCELERATOR PROPOSALS

We are working to build an interactive and collaborative environment across disciplines in the newly funded **Multicellular Design Program** (MDP; see <https://sites.bu.edu/mdp/>). The mission of the MDP, which is funded through the Rajen Kilachand Fund, is to understand the underlying design, assembly, and control principles governing multicellular systems, and to take advantage of these principles for the development of new technologies and therapies.

As part of this effort, we are seeking proposals for MDP ACCELERATOR PROJECTS, to foster MDP-themed teams that will establish a track record to support competitive applications for new external multi-investigator grants. Ultimately, our goal is to accelerate team efforts that will be able to self-sustain their activities by eventually obtaining external funding. Our priority is to support teams that can articulate a pathway to establishing major center-level, multi-investigator programs – but we will also consider smaller efforts that may lead to, for example, grants supporting a pairwise collaboration. To support this vision, we welcome proposals that involve two or more investigators, the majority of whom must be MDP faculty.

Recommended funding levels will be \$40,000 to \$80,000 *per key investigator* per year, with a maximum funding level of \$400,000 per year. Maximum project duration will be for two years, with a stipulation that projects will be reviewed annually for continued or adjusted funding. All PIs and participants must be employees of Boston University.

MDP ACCELERATOR PROJECT proposals must be uploaded to <https://sites.bu.edu/mdp/apply/> by **March 26, 2021**. Proposals must include the following (as a single pdf file):

1. **Project Description**

- a clear description of the work and how it synergizes with the research themes of the MDP
- limited to three pages, single-spaced, 11 pt font; you may add an additional page for references
- a. Include the following sections:
 - i. Research Aims
 - ii. Approach
 - iii. Planned grant submission(s)
 - iv. Project Milestones and Timeline
- b. Please design the scope of the project so that you:
 - i. Increase potential to compete for outside funding, and have explicit milestone for grant submission

- ii. Provide compelling reasons for further investment in the project and/or show potential to publish,
 - iii. minimize the time and resources required to achieve that goal.
- 2. **Budget** (download template from <https://bit.ly/2L4b2WE>). The budget periods for this Accelerator begins April 1, 2021. Using the template, please indicate how the funds will be allocated across:
 - a. Personnel
 - b. Research-related costs (i.e., research supplies)
 - c. Equipment
 - d. Other
- 3. **Team structure and budget justification (one page maximum).** Please list the individuals who will be funded by this project (including their names, contact information, and school/department at BU), their roles, and include an image and/or paragraph describing how the team is structured/organized. Please also describe how the funds will be managed and distributed.

MORE ABOUT THE MULTICELLULAR DESIGN PROGRAM: DESIGNING MULTICELLULAR SYSTEMS, FUNCTIONS, AND THERAPEUTICS

As a research community, we have developed a deep understanding of cells, their inner workings, and how they function as individuals; however, in nature, many cells function as part of complex, multicellular systems. Cells in our own tissue and organ systems, the bacteria that live in our gut or cause infections, and even cancers operate in coordinated communities with emergent properties that are not present in isolated cells. Exploiting its unique combination of strengths in Synthetic Biology, Microbial Engineering, Tissue Engineering, Data Science, and Biophysics, Boston University is uniquely poised to address this major gap by establishing a new Multicellular Design Program. The Multicellular Design Program will establish a physical and organizational infrastructure that stewards a self-sustaining, vibrant community of Boston University scientists to pioneer this critical new field. Specifically, the MDP will provide:

- 1) a platform for scientists across Boston University to bring to bear their expertises from computing, physics, mathematics, engineering, biology, and medicine into a major integrated effort to understand the design principles of multicellular systems,
- 2) a new training ground for students and fellows at these interfaces, and
- 3) a new science that researchers across the globe can participate in.

This program will shepherd in a new era in engineering biology with major societal impacts and demonstrate these impacts through creating synthetic multicellular communities for the rational design of smart medical therapies.

MDP Faculty:

Azer Bestavros, Ph.D., Department of Computer Science
Cynthia Bradham, Ph.D., Department of Biology
Christopher Chen, M.D., Ph.D., Department of Biomedical Engineering
Douglas Densmore, Ph.D., Department of Electrical and Computer Engineering
Mary Dunlop, Ph.D., Department of Biomedical Engineering
Andrew Emili, Ph.D., Department of Biology/Biochemistry
Laertis Ikonomidou, Ph.D., Department of Medicine
Thomas Kepler, Ph.D., Department of Microbiology
Ahmad Khalil, Ph.D., Department of Biomedical Engineering
Mark Kon, Ph.D., Department of Mathematics and Statistics
Kirill Korolev, Ph.D., Department of Physics
Darrell Kotton, M.D., Department of Medicine
Joseph Larkin, Ph.D., Department of Biology/Physics
Pankaj Mehta, Ph.D., Department of Physics
Gustavo Mostoslavsky, M.D., Ph.D., Department of Medicine/Microbiology
John Ngo, Ph.D., Department of Biomedical Engineering
Allyson Sgro, Ph.D., Department of Biomedical Engineering
Daniel Segrè, Ph.D., Department of Biology/Bioinformatics Program
Trevor Siggers, Ph.D., Department of Biology
Alice White, Ph.D., Department of Mechanical Engineering
Wilson Wong, Ph.D., Department of Biomedical Engineering