

COLUMBIA UNIVERSITY

Columbia University is committed to establishing an innovation fund for the purposes of furthering knowledge-driven basic research in the basic sciences. We define this to be the discovery of the laws that control the functioning of the natural world, and the gaining of sufficient understanding of these laws so that new insights can be gained and predictions made about how the natural world operates. The benefits for humankind are two-fold: (1) the joy that results from the understanding of why something is the way that it is – the removal of mystery, the ability to satisfy our natural curiosity, and (2) the myriad applications for this new knowledge, in everything from medicine to engineering, that improves the quality of our lives.

Columbia's innovation fund would be managed centrally by the Office of the EVP for Research. Proposals would be requested from all primary investigators throughout the University working on fundamental science. The Office of the EVP for Research at Columbia currently expends ~\$1M per year of internal funds supporting innovative research projects along the lines described here. This program is very heavily over-subscribed with success rates in the single digit percentages. There is an urgent need for significant expansion of the program.

The criteria for selection would be defined clearly in the program announcement. In particular, we would give preference to projects that have two key attributes:

- Truly innovative cutting edge fundamental research topics with little probability of funding from conventional federal sources, but that show promise of establishing completely new and disruptive insights into the natural sciences
- Topics that cross the boundaries of conventional disciplines and include investigators from multiple schools or departments and/or are focused upon completely new areas of research in which the University currently has no track record.

In early years, we will aim to balance the need for current use funds, for “fast fuel,” with endowed funds, which will allow us to plan for the long term. In future years, we will want to move toward more funding for endowment purposes. Eventually, through a combination of current use and endowed funds, our hope is to support multi- (approximately three-) year packages of \$80K-\$100K a year for approximately 20-25 primary investigators. Funding decisions would be informed by a conventional peer review process that includes both written reviews and panel discussions. Depending upon proposal pressure, a ‘pre-proposal’ vetting process may be used to reduce time spent by faculty preparing full proposals that prove unsuccessful.

In the beginning, with a small program, we would not use the seniority of the investigator as a factor in the funding decisions. With growth however, serious consideration would be given to separating out a portion of the funds to target specific sub-groups e.g. beginning investigators or senior individuals who want to change their research direction. Similarly, we will not be biased in our view of what is more desirable: single investigator research or large scale cross-disciplinary programs. It is true that multiple talented investigators coming together on innovative projects will certainly be very compelling to the reviewers and to external donors. Columbia has many existing examples of successful projects based on this model. Larger scale cross-disciplinary

programs are in keeping with the direction in which Columbia's research agenda and, seemingly, donor interest is heading, so the scale may tip in favor of those kinds of projects. Having said this, the most important criteria are the merits of the investigators and projects under consideration.

The innovation fund will focus on the support of research staff and faculty at all levels from graduate students to full professors. The goal will be to use the peer review process to identify the very best intellects and provide support for them to pursue their ideas. Through a rigorous faculty-based strategic planning exercise, Columbia has identified six broad science themes upon which efforts will be focused over the next decade: Life, Molecular Architectures, Origins of the Universe, Earth, Neuroscience, and Data Sciences. Consideration will be given, *but not restricted*, to innovative proposals that fall within these themes.

Separate from the innovation fund being discussed here, the University strives to develop major focused initiatives targeted at major topical problems. Key examples of these are the Earth Institute, the Mortimer B. Zuckerman Mind, Brain and Behavior Institute and a new effort in the earliest stages of development focused upon Personalized Medicine. In addition, plans are being developed to create a number of new cross-disciplinary institutes and centers tackling particular sub-areas of the aforementioned six primary science themes identified through our strategic planning process. Some donors may want to support well-defined focused activities – e.g., new construction, instrumentation, and faculty positions – within these efforts, and we continue to work to develop sources of support for these important targeted priorities. But this is separate from the innovation fund upon which we focus here.

From the Presidential level on down, Columbia is already well focused on grand challenges from climate change to neuroscience. The purpose of the innovation fund, however, would be to identify new truly innovative ideas. If these ideas lie within the boundaries of one of the University's strategic initiatives, they will not be penalized for that. But neither will emphasis be placed on using these funds to target exclusively projects that fit beneath the umbrella of one of the major University-wide initiatives. The focus will be only the identification of *the best people with the best ideas*.