

## **University of Arizona Boundless Discovery Fund**

The goal of discovery research is to understand fundamental mechanisms of science, often without firm direction of what specific technologies and products subsequently may ensue. The University of Arizona is known around the world for collaborating boundlessly across disciplines in outstanding discovery research and scholarship that has enabled better understanding everything from the origins of the universe to molecular mechanisms of nutrition from food. With our land-grant tradition, the UA has a long history and distinguished record of translating discovery research into creative solutions that benefit our public by addressing the grand challenges that face the world now and in centuries to come.

Although the pathway from discovery-oriented research to innovative products and technologies often takes unexpected twists and turns, innovation and public impact depend directly on a robust platform of discovery research. The tight federal fiscal climate and heightened uncertainty about the future are increasing pressure on federal agencies to adopt a more conservative posture and to demonstrate short term results. Consequently, federal agencies are investing in already proven concepts, and there is no avenue for the evaluation of new “blue sky” ideas—those that offer great promise and yet carry more risk for failure. Without funding support for these novel ideas, possible innovations are cut off and unexplored; who knows which of these could have led to a cure for cancer or a method to sustainably power our future? These conditions threaten the competitiveness and leadership position of the U.S. economy and, if they persist, are likely to harm our quality of life in the future.

In response, the University of Arizona is joining our other premier research university colleagues to engage philanthropists in the support for these critical discovery research activities. At the University of Arizona, we will expand our existing competitive internal seed fund programs to include additional awards or tracks of sufficient amounts of support at the key junctures for early-stage, out of the box, often transdisciplinary, multiple investigator projects that are not likely to successfully find funding from other sources in today’s federal climate. These types of “angel” philanthropic awards will enable the timely pursuit of pioneering ideas, fostering an ecosystem of innovation limited only by the imagination of the researchers,

and thus unconstrained from short term political and agency budget concerns.

Three mechanisms will be offered:

a) *Disruptive Directions Awards* Mid-career faculty have new ideas stimulated from past achievements that require changing the focus of their research and applying their expertise, experience, and research teams in new ways to new high-risk/high-reward basic research endeavors, often crossing disciplinary silos. However, without a proven track record in this new area, they may find it difficult to secure funding. New investigators are focused on establishing their individual track records and demonstrating success in the short term—that is the basis for external funding—and thus put off pursuing their best, most creative ideas for fear of failure that will impale their tenure prospects. This new track would close these gaps by providing awards of up to \$150,000 per selected faculty member.

b) *Tools for Tomorrow Awards* The University of Arizona has world-recognized achievement in the development of path-breaking new instrumentation and technologies that have advanced progress in our understanding of our physical world—from mapping the moon's surface that enabled the successful Apollo landing in the 1960s to revolutions in photonics on which modern computing now depends. With the convergence of approaches in the physical and life sciences that are resulting in new imaging methods, materials, and computational approaches, there is boundless opportunity in this regard. This award would be devoted to support for developing new scientific tools that enable entire fields of study to advance. Awards will range from \$100,000 for one-time starter grants and, depending on subsequent successful review, could be extended to more significant support for an additional year to more conclusively demonstrate real feasibility.

c) *Endless Frontiers Track* The most potentially transformational ideas frequently bring together teams of researchers from multiple fields in exciting and unanticipated combinations. Our existing internal seed program, *Catalyzing New Transdisciplinary Research Programs: Accelerate for Success*, addresses these opportunities and yet requires the identification of a specific external funding opportunity. Here with this philanthropic support, we will extend these awards earlier in the research

life cycle by providing flexible support for multi-disciplinary teams who are advancing the first frontiers of knowledge by pursuing speculative scientific questions *without a known or reasonable targeted funding opportunity*. In these very preliminary stages of their project, teams of investigators can be sparked with a \$100,000 “jump-start” grant for initial support to demonstrate feasibility, which then can be renewed for a second year under the existing *Catalyzing* program that requires identification of a specific funding mechanism.

In early years when the philanthropic base is being established, we will balance the need for current-use funds that serve as “kindling” for innovation, with endowed funds which allow greater planning for the long term. In future years, we will want to move toward more sustainable funding via endowment that enables these award mechanisms to be incorporated into the fabric of the university, reinforcing creativity as a core value of the University of Arizona.

#### Selection Process:

There are two key ingredients to successful innovation: transformative science and entrepreneurial talent who revel in the challenge of the unknown and push the envelope for breakthrough discoveries. The selection process thus demands demonstration that we are both culling the best scientific ideas that are at the edge of tolerance for risk, but also picking those individuals with high levels of expertise who are propelled to revolutionize our understanding.

Initially, recipients will be recommended for selection on the basis of merit by an interdisciplinary committee of our most distinguished faculty. Once the Boundless Discovery Fund is established at a significant level, a broader advisory board that includes external members will be named to help review and recommend recipients for selection, and ensure that funds are distributed and used in the most effective possible way. The advisory board will be composed of outstanding faculty leaders and external partners, appointed by the President and the Senior Vice President for Research. Importantly, our external partners will be chosen for their significant record of individual success, ensuring that their acumen and expertise can be deployed to identifying recipients with the qualities of truly creative thinking and drive

for discovery. The advisory board that mixes our distinguished faculty with accomplished external partners will ensure that the focus on fundamental, high-risk and high-impact research remains clear. In turn, those selected to be recipients will report the outcomes of their efforts formally to the advisory board annually, ensuring accountability and keeping the board informed of the exciting outcomes of this Discovery Fund.