

Deshpande Center for Technological Innovation

The Deshpande Center for Technological Innovation serves as a catalyst for innovation and entrepreneurship by supporting research of MIT faculty and students and facilitating collaboration with entrepreneurs, venture capitalists, and innovative businesses. It carries out its mission through several activities, including the grant program, the catalyst program, the innovation teams (“i-Teams”) subject, and sponsored events.

The Deshpande Center was founded in 2002 through a generous gift of \$20 million from Jaishree and Desh Deshpande, cofounder and chairman of Sycamore Networks, Inc. The center depends on the generous support of the entrepreneurial community at large and the MIT alumni community and seeks additional support to sustain its programs beyond the initial five years made possible by the Deshpande gift.

The Deshpande Center Steering Committee includes the following leaders:

Edward T. Anderson, managing general partner and cofounder of North Bridge Venture Partners and a leader in creating and supporting numerous successful technology ventures

Alex d’Arbeloff, honorary chairman of the MIT Corporation; retired founder, CEO, and chairman of Teradyne; and recipient of a lifetime achievement award from the Institute of Electrical and Electronics Engineers

Gururaj “Desh” Deshpande, cofounder and chairman of Sycamore Networks, founder of Cascade and other successful technology companies, and a member of the MIT Corporation

Robert S. Langer, Institute professor at MIT and a research leader in the interface of biotechnology and materials science, with nearly 550 issued or pending patents worldwide

Thomas L. Magnanti, dean of engineering and Institute professor at MIT and a leader in integrating educational programs combining engineering and management

L. Rafael Reif, MIT provost and Maseeh professor of emerging technology and a former department head of the Department of Electrical Engineering and Computer Science

Charles L. Cooney, professor of chemical and biochemical engineering, continues as the Deshpande Center’s faculty director, and Leon Sandler continues as the Deshpande Center’s executive director.

Highlights

In academic year 2006–2007, a number of the research teams the Deshpande Center has supported since 2002 began to realize significant commercial success. Since inception, the Deshpande Center has funded 64 projects with more than \$7 million in grants. Ten projects (one license) have spun out of the center into commercial ventures, having collectively raised more than \$88.7 million in outside financing. Twelve venture capital

firms have invested in these ventures and these companies now employ more than 130 people.

One of these spin-outs, Brontes Technologies, a developer of 3D imaging technology out of Professor Douglas Hart's lab, was acquired by 3M in October 2006 for \$95 million.

Awards and Recognition for Deshpande Center Grantees and Spin-Outs

Deshpande Center grant recipients and spin-outs received notable media attention for their work.

Research scientist, Rutledge Ellis-Behnke's Deshpande-funded work "Realizing modern medicine's dream of immediate hemostasis" was highlighted in an article in the *Journal of Nanomedicine*. The featured study marked the first time nanotechnology was used to achieve complete hemostasis, the process of halting bleeding from a damaged blood vessel.

SaafWater was a runner up in the 2007 MIT 100K Business Plan Competition. Building on the low-cost, electricity-free, incubation technology developed by Amy Smith and funded by the Deshpande Center, the company plans to provide clean and affordable water to the urban poor in developing countries. The incubation technology, PortaTherm (<http://www.portatherm.com/>), licensed to SaafWater, in combination with a daily chlorine water treatment capsule will help to provide 700,000 people with clean drinking water and prevent 650,000 episodes of diarrhea each year.

Myomo, Inc., Deshpande Center spin-out from the lab of Professor Woodie Flowers, published a study that appeared in the *American Journal of Physical Medicine & Rehabilitation* showing positive results for their robotic therapy device in a pilot clinical trial with stroke patients.

Pervasis Therapeutics, Inc., a Deshpande Center spin-out and pioneer in regenerative cell-based therapies and technologies, was named to the Red Herring 100 for spring 2007. Pervasis's Vascugel technology is currently in phase II clinical trials.

Deshpande Grant Program Awards

The program provides research funds that permit MIT faculty and students to create and investigate new technologies and supports the transfer of new knowledge and technologies from the Institute to young companies. The grant program consists of two types of awards: Ignition Grants of up to \$50,000 and Innovation Grants of up to \$250,000. Multiple experts in academia and industry review each application in two stages: preproposal and full proposal. The center announces awards twice annually.

The Deshpande Center awarded 13 grants in fiscal year 2007 totaling almost \$1.1 million. The awards support a wide range of emerging technologies.

Ignition Grants

With up to \$50,000, Ignition Grants target projects focusing on novel, enabling, and potentially useful ideas in all areas of technology. Though it might enable only exploratory experiments to establish proof of concept, an Ignition Grant can position projects to receive further funding, such as an Innovation Grant, to take a concept to full development.

Academic Year 2006 Ignition Grant Recipients

Patrick Doyle: Rapid multiplexed analysis for molecular diagnostics

A new method to perform multitarget bioassays using microparticles that may enable clinical bedside diagnostics and easier, less-costly diagnosis of disease.

Dina Katabi: High-throughput dense wireless networks

A new network design to create high throughput for wireless networks to increase network availability in urban settings.

Richard Lanza: Phase-contrast x-ray imaging

A phase-contrast approach to x-ray imaging that could affect a wide range of areas, from medical imaging to homeland security.

Carol Livermore and Timothy Havel: Portable power sources

A new method for creating efficient long-lasting portable power sources that could change the battery market.

Tomás Palacios: Gallium nitride high electron mobility transistors

A new approach to the fabrication technology of gallium nitride semiconductors to reduce the cost and improve the performance of electronic products.

Emanuel Sachs: High-efficiency multicrystalline solar cells

A new approach to improve the efficiency of multicrystalline solar cells that could lower the cost per watt of solar energy, allowing it to become more competitive with grid electricity.

Alexander Slocum, Omid Farokhzad, and Jeffrey Karp: Device for sensing tissues and tissue compartments. A new device to assist in sensing tissue as catheter needles are inserted during common medical procedures.

Francesco Stellacci and Jing Kong: Superhydrophobic nanomaterials

A simple and rapid nanomaterial approach to controlling surface wetting that could affect how environmentally hazardous materials are cleaned.

Innovation Grants

With as much as \$250,000, an Innovation Grant benefits projects that have established proof of concept and identified a research and development path and intellectual property strategy. Each grant helps a project build a package to bring to venture capitalists or companies that might invest in its technology. Some projects require additional funds to reach the venture funding or licensing stage, and these renewals go through the same rigorous application process as new grant requests, since the Deshpande Center aims to minimize the financial support needed to get the technologies out the door.

Academic Year 2006 Innovation Grant Recipients

Sangeeta Bhatia: Human liver models for faster, safer drug development
This miniature human liver tissue could lead to safer, faster, and more cost-effective drug development by measuring toxicity at an early stage in the development process.

Yet-Ming Chiang: Continuous drug delivery
A new device to provide medicine through a portable delivery device to assist individuals with chronic diseases.

Michael Cima: Medicine delivery method for bladder disorders
A new device to provide medicine over a period of time that treats bladder disorders, from overactive bladder to interstitial cystitis to cancer.

Klavs Jensen: High-throughput cell microinjector
A new automated microinjector that promises high-throughput delivery of any molecule or nanoparticle into single cells to accelerate laboratory research.

Donald Sadoway: High-amperage energy storage device
A new technology to store high-amperage energy for industrial settings.

Catalyst Program

Volunteers from the business community are central to achieving the Deshpande Center's mission of helping MIT innovators achieve market impact.

Catalysts are a highly vetted group of individuals with experience relevant to innovation, technology commercialization, and entrepreneurship. Catalysts provide individual contributions to the center and do not represent any company interests in their role as catalysts.

Catalysts are chosen based on the following qualifications:

- Experience in commercializing early-stage technologies and/or mentoring researchers and entrepreneurs as well as industry expertise
- Willingness to proactively provide assistance to MIT research teams
- Willingness to abide by the time commitment, confidentiality, and conflict of interest guidelines
- Commitment to the interests of MIT researchers and the Deshpande Center.

All catalysts must sign a catalyst guidelines document and agree to abide by the Deshpande Center's volunteer guidelines for managing privileged information and conflict of interest.

Innovation Teams

The Innovation Teams (i-Teams) subject is a full-credit subject taught jointly by the School of Engineering and the Sloan School of Management. The subject is designed for entrepreneurial and highly qualified graduate students throughout the Institute who want to help bring innovations from Deshpande Center-funded research projects

to the marketplace. Guided by the project's principal investigators, faculty from MIT's Entrepreneurship Center, and Deshpande catalysts, each team is expected to create a go-to-market strategy for a technology developed by Deshpande Center-funded research.

The subject has been offered seven times, focused on go-to-market strategies for 40 projects, and has engaged 200 students.

Deshpande Center Events

Through its sponsored events, the Deshpande Center seeks to bring together the components needed for MIT technologies to reach commercialization. These events connect faculty and students with members of the emerging technology industry.

IdeaStream Symposium

On April 12, 2007, the Deshpande Center held its annual IdeaStream Symposium aimed at connecting MIT researchers with the entrepreneurial community. The symposium included presentations highlighting grantees at different stages, from new grantee to spin-out; an Innovation Showcase, at which MIT researchers pitch their innovative technology ideas to and get market feedback from venture capitalists and successful entrepreneurs attending the symposium; and addresses by [Claude Canizares](#), vice president for research, and Tim Brown, president and CEO of IDEO, a world leader in design and innovation. More than 300 entrepreneurs, industry executives, venture capitalists, and MIT researchers attended this year's conference, which had the generous support of 12 corporate sponsors.

Catalyst Events

Each semester, the Deshpande Center organizes a small reception to celebrate the latest grant recipients in advance of announcing the grant round. It's an opportunity for the grant recipient teams and catalysts to get to know each other, and all new grant recipients are asked to give a brief "elevator pitch" of their project. It is not unusual for MIT collaborations to evolve from this event.

Open House

The Deshpande Center hosted its open house event in November 2006, which brought together members of the MIT Corporation as well as members of the Deshpande community for an evening of networking among poster presentations of the active grant projects.

Other Collaborations

The Deshpande Center also collaborates with the Center for Integration of Medicine and Innovative Technology and in FY2007 met with more than 30 organizations from 12 countries to discuss the center's and MIT's approach to innovation and technology commercialization. The Deshpande Center's staff also spoke at numerous forums and events across the United States, and the center is seen as a model for stimulating technological innovation.

Within the MIT community, the Deshpande Center actively collaborates with other members of MIT's ecosystem, including the Technology Licensing Office, the Entrepreneurship Center, the Venture Mentoring Service, the Industrial Liaison Program, and numerous student organizations.

Leon Sandler
Executive Director

More information on the Deshpande Center for Technological Innovation can be found at <http://web.mit.edu/deshpandecenter/>.