

# Rapid economic returns and long-term global impact

The hundreds of researchers at ASU's Biodesign Institute are driven by a passion to solve some of the world's most urgent problems affecting human health and the health of our planet:

- Improving health care through more personalized diagnostics and treatment
- Providing renewable sources of energy and cleaning our environment
- Outpacing the global threat of infectious disease
- Securing a safer world

## FY '08 Research Highlights

- Engineered and installed a rooftop-scale test for a \$4.5 million ASU initiative to develop a renewable source of biofuel using photosynthetic bacteria. The fuel is expected to have a higher yield than existing biofuels, does not compete with food crops and conserves water. Energy giant BP and Science Foundation Arizona are funding the project.
- Partnered with TGen to launch the \$45 million global Partnership for Personalized Medicine, which recently secured an international collaboration with the government of Luxembourg to develop new diagnostics for lung cancer.
- Launched an experiment aboard the space shuttle Atlantis and—in the first study of its kind—demonstrated that bacteria become more infectious in space, posing a greater risk to flight crews.
- Developed a new vaccine that can sneak into the body and self-destruct, using salmonella as a versatile vaccine delivery system against a variety of pathogens.
- Developed the world's first gene detection platform that is made up entirely from self-assembled DNA nanostructures. It is able to detect genes in a single cell.
- Received \$6.9 million to develop a breast cancer vaccine plus \$1.2 million to apply the research to other forms of cancer.
- Secured \$2.5 million in philanthropic funding to generate hydrogen fuel using photosynthetic bacteria.
- Received \$3.2 million to create a rapid test for urinary tract infections.
- Received \$1.5 million to discover a plant-based treatment for West Nile virus.

Since inception five years ago, the **Biodesign Institute** has had significant economic, educational and societal impact:

- Produced **\$199 million** in competitive research funding
- Disclosed **212** inventions
- Filed **46** patents
- Created **500** new jobs
- Recruited **60** new faculty
- Provided hands-on research experience for more than **250** students per semester
- Provided internships for more than **74** high school students
- Provided summer research experiences for **35** high school teachers
- Hosted **308** seminars by visiting scientists and **27** major symposia
- Led development of **10** new academic courses and developed a new interdisciplinary PhD program
- Published **460** papers in peer-reviewed scientific journals
- Participated as invited speakers at **286** major symposia
- Conducted **733** tours with **4,700** participants
- Collaborated with **15** ASU units, **9** local scientific/health organizations and **39** other academic and industrial partners