

Join us to accelerate discoveries

Our scientifically diverse teams are remarkably successful in securing funding for their research from government and industry partners. However, grants do not cover all research-related expenses and are often earmarked for specific aspects of a project.

Philanthropy empowers our faculty and students with the flexibility they need to bolster their efforts and reach bold research goals. With a gift to the Biodesign Institute, you will become part of our collaborative and dynamic teams whose solutions will improve our health and our planet for generations to come. Investing in Biodesign helps move answers faster from lab to life-changing impact.

Learn how you can accelerate discoveries at
www.asufoundation.org/biodesign-philanthropy

biodesign.asu.edu

The **Biodesign Institute** is a unit of ASU's Knowledge Enterprise.

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LEGACY *of* DISCOVERY

biodesign.asu.edu



A bold vision: Healthy people on a healthy planet

In 2003, Arizona State University President Michael M. Crow launched a new kind of research institute — one where scientists, engineers, thinkers and dreamers replicate the elegance of the natural world to create new solutions to challenges in health, sustainability and human security. The Biodesign Institute provides an ecosystem where scientists collaborate across disciplines to create innovations and technologies for the benefit of humankind.

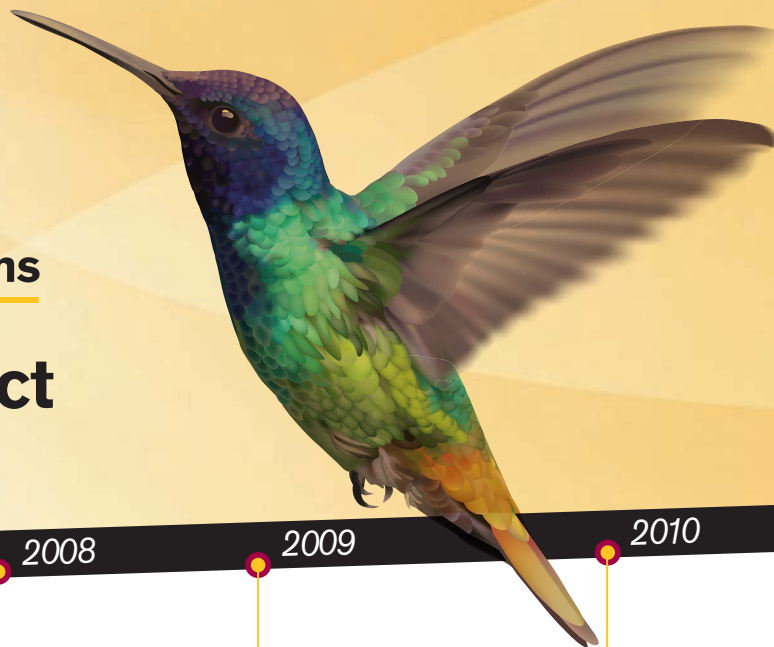
Since then, Biodesign scientists have created a therapy against the Ebola virus, discovered an early diagnostic for breast cancer and provided data that brought potentially harmful chemicals in personal-care products to light. These are just a handful of ways our research is leading to discoveries and inventions that answer today's challenges.

As the premier scientific research institute in the nation's fastest-growing research university, Biodesign's impact is accelerating. We invite you to explore highlights of our accomplishments and join us in designing a better future.

**#1 in the U.S.
for innovation**

ASU ahead of Stanford and MIT
— U.S. News & World Report 2016, 2017, 2018 and 2019

Nature-inspired solutions for global impact



2004



DEC. 13

Biodesign opens

President Crow's vision for rapid research success takes shape with the opening of the Biodesign Institute. The new institute provides a collaborative, interdisciplinary environment for researchers to explore natural biological systems for the benefit of human and environmental health.

2006



MARCH 21

Rapid expansion

The grand opening of Biodesign Institute Building B demonstrates the rapid pace with which ASU is acting on its goal of developing a world-class research program. The event paid tribute to the foresight of the 2003 Arizona Legislature, which passed an appropriations bill that funded this phase of the institute's development.

2008

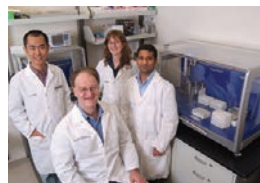


FEB. 27

Microorganisms clean water

A Biodesign team invents a membrane biofilm reactor that uses naturally occurring microorganisms to remove contaminants from water. The system provides the microorganisms with hydrogen gas, which must be present for them to change the chemical composition of a contaminant and render it harmless.

2009



JAN. 19

Obesity and the microbiome

Mayo Clinic and ASU collaborators report that gut microbes play a role in regulating weight. Modifying these bacteria could one day be a treatment option for obesity.

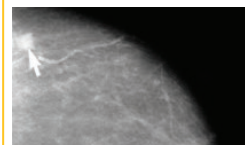
2010



FEB. 1

West Nile therapeutic

Biodesign scientists are the first to demonstrate a plant-derived treatment to successfully combat West Nile virus after exposure and infection. Plants offer an inexpensive and effective "laboratory" for creating new treatments.



DEC. 16

Early detection of breast cancer

Scientists discover powerful biomarkers for the early detection of breast cancer. The findings represent the first demonstration of a custom protein-array technology used to find biomarkers in breast cancer patients before they were clinically diagnosed with cancer.

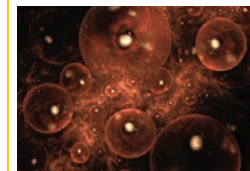
2013



JAN. 24

Mobile health

Breezing, a spinout company, launches the world's first portable metabolism tracker. The device provides users with personalized metabolic information to help them adjust their diet and exercise regimens for maintaining or reaching a healthy weight.



MARCH 21

Synthetic biology

A new study shows alternatives to DNA and RNA that are capable of sharing genetic information. The findings offer clues to early life, contribute to the search for life elsewhere in the universe and point to possible applications in molecular medicine.

2014



AUG. 5

ASU and Ebola

Two U.S. aid workers infected with Ebola virus recover after receiving an experimental treatment made using modified tobacco plants. ASU researchers developed the treatment, ZMapp, in collaboration with Mapp Biopharmaceutical and Kentucky BioProcessing.



AUG. 19

FDA approves autism treatment study

The FDA approves a pilot treatment study of 20 children with autism, ages 7-17, with moderate to severe gastrointestinal problems. Through a process known as "fecal microbiota transplants," researchers saw an 80 percent reduction in gastrointestinal distress and a significant improvement in behavior.

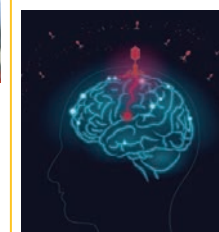


NOV. 24

DNA reader

Scientists from the Biodesign Institute and IBM Thomas J. Watson Research Center develop a prototype DNA reader. The reader could make whole-genome profiling an everyday practice in medicine by significantly reducing the cost.

2018



JUNE 21

Alzheimer's viral connection

Biodesign researchers with colleagues at Mount Sinai provide multiple lines of evidence to suggest that certain species of herpesviruses contribute to the development of Alzheimer's disease. The study clarifies the mechanisms by which infectious agents may play important roles in the disease.



SEPT. 17

Biodesign Building C opens

ASU opens a five-story, 191,000-square-foot building to give scientists more space to realize discovery and innovation goals. Biodesign Building C is the third of four facilities planned to accommodate the institute's research efforts, and will be home to the world's first compact X-ray free electron laser.



FEB. 12

Nanorobots seek and destroy tumors

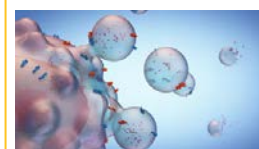
ASU scientists and collaborators successfully program nanobots to shrink tumors by cutting off their blood supply. The successful demonstration of the technology is the first-of-its-kind study in mammals.



AUG. 29

Rittmann wins Stockholm Water Prize

Biodesign researcher Bruce Rittmann receives the 2018 Stockholm Water Prize for microbiology research and innovations that have revolutionized water and wastewater treatment. The award is sometimes referred to as "the Nobel Prize of water."



FEB. 6

Test for pancreatic cancer

Researchers develop a new technique to identify pancreatic cancer early in its development. The method relies on the sensitive detection of extracellular vesicles – tiny bubbles of material emitted from most living cells.



AUG. 9

Improved Zika vaccine

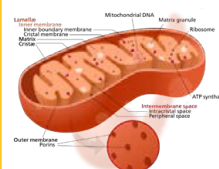
A Biodesign scientist leads a team to develop the world's first plant-based Zika vaccine that could be more potent, safer and cheaper to produce than any other efforts to date. The successful proof-of-concept offers hope for a first-phase human clinical trial in the next two years.



SEPT. 2

FDA victory

The FDA announces a ban on the sale of personal-care products containing the antimicrobials triclosan and triclocarban. The agency used findings from an ASU scientist and other researchers showing that long-term exposure to antibacterial products could pose health risks, such as bacterial resistance or hormonal effects.



NOV. 3

Brain power

Biodesign scientists investigate the role of mitochondria — the energy centers of cells — in the progression of Alzheimer's disease. The study builds on earlier work suggesting gene mutations affecting mitochondrial function may be critical in the development and progression of the disease.

2016

2015



APRIL 7

Cancer's evolution

A Biodesign scientist describes compulsive evolution and dramatic genetic diversity in cells belonging to acute myeloid leukemia. The results significantly alter existing assumptions of cancer progression, indicating much greater genetic diversity in AML than previously assumed.



AUG. 25

Colon cancer links

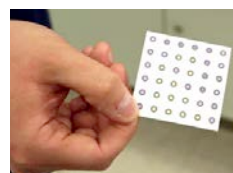
A study details how inflammation triggers colon cancer cells to spread to other organs. The findings will enable researchers to identify new drug targets for the prevention and treatment of colon cancer.



AUG. 28

Fetal influence on mom

Dramatic research has shown that during pregnancy, cells of the fetus often migrate through the placenta, taking up residence in many areas of the mother's body, where their influence may either benefit or undermine maternal health.



OCT. 20

Zika test recognized

Popular Science names a low-cost Zika virus test – developed by researchers from Harvard University and ASU – a 2016 Best of What's New award winner in the health category. The test uses a small strip of paper imprinted with a testing array, which holds potential for diagnosing a broad range of infectious diseases, including Zika.