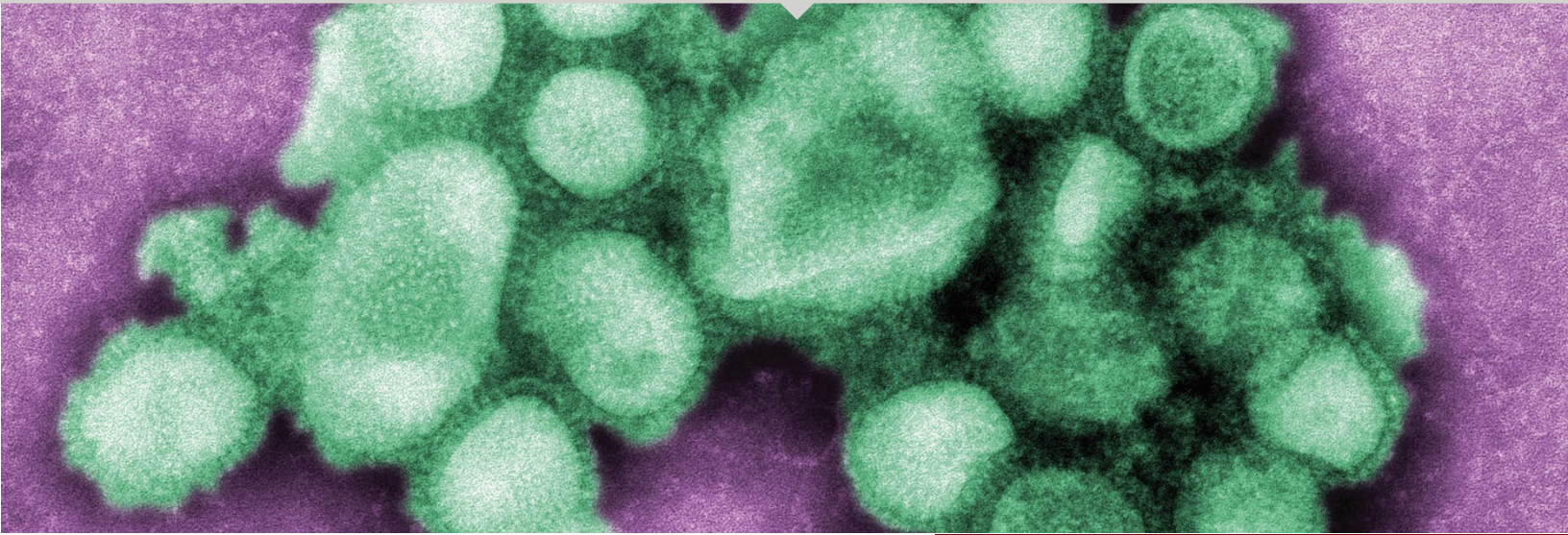


At the Vanguard of Bioengineering & Medicine



The natural world produces the world's most sophisticated and efficient systems, processes, and organisms. But what if you could improve on Mother Nature?

The discipline of biological engineering brings together the fundamentals of medicine and the breakthroughs of advanced technology, along with elements of computer science, materials science, and chemistry to bring life-saving devices, diagnostics, and therapeutics to the world. It has yielded such revolutionary innovations as tissue-engineered organs, vaccines, biopharmaceuticals, and personalized medicine, among many other advances.

The University of Chicago, UChicago Medicine, and partners at Argonne National Laboratory and the Marine Biological Laboratory form a network of research and expertise that makes us a major player in this field. We are one of a small, select group of academic medical centers with the breadth of knowledge to go beyond clinical and translational research. Our scientists have access to the brightest minds and resources in fields far outside medicine and the biological sciences – from molecular engineering to social sciences to business – that have the potential to yield answers and produce results worldwide.

Grand Challenges in Human Health

UChicago's bioengineering efforts cut across disciplines to develop new tools that address some of the most pressing challenges in medicine and human health, from cancer to chronic disease to contagious viruses.

The UChicago Medicine Comprehensive Cancer Center has received that designation from the National Cancer Institute in recognition of its leadership in the field and the depth and breadth of its research. The clinicians and physician-scientists here pursue significant transdisciplinary research, collaborating with chemists and biologists to better understand the fundamentals of the disease, as well as with computer scientists to identify and model new treatments and partner with molecular engineers to design innovative therapeutics.

BIOENGINEERING & MEDICINE ADVANTAGE

- Home of the Chicago Immunoengineering Innovation Center, which develops technologies to treat autoimmune diseases
- One of three academic partners in the Chicago Biomedical Consortium
- One of three partners in the \$250M Chan Zuckerberg Biohub in Chicago
- Home to the Duchossois Family Institute, which seeks to improve human health through study of the microbiome
- Long-standing partnerships with Argonne National Laboratory and the Marine Biological Laboratory
- Home to a new \$815M Comprehensive Cancer Center, Illinois' first standalone structure dedicated to cancer care and research and one of only two National Cancer Institute-designated comprehensive cancer centers in the state

Faculty at UChicago developed the field of immunoengineering to investigate more potent therapies for the human immune system, such as the inverse vaccine that may have to potential to completely reverse diseases like diabetes or multiple sclerosis. By combining existing strengths in immunology research with the cutting-edge technologies being pursued at the Pritzker School of Molecular Engineering, the University of Chicago is poised to revolutionize the study and treatment of disease.

Forging a new interdisciplinary field and approach to tackling disease, the Chicago Immunoengineering Innovation Center (CIIC) brings together UChicago engineers, immunologists, biologists, and clinicians. These teams collaborate to create state-of-the-art tools and technologies that uncover new insights into the immune system and develop innovative solutions that address immunological problems.

A Bioengineering Ecosystem

Chicagoland is increasingly important to the bioengineering industry, with local startups and companies securing an increasing portion of activity nationwide. The University plays a leading role in Chicago's life sciences and bioengineering network. In partnership with Northwestern University and the University of Illinois Urbana-Champaign, it forms the Chan Zuckerberg (CZ) Biohub in Chicago, the first CZ Biohub outside of California. The Chicago hub uses an engineering-driven approach to study human tissue at the molecular level, helping doctors to better understand the genesis of inflammation and the inner workings of the immune system.

The University is also part of the Chicago Biomedical Consortium, which fosters collaborations between researchers at UChicago, Northwestern, the University of Illinois Chicago, and other Chicago institutions to accelerate discovery and expand the Chicago-based life sciences ecosystem.

Research Spotlight

Prof. Savas Tay brings an engineer's perspective to understanding how life works. He studies how cells communicate with each other using signaling networks and develops single-cell and single-molecule technologies to model complex biological systems.



Bridging Bench to Bedside

To ensure that the discoveries made at UChicago have the broadest impact possible, the University has placed an emphasis on commercialization and entrepreneurship. The Polsky Center for Entrepreneurship and Innovation provides world-class business expertise to help researchers license and bring their breakthrough ideas to market. The CIIC has integrated a strong entrepreneurship component into its mission and works closely with the Polsky Center and industry partners to translate breakthroughs in immunological into clinical solutions.

PARTNER WITH US

[Corporate Engagement](#)
[PME Corporate Affiliates Program](#)
[Chicago Immunoengineering Innovation Center](#)
[Industrial Partnerships](#)

CONTACT US

sciencescale@uchicago.edu • science.uchicago.edu

BIOLOGICAL ENGINEERING AT-A-GLANCE

TOP 20

Best Medical Schools
for Research

\$338M

NIH Funding (2024)

50+

Core Facilities

300+

Industry Partners in
Clinical Trials

12

Nobel Prize Winners in
Physiology & Medicine