

HIGHER EDUCATION

Center to tackle urgent health issues

\$313 Emory building to host scientists seeking medical breakthroughs.

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Emory University unveiled Wednesday an innovative health and sciences research building, an expansive space designed to bring together scientists from across disciplines to tackle some of the most urgent and complex human health problems of our time.

Located on Haygood Road behind Children's Healthcare of Atlanta at Egleston hospital, the eight-story building with 350,000 square feet is now the largest academic health sciences research facility in Georgia. The Health Sciences Research Building II (HSRB-II) also stands beside its sister facility, Health Sciences Research Building I, which opened in 2013.

Designed by global architecture firm HOK, the \$313 million Emory building is modeled after the Francis Crick Institute in London, a highly interactive and open space with a reputation for focusing on collaboration, openness, and flexibility reflected at every stage of the building design. The institute now has more than 100 research groups.

"This space was really designed to facilitate interdisciplinary next generation of research," said Adam Marcus, a cancer biologist and associate vice president for research for Emory's Woodruff Health Sciences Center, "creating an environment where people can work together in a way that's really newly imagined."

The dynamic space at Emory features a 5-story green wall with thousands of live plants,



Professor James Dahlman speaks to students at Emory University's new Health Sciences Research Building II on Wednesday in Atlanta. The eight-story building with 350,000 square feet is now the largest academic health sciences research facility in Georgia.



John Oshinski gives a tour of research equipment at Emory University's new Health Sciences Research Building II. PHOTOS BY CHRISTINA MATA-COTTA FOR THE AJC

a built-in irrigation system and light-filled central atrium. It will house laboratories and creative

workspaces for about 130 principal investigators (which are researchers leading clinical trials or research) and 1,000 scientists from many specialties, including: pediatrics, biomedical engineering, the Winship Cancer Institute, cardiovascular medicine, the Emory Vaccine Center, radiology and brain health. Together, they will research potential cures for some of the most common and deadly diseases, including cancer, heart disease, HIV and Alzheimer's.

They will also tackle viruses, including the coronavirus. They will lean into cutting-edge approaches to health care, such as using Artificial Intelligence (AI) tools to diagnose, treat and monitor patients, and using nanotechnology to test and refine treatments. Nanotechnology means working with materials at the nano level – a scale too small to be seen with a regular lab microscope. Think of it this way: chemotherapy delivers can-

cer-fighting drugs to the entire body. That's why patients may lose their hair and have side effects like nausea. Nanomedicine helps doctors target the medicine to cancer cells and limit damage to healthy ones.

Emory is a major U.S. research hub. In 2021, Emory brought in \$847.3 million in research funding, much of from the National Institutes of Health. Emory has moved up to No. 17 in the nation for NIH funding for universities, according to Emory. At the department level, Emory School of Medicine has 13 departments in the top 20 for research funding, including pediatrics at No. 1 in the country, biomedical engineering at No. 4 and neurology at No. 5.

Key features of the new Emory facility include state-of-the-art imaging systems along with informal and formal meeting spaces. The design of the atrium is enhanced with large digital display panels scattered around asking thought-provoking questions of the day. One of the questions: How can we find an effective cure for HIV infection & AIDS?

Also inside the facility is Lab-2Launch, an incubator area fostering the acceleration of collaborative research by providing a low-cost coworking environment pairing lab space with Emory-affiliated start-up companies.

So while most of the floors are dedicated to specific diseases or areas of research such as cancer or vaccine development, the sixth floor – coined, "game changers" – will bring together researchers of various backgrounds to work together.

"The idea is we take fields that don't normally interact and put them in the same space, share ideas, and move science forward," said Marcus.

The sixth floor will house James Dahlman and his eponymous

lab – the Dahlman lab, where research focuses on mRNA therapeutics to fight diseases including cystic fibrosis, autoimmune disorders and cancer. To work, these drugs must be delivered directly to target cells in nanoscale bubbles of fat called lipid nanoparticles, or LNPs. To speed up the process of testing the effectiveness of their LNPs, Dahlman's team has developed a technique called DNA barcoding.

"This space is spectacular and is going to help us do a number of studies," said Dahlman. "It's allowed our lab to really thoughtfully structure itself so that really, really intense, like very clinically relevant experiments are possible. So you know running a few thousand experiments at once is really intense ... Most of the people on this floor have no expertise in what I do and I have no expertise in what they do. But you know some of the computational stuff going on down the hall is stuff we can never do but talking to them about how we might be able to analyze these gigantic data sets we generate could be very useful."

Ground was broken on the facility in 2019 and construction began in March 2020. The project was partially funded by a \$400 million gift from the Robert W. Woodruff Foundation – the largest ever received by Emory University – with \$200 million of that gift directed for biomedical research.

"HSRB II is in the vanguard of new biomedical research buildings, creating a remarkable work environment, connectivity and synergy – open labs and workspaces with soft barriers – to facilitate the discovery of the biology underlying human health," said Dr. David Stephens, vice president of research for the Woodruff Health Sciences Center, in an email.

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