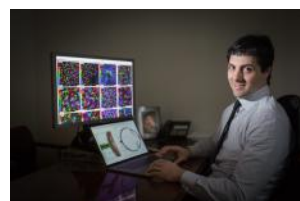


**Publications of the Week**
**CSF1R Inhibition by a Small-Molecule Inhibitor Is Not Microglia Specific; Affecting Hematopoiesis and the Function of Macrophages**

 First Author: Fengyang Lei | Senior Author: Eleftherios Paschalis (pictured)  
 PNAS | Massachusetts Eye and Ear


Colony-stimulating factor 1 receptor (CSF1R) inhibition has been proposed as a method for microglia depletion, with the assumption that it does not affect peripheral immune cells. The authors showed that CSF1R inhibition by PLX5622 indeed affects the myeloid and lymphoid compartments, causes long-term changes in bone marrow-derived macrophages, and also reduces the population of resident and interstitial macrophages of peritoneum, lung, and liver but not spleen. [Profile](#) | [Abstract](#)

**Cell-Based Artificial APC Resistant to Lentiviral Transduction for Efficient Generation of CAR-T Cells from Various Cell Sources**

 First Author: Andrea Schmidt | Senior Author: Marcela Maus (pictured)  
 Journal for ImmunoTherapy of Cancer | Massachusetts General Hospital and Harvard Medical School


The authors created K562-based artificial antigen-presenting cells (aAPC) with genetically encoded T cell stimulation and costimulation that represent an inexhaustible source for T cell activation. They found that lack of low-density lipoprotein receptor (LDLR) expression on their aAPC conferred resistance to lentiviral transduction during CAR-T production. [Abstract](#)

[View All Publications](#)
**Local News**
**Dana-Farber Opens Clinical Trial to Evaluate Simple Blood Test for Many Types of Cancer**

Dana-Farber



Recent advances such as immune, cellular and targeted therapies have provided new and effective means to treat a variety of cancers. But despite this considerable progress, cancer caught in its earliest stages remains the most curable. That is why Dana-Farber is opening a new clinical trial to evaluate a minimally invasive blood test that will look for the earliest signs of cancer which may be present in the blood stream before the disease has progressed to a point where it causes symptoms. [Read More](#)

**Live Imaging Method Brings Structural Information to Mapping of Brain Function**

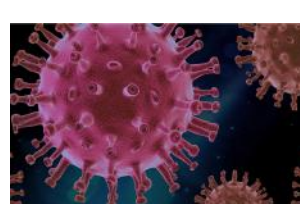
The Picower Institute



To understand the massive capabilities and complexities of the brain, neuroscientists segment it into regions based on what they appear to do. What's been lacking, however, is an ability to tie those functional maps precisely and consistently to matching distinctions of physical structure, especially in live animals while they are performing the functions of interest. In a new study, MIT researchers demonstrate a new way to do that. [Read More](#)

**Rapid Test for COVID-19 Shows Improved Sensitivity**

MIT News



Since the start of the COVID-19 pandemic, researchers at MIT and the Broad Institute and their collaborators have been working on a CRISPR-based diagnostic for COVID-19 that can produce results in 30 minutes to an hour with similar accuracy as the standard PCR diagnostics now used. The new test, known as STOPCovid, is still in the research stage but, in principle, could be made cheaply enough that people could test themselves every day. [Read More](#)

**Bringing New Energy to Mitochondria Research**

Whitehead Institute



Researchers had already known the identities of the molecules that transport nicotinamide adenine dinucleotide, which plays a big part in respiration and metabolism, from the wider cell into the mitochondria of yeast and plants, but had not found the animal equivalent — in fact, there was some debate over whether one even existed or whether animal cells used other methods altogether. Now, Whitehead Institute postdoctoral researcher Dr. Nora Kory (pictured) may end the debate. [Read More](#)

**Making Tuberculosis More Susceptible to Antibiotics**

MIT News



Every living cell is coated with a distinctive array of carbohydrates, which serves as a unique cellular "ID" and helps to manage the cell's interactions with other cells. In a study of mycobacteria, the type of bacteria that cause tuberculosis and other diseases, MIT chemists have found that shortening the length of a carbohydrate called galactan impairs some cell functions and makes the cells much more susceptible to certain antibiotics. [Read More](#)

**FARE Grants \$15 Million to Broad for Deciphering Brain-Gut Connections in Food Allergy**

Broad Institute



FARE (Food Allergy Research & Education), the world's largest private funder of food allergy research, has awarded a three-year, \$15 million grant to the Food Allergy Science Initiative at the Broad Institute to support a project "Untangling Neuroimmune Communications in Food Allergy." This grant was made possible by the support of FARE board member Christine Olsen and her husband Robert Small, with funds matched by FARE. [Read More](#)

**Sanofi, MassBio, and Biocom Host First-Ever Bicoastal Partnering Day to Catalyze Industry Collaboration**

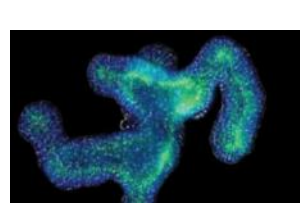
MassBio



Sanofi, MassBio, and Biocom have announced a collaboration to hold the first-ever bicoastal partnering day. Sanofi Partnering Day with MassBio and Biocom unifies the two organizations to provide Sanofi with a premier portal to connect with the most innovative biotech companies, entrepreneurs, academics, research institutions, accelerators, and incubators in Massachusetts, California, and across the U.S. [Read More](#)

**Organoids Emerge as Powerful Tools for Disease Modeling and Drug Discovery**

Broad Institute



Measuring just a few millimeters across, clusters of cultured cells that self-assemble into three-dimensional structures may look like just tiny blobs. But these tissues, called organoids, are enabling scientists to study biological processes in health and disease — and find potential new treatment strategies — in ways they couldn't before. Researchers at the Broad Institute and beyond have spent years developing and refining methods for growing organoids of various kinds. [Read More](#)

**Takeda Expands Cell Therapy Efforts with New R&D Manufacturing Plant in Boston**

BioSpace



Takeda Pharmaceutical has opened a new 24,000-square-foot R&D cell therapy manufacturing facility in Boston at the site of the company's R&D headquarters. It will provide end-to-end R&D capabilities and advance the company's plans to develop next-generation cell therapies. The initial plan is to focus on oncology, then expand into other areas. [Read More](#)

**GreenLight Biosciences Receives \$3.3 Million Grant**

GreenLight Biosciences



GreenLight Biosciences has received a \$3.3 million grant from the Bill & Melinda Gates Foundation to develop new mRNA-based gene therapies for sickle cell disease and other global health challenges. The funding will support GreenLight's research and testing of affordable therapies using the company's novel messenger RNA approach to gene editing. [Read More](#)

**Broadcom CEO Donates \$28 Million to MIT, Fueling Research for Brain Disorders**

Forbes



The McGovern Institute for Brain Research at MIT has announced a \$28 million gift from Broadcom CEO Hock Tan and retired investment banker and philanthropist Lisa Yang, establishing a new center to accelerate the development of novel therapies and technologies, including CRISPR and other gene editing tools — not only for autism but a range of brain disorders. [Read More](#)

**Tau Molecular Diversity Contributes to Clinical Heterogeneity of Alzheimer's Disease**

Massachusetts General Hospital



During the course of Alzheimer's disease (AD), tau can undergo a variety of modifications, including phosphorylation. Researchers at the MassGeneral Institute for Neurodegenerative Disease and Massachusetts General Hospital have reported that characteristics of phosphorylated tau differ not just between tauopathies but also within AD, and these differences may explain the clinical heterogeneity of the disease. [Read More](#)

**NIH Grant Will Establish New Framingham Heart Study Brain Aging Program**

Boston University School of Medicine



Since 1976, the Framingham Heart Study (FHS) — the longest running multi-generational epidemiological study in the world — has followed participants for incident dementia. Now thanks to a five-year, \$26.56 million grant from the National Institutes of Health (NIH), a new program called the Framingham Heart Study Brain Aging Program will continue the surveillance and evaluation of FHS participants for dementia, and invigorate the FHS brain donation program and brain bank. [Read More](#)

**As Fall Arrives and Pressures Mount, Harvard Medical Researchers Press Forward on Two COVID Vaccine Trials**

The Harvard Crimson



As summer turns to fall with no immediate end in sight to the coronavirus pandemic, researchers at Harvard Medical School's affiliated teaching hospitals are working around the clock to help design and test two major COVID-19 vaccines. The pressure to produce a vaccine is mounting as the United States and other nations continue struggling to contain the pandemic, which has closed businesses, disrupted education, and caused nearly one million deaths worldwide. [Read More](#)

**Getting Smarter About the Mind**

Tufts Now



Daniel Dennett has inspired many people, but perhaps none more than his former student Jeff Stibel (pictured), an entrepreneur and brain scientist. Stibel is ensuring that the influential philosopher's legacy will continue at Tufts, with a generous gift to create a consortium at the university focused on cognitive and brain science. Stibel's gift will launch the Stibel-Dennett Consortium for Brain and Cognitive Science, which will bring together important research and teaching in the field. [Read More](#)

**BIND: Engineered Biofilms**

Wyss Institute



A team at the Wyss Institute sees biofilms as a robust new platform for designer nanomaterials that could treat inflammatory bowel diseases, clean up polluted rivers, manufacture pharmaceutical products, fabricate new textiles, and more. A novel protein engineering system called BIND (Biofilm-Integrated Nanofiber Display) could be the essential ingredient in tomorrow's probiotic therapies as well as provide living "foundries" for producing biomaterials. [Read More](#)

**Defining a "New Normal" for Campus Research**

MIT Biology



In mid-March, MIT closed its doors due to the COVID-19 pandemic, and Building 68 temporarily became a ghost town. Home to over 25 life science labs and three core facilities, the Department of Biology's primary research hub usually teems with activity. But this spring, only a skeleton crew of essential workers came in and out, maintaining the equipment and running select experiments. Since then, the ghost town has gradually come back to life, as scientists are returning to their benches once again while taking safety precautions. [Read More](#)

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September 22	Aging Brain Initiative Symposium	Online
September 22 & 24	2020 Visions: Lunch & Learn Lightning Talks	Online
September 23	Engineering and Sciences: Applying, Surviving, & Thriving in Grad School	Online
September 23	Biography of Resistance: The Epic Battle between People and Pathogens	Online

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