

Publications of the Week
Divergent Roles of PI3K Isoforms in PTEN-Deficient Glioblastomas

First Author: Shaozhen Xie | Senior Author: Jean Zhao *(pictured)*
 Cell Reports | Dana-Farber, Harvard Medical School, and the Broad Institute



The role of the two major PI3K isoforms, p110α and p110β, in PTEN-deficient gliomagenesis remains unknown. The authors show that PTEN-deficient glioblastoma (GBM) largely depends on p110α for proliferation and p110β for migration. Genetic ablation of either isoform delays tumor progression in mice, but only ablating both isoforms completely blocks GBM driven by the concurrent ablation of *Pten* and *p53*. [Abstract](#)

Targeting the HIF2–VEGF Axis in Renal Cell Carcinoma

Senior Authors: Toni Choupeit *(pictured, left)* and William Kaehli *(pictured, right)*
 Nature Medicine | Brigham and Women's Hospital and Harvard Medical School



Multiple VEGF inhibitors are now approved for the treatment of clear-cell renal cell carcinoma, and a HIF2α inhibitor has advanced to Phase III development for this disease. The authors describe the understanding of the mechanisms of oxygen sensing and hypoxia signaling that resulted in the development of HIF2α-targeted therapies for patients with VHL-associated tumors. [Abstract](#)

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Awards
NIH Awards \$35.5 Million to Use Tiny, Bioengineered Organ Models to Improve Clinical Trials' Development and Design

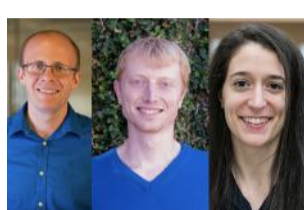
National Center for Advancing Translational Sciences



To help improve the design and implementation of clinical trials, the National Institutes of Health (NIH) has awarded 10 grants to support researchers' efforts in using tiny, bioengineered models of human tissues and organ systems to study diseases and test drugs. Among the recipients is Dr. Yu-Shrike Zhang *(pictured)*, who will conduct clinical trials on a premature vascular aging-on-a-chip model. [Read More](#)

Three from MIT Receive National Health Institute Awards

MIT News



Three MIT faculty members have been chosen to receive the New Innovators Award from the National Institutes of Health as part of its High-Risk, High-Reward Research program. Dr. Michael Birnbaum *(pictured, left)* and Dr. Anders Hansen *(pictured, center)*, both Assistant Professors of the Department of Biological Engineering, and Dr. Tami Lieberman *(pictured, right)*, an Assistant Professor of the Department of Civil and Environmental Engineering, will each receive the award. [Read More](#)

Researcher Receives Grant to Study Traumatic Stress and Cellular Aging in the Brain

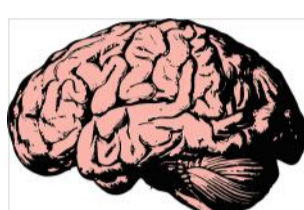
Boston University (BU) School of Medicine



Dr. Erika Wolf *(pictured)*, a Clinical Research Psychologist for the National Center for PTSD at the VA Boston Healthcare System, and Associate Professor of Psychiatry at the BU School of Medicine, is the recipient of a four-year, \$1.7 million R01 award from the National Institute on Aging to study traumatic stress related accelerated cellular aging in the brain. [Read More](#)

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Local News
Neuroscientists Discover a Molecular Mechanism That Allows Memories to Form

MIT News



When the brain forms a memory of a new experience, neurons called engram cells encode the details of the memory and are later reactivated whenever we recall it. A new MIT study reveals that this process is controlled by large-scale remodeling of cells' chromatin. This remodeling, which allows specific genes involved in storing memories to become more active, takes place in multiple stages spread out over several days. [Read More](#)

A Step Toward a Universal Flu Vaccine

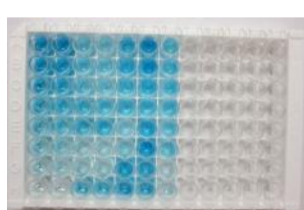
MIT News



Each year, the flu vaccine has to be redesigned to account for mutations that the virus accumulates, and even then, the vaccine is often not fully protective for everyone. Researchers at MIT and the Ragon Institute are working on strategies for designing a universal flu vaccine that could work against any flu strain. In a new study, they describe a vaccine that triggers an immune response against an influenza protein segment that rarely mutates but is normally not targeted by the immune system. [Read More](#)

Researchers Produce Superior SARS-CoV-2 Antibody Test

BU School of Medicine



Using a modified version of a standard serology test, Boston University (BU) School of Medicine researchers have found SARS-CoV-2 reactive antibodies in samples collected before the start of the pandemic, revealing antibody immunity to the virus that causes COVID-19 in unexposed people. The researchers changed some steps of the enzyme-linked immunosorbent assay method to make this test more sensitive, most notably to the plate washing procedure. [Read More](#)

Taking Gene Editing to the Brain, the Immune System, and More

Tufts Now



Tufts researchers have for the first time devised a way to directly deliver gene-editing packages efficiently across the blood brain barrier and into specific regions of the brain, into immune system cells, or to specific tissues and organs in mouse models. These applications could open up an entirely new line of strategy in the treatment of neurological conditions, as well as cancer, infectious disease, and autoimmune diseases. [Read More](#)

BioMarin Snags Stem Cell Pioneer Kevin Eggan to Lead Early R&D

Pierce Biotech



Nearly two months after the FDA nixed its hemophilia gene therapy, BioMarin has a new Early Research Chief. Dr. Kevin Eggan *(pictured)*, a Harvard University Professor and recipient of a MacArthur "genius" grant, will lead the company's discovery programs, steering the development of its future pipeline. Dr. Eggan sits on the scientific advisory boards of multiple life sciences companies has co-founded a trio of startups. [Read More](#)

Nanoparticles Can Turn Off Genes in Bone Marrow Cells

MIT News



Using specialized nanoparticles, MIT engineers have developed a way to turn off specific genes in cells of the bone marrow, which play an important role in producing blood cells. These particles could be tailored to help treat heart disease or to boost the yield of stem cells in patients who need stem cell transplants, the researchers say. [Read More](#)

Northeastern Researcher Is Just Happy to be Reunited with Axolotls as Campus Reopens

News@Northeastern



The first thing that Dr. James Monaghan *(pictured)*, an Associate Professor of Biology at Northeastern, does on a normal day when he walks into his lab is check the animal room, where hundreds of little pink axolotl salamanders greet him as he enters. But nothing is normal in 2020. And walking into his lab regularly was something Monaghan had been unable to do since March. The pandemic forced his and many other labs around the world to go on hiatus. [Read More](#)

Cancer Researchers Collaborate, Target DNA Damage Repair Pathways for Cancer Therapy

MIT News



Dr. Michael Yaffe *(pictured)* and colleagues at MIT's Koch Institute have found that blocking the expression of the genes XPA and MK2 enhances the tumor-shrinking effects of platinum-based chemotherapies in p53-mutated cancers. The work demonstrates the potential of "augmented synthetic lethality," where depletion of a third gene product enhances a combination of targets already known to show synthetic lethality. [Read More](#)

Alzheimer's Risk Gene Disrupts Endocytosis, but Another Disease-Linked Gene Could Help

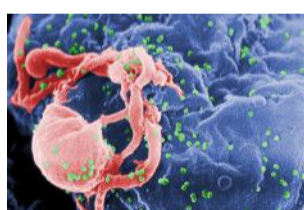
The Picower Institute



A team of scientists based at the Picower Institute and the Whitehead Institute has revealed evidence showing that the most prominent Alzheimer's disease risk gene may disrupt a fundamental process in a key type of brain cell. Moreover, in a sign of how important it is to delve into the complex ways that genes intersect in disease, they found that increasing the expression of another Alzheimer's-associated gene in those cells could help alleviate the problem. [Read More](#)

Building an Effective Dual CAR T Cell to Target HIV

Mass General Research Institute Bench Press



Dr. Todd Allen, a researcher at the Ragon Institute, joined forces with a group at the University of Pennsylvania in a quest to engineer chimeric antigen receptor (CAR) T cells to target HIV. The team knew that HIV-infected cells would be a tricky target, but by using each group's specialized skills, they were able to develop a new type of CAR T cell that successfully recognized and killed HIV-infected cells in mice equipped with a humanized immune system. [Read More](#)

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Interesting Articles
What a Joe Biden Presidency Would Mean for Five Key Science Issues

Nature News



Election Day in the United States is a little more than a month away, and scientists are watching the presidential race closely. *Nature* interviewed current advisors to Joe Biden *(pictured)*, advisors who served during Obama's presidency and policy analysts about actions the former Vice-President might take in five key science areas if he's elected. [Read More](#)

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Upcoming Events in Boston

October 14 4:00 PM	Virtual Grand Slam Science Communication Event Online
October 15 12:00 PM	Seminar: PROTACS: The Past, Present and Future of Targeted Protein Degradation Online
October 20 11:00 AM	MassBio Town Hall with Special Guest Michal Preminger, Head of J&J Innovation, East North America Online
October 20 3:00 PM	Strategic Communications: Engaging with Science Media, Hosted by SciLine Online
October 22 11:00 AM	MassBio Town Hall w/ Special Guest Abbie Celniker, Partner, Third Rock Ventures Online

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Broad Institute
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