

Publications of the Week

Auxiliary Interfaces Support the Evolution of Specific Toxin–Antitoxin Pairing

First Author: Grigoroz Grave (pictured, left) | Senior Author: Sophie Hellane (right)
Nature Chemical Biology | Harvard Medical School



Toxin–antitoxin (TA) systems are a large family of genes implicated in the regulation of bacterial growth and its arrest in response to attacks. The authors determined the crystal structures of the three TacAT complexes to understand the structural basis of specific TA neutralization and the evolution of such specific pairing. [Profile](#) | [Abstract](#)

Naive Human B Cells Engage the Receptor Binding Domain of SARS-CoV-2, Variants of Concern, and Related Sarbecoviruses

First Authors: Jared Feldman & Julia Balle | Senior Author: Aaron Schmidt (pictured)
Science Immunology | Ragon Institute and Harvard Medical School



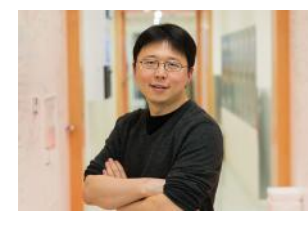
Initial exposure to a pathogen elicits an adaptive immune response to control and eradicate the threat. Interrogating the abundance and specificity of the naive B cell repertoire drives understanding of how to mount protective responses. The authors isolated naive B cells from eight seronegative human donors targeting the SARS-CoV-2 receptor-binding domain. [Abstract](#)

[View All Publications](#)

Awards

Five with MIT Ties Elected to the National Academy of Medicine for 2021

MIT News



The National Academy of Medicine has announced the election of 100 new members for 2021, including two MIT faculty members and three additional Institute affiliates. Faculty honorees include Dr. Linda Griffith, a Professor in the MIT Departments of Biological Engineering and Mechanical Engineering; and Dr. Feng Zhang (pictured), a Professor in the MIT Departments of Brain and Cognitive Sciences and Biological Engineering. [Read More](#)

Mass General Neurologist Receives the American Neurological Association's Audrey S. Penn Lectureship Award

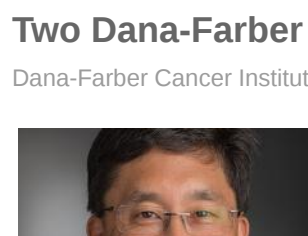
Massachusetts General Hospital



Dr. Nichte Mejia (pictured), Director of the Mass General Neurology Community Health, Diversity, and Inclusion program, was awarded the Audrey S. Penn Lectureship Award by the American Neurological Association (ANA) during an awards ceremony at its Annual Meeting. The Audrey S. Penn Lectureship Award is provided to ANA members who conduct outstanding research, program-building, or educational scholarship to promote health equity on health care disparities. [Read More](#)

Two Dana-Farber Faculty Elected to National Academy of Medicine

Dana-Farber Cancer Institute



Two Dana-Farber Cancer Institute faculty were recently elected to the prestigious National Academy of Medicine. Dr. Monica Bertagnolli was elected for "her numerous leadership roles in multi-institutional cancer clinical research consortia," and Dr. William Hahn (pictured) was elected for "his fundamental contributions in the understanding of cancer." [Read More](#)

Awards & Recognitions: October 2021

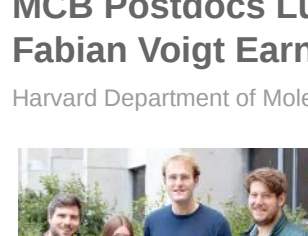
Harvard Medical School



Dr. Seward Rutkove (pictured), the Nancy Lurie Marks Professor of Neurobiology at Harvard Medical School and Head of the Department of Neurology at Beth Israel Deaconess, received the 2021 Innovation Award from the American Association of Neuromuscular and Electrodiagnostic Medicine. Dr. Rutkove's work focuses on the application of innovative techniques for the assessment of neuromuscular disease. [Read More](#)

MCB Postdocs Luis Boero, Alina Guse, Nacho Sanguinetti-Scheck, and Fabian Voigt Earn Research Fellowships

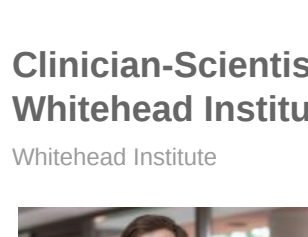
Harvard Department of Molecular and Cellular Biology (MCB)



Four postdocs from MCB labs recently received fellowships that will enable their research. Dr. Luis Boero (pictured, far left) was chosen for the Pew Latin American Fellows Program in Biomedical Sciences. Dr. Alina Guse (second from left) received funding from the German Research Foundation, and Drs. Nacho Sanguinetti Scheck (far right) and Fabian Voigt (second from right) were both awarded Long Term Fellowships through the Human Frontier Science Program. [Read More](#)

Clinician-Scientist Kipp Weiskopf Appointed as a Valhalla Fellow at Whitehead Institute

Whitehead Institute



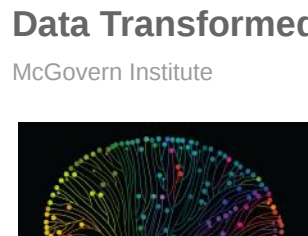
Dr. Kipp Weiskopf (pictured) — who is identifying ways to prompt macrophages to fight cancer — has been named a Valhalla Fellow. Having earned an MD/PhD from Stanford University School of Medicine, Dr. Weiskopf joined the Institute as a Whitehead Fellow in 2019 and also serves as a fellow in medical oncology at Dana-Farber Cancer Institute. [Read More](#)

[View All Awards](#)

Local News

Data Transformed

McGovern Institute



With the tools of modern neuroscience, data accumulates quickly. Recording devices listen in on the electrical conversations between neurons, picking up the voices of hundreds of cells at a time. Microscopes zoom in to illuminate the brain's circuitry, capturing thousands of images of cells' elaborately branched paths. A new center for integrative computational neuroscience will use mathematical tools to transform a deluge of data into deep understanding of the brain. [Read More](#)

Symposium Spotlights Crucial Roles of Dendrites

The Picower Institute



At the Picower Institute's online fall symposium, "Dendrites: Molecules, Structure and Function", neuroscientists drawn to the challenge of unravelling understanding from these thickets presented many of the latest findings about how dendrites attain their intricate structure and how that, in turn, makes them versatile contributors to brain functions including perception, learning, and memory. [Read More](#)

In Pregnant Women with COVID-19, Sex of Fetus May Influence Maternal and Placental Immune Response and Neonatal Immune Protection

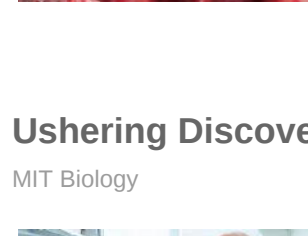
Massachusetts General Hospital



In pregnant women who tested positive for SARS-CoV-2, male placentas demonstrated significantly higher levels of certain genes and proteins associated with increased immune activation compared with female placentas. This increased immune activation may help protect male fetuses from becoming infected with SARS-CoV-2 in utero, but the resulting inflammation could pose risks to the fetus and child. [Read More](#)

Ushering Discoveries from Bench to Bedside

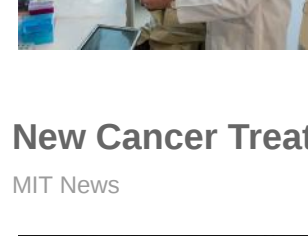
MIT Biology



Studying cancer in Dr. Phil Sharp's (pictured, right) lab helped Dr. Courtney JnBaptiste (left) learn strategic thinking skills that he uses as a patent agent, transforming technology into successful biotech businesses. Looking back at his career trajectory thus far, Dr. JnBaptiste is struck by the "beauty and diversity" that comes with earning a degree in biology. [Read More](#)

New Cancer Treatment May Reawaken the Immune System

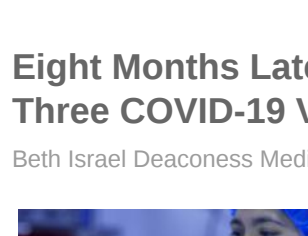
MIT News



Immunotherapy is a promising strategy to treat cancer by stimulating the body's own immune system to destroy tumor cells, but it only works for a handful of cancers. MIT researchers have now discovered a new way to jump-start the immune system to attack tumors, which they hope could allow immunotherapy to be used against more types of cancer. [Read More](#)

Eight Months Later: Researchers Compare Immune Responses Elicited by Three COVID-19 Vaccines

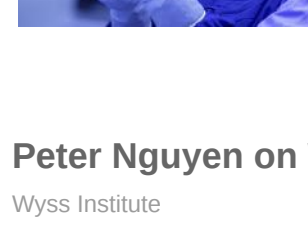
Beth Israel Deaconess Medical School



A team of experts at Beth Israel Deaconess Medical Center compared immune responses induced by three COVID-19 vaccines over an eight-month follow-up period. The investigators evaluated the 61 participants' levels of various antibodies, T cells, and other immune products at two to four weeks following complete immunization — the time of peak immunity — to eight months after vaccination. [Read More](#)

Peter Nguyen on Wearable Diagnostics

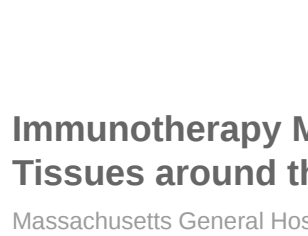
Wyss Institute



As a child, Dr. Peter Nguyen (pictured) chose to name himself after Peter Parker, a science nerd who became Spider-Man, a superhero fighting to save others. Now, Dr. Nguyen is helping to save others by developing wearable diagnostics that would be convenient, affordable, and accessible to people worldwide. He is integrating synthetic biology into materials people can wear, enabling minuscule objects to detect pathogens in their surroundings. [Read More](#)

Immunotherapy May Benefit Patients with Cancer That Has Spread to Tissues around the Brain

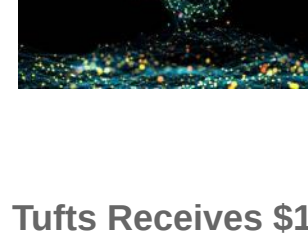
Massachusetts General Hospital



Immunotherapy may benefit people with leptomeningeal carcinomatosis, a rare but serious complication of cancer that has spread to the brain and/or spinal cord. Treatment with immune checkpoint inhibitors caused notable changes in the characteristics of immune cells within the cerebrospinal fluid of patients. In a phase II clinical trial, treatment extended overall survival in patients compared with historical controls. [Read More](#)

Tufts Receives \$10 Million Grant to Help Develop Cultivated Meat

Tufts University



As the world's demand for protein grows, food production needs to keep pace. Now a team led by a Tufts professor has received a five-year, \$10 million grant from the US Department of Agriculture to develop an alternative food source: meat produced not from farm animals, but from cells grown in bioreactors. Cultivated-meat production is emerging as an alternative source of sustainable protein to help address nutrition and food safety for consumer choices. [Read More](#)

'Elite Neutralizing' Antibody Demonstrates Long-Term Viral Suppression in Persons Living with HIV in Phase 1 Trial

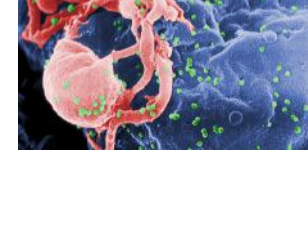
Beth Israel Deaconess Medical Center



With more than 35 million people worldwide living with HIV today and nearly two million new cases each year, HIV remains a major global epidemic. Broadly neutralizing monoclonal antibodies target specific proteins on the outside of the virus. In a phase 1 clinical trial, researchers led by physicians-scientists at Beth Israel Deaconess Medical Center evaluated an antibody known as PGT121 for its ability to treat and prevent HIV-1 infection. [Read More](#)

Mapping the Effects of Genetic Variation, One Letter at a Time

Broad Institute



A better view of how genetic variation influences traits or disease risk could lead to new ways of diagnosing and treating disease, but getting there will take a lot of data on how DNA differences alter the workings of proteins and cells. Through a project known as the Atlas of Variant Effects, launched in late 2020, researchers around the world plan to systematically study the impact of variation across the genome using large-scale methods. [Read More](#)

Cellular Environments Shape Molecular Architecture

MIT News



Scientists often purify cellular components, such as proteins or organelles, in order to examine them individually. However, a new study published in the journal *Nature* suggests that this practice can drastically alter the components in question. "We've shown that the cellular environment has a significant impact on large structures like the nuclear pore complex, which was something we weren't expecting when we started," says Dr. Thomas Schwartz (pictured). [Read More](#)

BU Entrepreneurs Are Moving Two New Medical Devices Closer to Market

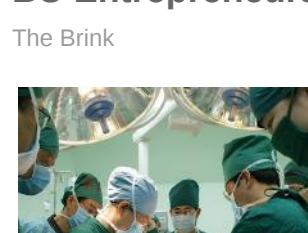
The Brink



Could a wearable that emits ultrasound help transplant patients stave off organ rejection? Is there a better designed ileostomy bag that could improve the fit and overall experience for wearers? Boston University (BU) graduate researchers with a penchant for innovation and entrepreneurship recently developed designs for these two medical devices — and their pitches have attracted interest and funding. [Read More](#)

How the Brain Deals with Uncertainty

MIT News



Neuroscientists at MIT's McGovern Institute for Brain Research have homed in on key brain circuits that help guide decision-making under conditions of uncertainty. By studying how mice interpret ambiguous sensory cues, they've found neurons that stop the brain from using unreliable information. Their findings could help researchers develop treatments for schizophrenia and related conditions. [Read More](#)

Next Generation Prime Editing Systems Move Closer to Possible Therapeutic Applications

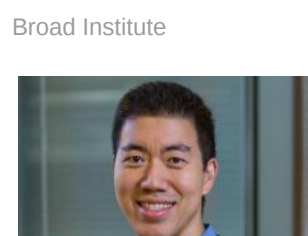
Broad Institute



Scientists in Dr. David Liu's (pictured) lab have developed a suite of molecular tools that increase the efficiency of a gene-editing technology called prime editing for a wide variety of cell types and target genes, expanding the scope of the technology's therapeutic and research applications. In two new studies, the researchers used the improved prime editing systems to correct mutations linked to various neurodegenerative, metabolic, and cardiovascular diseases. [Read More](#)

Grantham Foundation Underwrites Ambitious Project on Bioengineering Plants to Sequester More Atmospheric Carbon

Whitehead Institute



Plants are highly effective at capturing atmospheric carbon, one of the major contributors to the temperature increase driving global climate change. But when plants die and decay, much of that carbon is again released into the atmosphere. Whitehead Institute Member Dr. Jing-Ke Weng (pictured) has conceived of a way to bioengineer plants so that they keep a significant portion of their carbon locked up, essentially permanently. [Read More](#)

[View All Articles](#) | [Submit an Article](#)

Upcoming Events in Boston

October 26 9:00 AM	14 th Annual BIDMC Cancer Center Symposium: Targeted and Immune-Based Therapeutics Online
October 26 12:00 PM	A Webinar Series: Ethics and COVID-19 (Vaccine Misinformation) Online
October 26 4:00 PM	Biology Colloquium Series: Dr. Gene-Wei Li Online
October 27 4:00 PM	SCSB Colloquium Series: Dr. Constance Smith-Hicks Online
October 28-29 8:00 AM	Forsyth Scientific Symposium: Oral Microbiome — Beyond Bacteria Forsyth Institute & Online

[View All Events](#) | [Submit an Event](#)

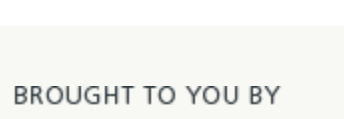
Science Jobs in Boston

- Senior Associate Scientist, Molecular Biology
Sriano Therapeutics
- Associate Scientist, Disease Biology & Immuno-Oncology
Himsig Therapeutics
- Research Scientist I, Klarman Cell Observatory
Broad Institute
- Assistant Professor, Molecular & Cellular Biology
Harvard University
- Senior Research Scientist, Computational Biology
Vertex Pharmaceuticals

[View 48 Other Science Jobs](#) | [Submit a Job](#)

STEMCELL SCIENCE NEWS Personalize Your Science News [VISIT NOW](#)

Submit your articles and events by reaching out to us at info@scienceinboston.com.



- STEMCELL Technologies: Products | Services
- STEMCELL Science News: Free Weekly Updates on Your Field
- The Stem Cell Podcast: Interviews and Updates on Stem Cell Science