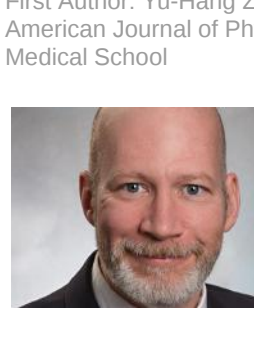


Publications of the Week

Inner Nuclear Protein Matrin-3 Coordinates Cell Differentiation by Stabilizing Chromatin Architecture

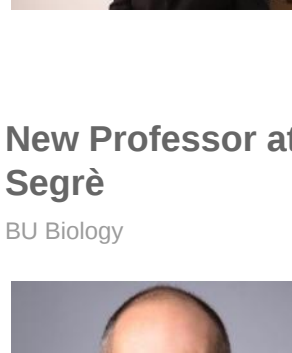
First Author: Wei J. Cui | **Senior Author:** Susan Owen (pictured) | **Nature Communications** | Boston Children's Hospital, Dana-Farber Cancer Institute, Harvard Stem Cell Institute, Harvard Medical School, University of Massachusetts Medical School, Brigham and Women's Hospital, and Howard Hughes Medical Institute



Precise control of gene expression during differentiation relies on the interplay of chromatin and nuclear structure. The authors demonstrate that loss of the nuclear scaffolding protein Matrin-3 in embryonic cells leads to morphological and gene expression changes characteristic of accelerated maturation, as well as broad alterations in chromatin organization similar to those accompanying differentiation. [Abstract](#)

Lung Proteomic Biomarkers Associated with Chronic Obstructive Pulmonary Disease

First Author: Yu-Hang Zhang | **Senior Author:** Edwin Silverman (pictured) | **American Journal of Physiology-Lung Cellular and Molecular Physiology** | Brigham and Women's Hospital and Harvard Medical School



The authors utilized mass spectrometry proteomic approaches to discover protein biomarkers from 150 lung tissue samples representing chronic obstructive pulmonary disease (COPD) cases and controls. Twenty-five proteins were significantly associated with COPD with a false discovery rate less than 0.05, including Interleukin 33, ferritin (light chain and heavy chain), and two proteins related to caveolae (CAV1 and CAVIN1). [Abstract](#)

[View All Publications](#)

Awards

McGovern Institute Director Receives Highest Honor from the Society for Neuroscience

McGovern Institute



The Society for Neuroscience presented its highest honor, the Ralph W. Gerard Prize in Neuroscience, to McGovern Institute Director Dr. Robert Desimone (pictured) at its annual meeting. The Gerard Prize is named for neuroscientist Dr. Ralph Gerard who helped establish the Society for Neuroscience, and honors "outstanding scientists who have made significant contributions to neuroscience throughout their careers." [Read More](#)

New Professor at the New NSF Science and Technology Center: Daniel Segre

BU Biology



Dr. Daniel Segre (pictured), Professor of Biology, Biomaterials, and Biomedical Engineering at Boston University, and technology center founder for the National Science Foundation (NSF), Dr. Segre is one of the faculty members of the Center for Chemical Currencies of a Microbial Planet team responsible for computational modeling of marine microbial communities. [Read More](#)

Liisa Selin and Anna Gil Receive \$2.5 Million Grant to Study Links between Viral Infections and ME/CFS

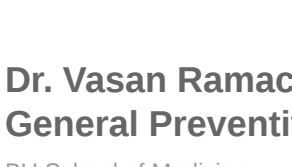
UMass Chan Medical School



Drs. Liisa Selin (pictured, left) and Anna Gil (right) will seek insights into links between myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS) and viral infections, now including COVID-19, with a five-year, \$2.5 million grant from the National Institute of Allergy and Infectious Diseases. The research may have implications for those who experience long-term post-viral illness from COVID-19, commonly known as long COVID. [Read More](#)

Awards & Recognitions: November 2021

Harvard Medical School



Dr. Sylvia Reiss (pictured), Associate Professor of Medicine at Joslin Diabetes, received the American Society of Nephrology's (ASN) 2021 Distinguished Leader Award, with Dr. Michael Reiss of Montefiore Medical Center/Albert Einstein College of Medicine and Dr. Cynthia Delgado of the University of California at San Francisco, for leadership and dedication to the ASN mission. Dr. Reiss studies metabolic and cardiovascular complications in chronic kidney disease. [Read More](#)

David Walt Wins Prestigious Kabiller Prize in Nanoscience and Nanomedicine

Wyss Institute



Northwestern University has announced Wyss Core Faculty Member Dr. David Walt (pictured) as one of three winners of the 2021 International Kabiller prize and awards, which biennially recognize three top scholars — one pioneer, one young investigator, and one rising star — in the field of nanoscience and nanomedicine. Dr. Walt is recognized for his pioneering work in developing ultrasensitive single-molecule array detection technology. [Read More](#)

Vaccine Researcher Kizzmekia Corbett Wins Top Honor for Federal Service

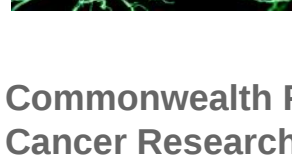
Harvard T. H. Chan School of Public Health



Dr. Kizzmekia Corbett (pictured) of Harvard T.H. Chan School of Public Health and her colleague Dr. Barney Graham have been named "Federal Employees of the Year" for conducting groundbreaking research at the National Institute of Health's Vaccine Research Center that led to the development of COVID-19 vaccines. [Read More](#)

MCB Faculty Catherine Dulac Receives Salpeter Lifetime Achievement Award from Society for Neuroscience

Harvard University Department of Molecular and Cellular Biology (MCB)



The Society for Neuroscience (SfN) has honored MCB faculty Dr. Catherine Dulac (pictured) with the 2021 Mika Salpeter Lifetime Achievement Award. "Receiving the SfN Salpeter Award is very special to me because it acknowledges my efforts in mentoring women scientists and in making sure that they can follow their dreams as I have been able to do myself," says Dr. Dulac. [Read More](#)

Introducing the 2021–2022 Convergence Scholars

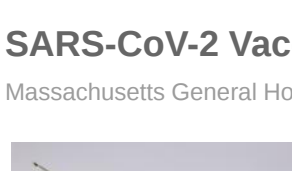
Koch Institute



The Marble Center for Cancer Nanomedicine and the MIT Center for Precision Cancer Medicine have announced the 2021–2022 class of Convergence Scholars, including Dr. Chun-Chin Chen (pictured). The Convergence Scholars Program fosters the development of a new type of scientist — one who understands a broad range of disciplinary approaches, is able to ask creative questions, and is trained to answer those questions with diverse tools. [Read More](#)

Dr. Vasan Ramachandran Named AHA's 2021 Distinguished Scientist in General Preventive Medicine

BU School of Medicine



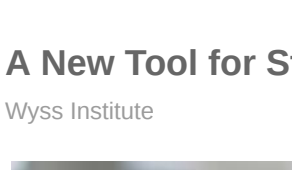
The American Heart Association (AHA) named Dr. Vasan Ramachandran (pictured) as its 2021 Distinguished Scientist in General Preventive Medicine. The Association designates Distinguished Scientist awards in several categories to AHA members who have significantly advanced the understanding of cardiovascular, stroke, or brain health. [Read More](#)

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Local News

If Cells Could Talk

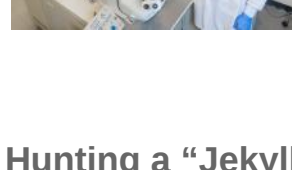
Whitehead Institute



Cells are constantly sending and receiving information to keep the body running smoothly. Researchers at the Whitehead Institute are finding new ways to listen in on these communications, or even to tap into cells' biology and induce them to "report" to researchers about what is going on in the body. Dr. Pu Liu (pictured) is a synthetic biologist who has recreated cell-cell communication systems from the bottom up. [Read More](#)

Codetta Program Deciphers Genetic Code in 250,000 Genomes

Howard Hughes Medical Institute



Across most of the tree of life, genetic code is universal. But scientists have found a handful of exceptions — in some organisms, genetic codes for instructions differ from those in other life forms. Drs. Sean Eddy (pictured, left) and Kate Shuhua (right) set out to find more examples of alternative genetic codes. They built a computer program called Codetta which can scan tens of thousands of genomes and predict the genetic code look-up table used by each one. [Read More](#)

Stem Cell Research Zeros in on Cancer

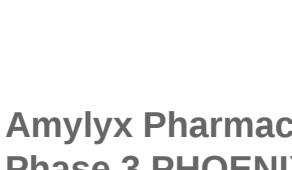
Spectrum



In a building at the edge of the Massachusetts General Hospital complex, Dr. Omer Yilmaz (pictured) and a group of pathology residents gather around a microscope. A resident reads from a chart: a growth was found in the incision of a patient who had complained of abdominal pain. Dr. Yilmaz, an MIT cancer researcher and a gastrointestinal pathologist, hopped a closer look at the tumor weld reveal a noncancerous collection of fat cells or lymphoid cells. [Read More](#)

Study Finds a Striking Difference between Neurons of Humans and Other Mammals

MIT News



Neurons communicate with each other via electrical impulses, which are produced by ion channels that control the flow of ions such as potassium and sodium in a surprising new finding, MIT neuroscientists have shown that human neurons have a much smaller number of these channels than expected, compared to the neurons of other mammals. [Read More](#)

Commonwealth Foundation for Cancer Research \$25M Gift to Accelerate Cancer Research through Collaboration of Dana-Farber/Harvard Cancer Center and Koch Institute for Integrative Cancer Research at MIT

Dana-Farber Cancer Institute



The Commonwealth Foundation for Cancer Research has pledged \$25 million to the Bridge Project, a collaborative research program of Dana-Farber/Harvard Cancer Center and the Koch Institute for Integrative Cancer Research at MIT, to transform drug discovery and early-stage development. As part of this commitment to the Bridge Project, The Commonwealth Foundation gift will fund projects being readied for clinical testing or that are already in the clinic. [Read More](#)

Diving Deep on Epilepsy Genetics

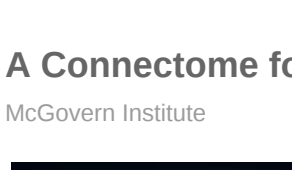
Boston Children's Hospital



When child neurologist Dr. Annapurna Poduri finished her clinical epilepsy fellowship at Boston Children's Hospital in 2004, she was struck to find that the genetic understanding of epilepsy had changed little in the decade since she started medical school. Many questions were unanswered — and some weren't yet being asked. Existing treatments were still not working in a third of patients. Some needed brain surgery for relief from seizures. [Read More](#)

Baby Teeth May One Day Help Identify Kids at Risk for Mental Disorders Later in Life

Massachusetts General Hospital



The thickness of certain growth lines in baby teeth has long been associated with physical stressors experienced by infants in the period around birth, such as malnutrition or disease. A new study links the thickness of one of these growth lines with whether the mother experienced psychological distress or received social support in the neonatal period. [Read More](#)

SARS-CoV-2 Vaccines Safe and Immunogenic in Most People with Cancer

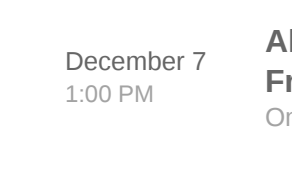
Massachusetts General Hospital



Individuals being treated for active cancer have a particularly high risk of severe disease and death from SARS-CoV-2 infection due to their aberrant immune responses from the cancer itself and from some therapies. A new study examines the safety and immunogenicity of SARS-CoV-2 vaccines in a large group of people with diverse cancer types receiving different treatments and is the most comprehensive study of its kind. [Read More](#)

Modeling the Mechanisms of Metastasis

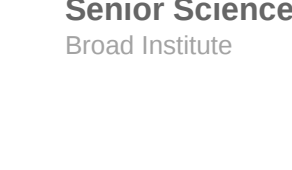
MIT News



Metastatic cancer is responsible for the vast majority of cancer mortality, but it is difficult for scientists to predict which cells will successfully complete their migration from primary tumor to eventual recolonization in a far-flung region of the body. Subject to a wide range of mechanical and physical forces in the bloodstream, circulating tumor cells can be trapped or damaged before they complete their journey. [Read More](#)

A New Tool for Studying COVID's Impact on Gut Health

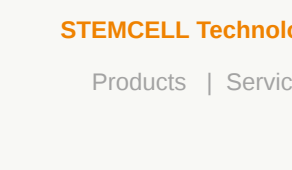
Wyss Institute



A team of scientists at the Wyss Institute for Biologically Inspired Engineering at Harvard University and several other Wyss partner organizations in Boston used a human intestine chip to study coronavirus infection and potential treatments in an environment that mimics the human intestine more effectively than cells grown in a dish. [Read More](#)

Turning Science Fiction into Science Reality with Crisscross Nanotechnology

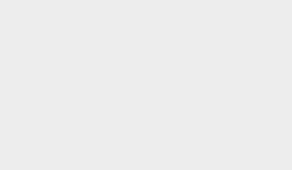
Wyss Institute



The Wyss Institute's Crisscross Nanoseed Detection is an enzyme-free DNA nanotechnology that can be used for rapid, ultrasensitive, and low-cost detection of infectious disease biomarkers in a wide variety of point-of-care settings, allowing diseases to be identified and treated earlier to save money, time, and lives. Drs. Dionis Mineev (pictured) and Anastasia Ershova are developing the technology at the Wyss Institute. [Read More](#)

Hunting a "Jekyll-and-Hyde" Molecule

MIT News



MIT chemical engineers have developed a way of swiftly screening compounds to determine their therapeutic potential for certain kinds of cancers. With a genetically engineered sensor and high-throughput technology, their method probes for changes in cellular concentrations of hydrogen peroxide (H₂O₂), a specialized molecule known as an oxidant. "The regulatory pathways of some tumors depend on elevated levels of H₂O₂," says Dr. Hadley Sikes (pictured). [Read More](#)

BioGenesis Podcast: Tina Lopez of the Knouse Lab on the Regenerative Superpowers of the Liver

Whitehead Institute

BioGenesis is the podcast where listeners get to know a biologist, where they came from, and where they're going next. Tina Lopez (pictured) is a graduate student in the Knouse Lab. This grew up in the border town of McAllen, Texas. At MIT, she's in search of the mysterious signal that cues the liver to rebuild itself post-injury. [Read More](#)

Jump-Starting Biotechnology Careers for Boston High School Students

The Brink

Have you heard of synthetic biology? It's revolutionizing the field of biotechnology, yet many people aren't sure what synthetic biology is all about, or what synthetic biologists even do. Dr. Douglas Desimore (pictured), a synthetic biologist and Boston University College of Engineering Associate Professor of Electrical and Computer Engineering, wants to change that by engaging future scientists — namely high school students. [Read More](#)

Amlyx Pharmaceuticals Announces Participants Dosed in the Global Phase 3 PHOENIX Study of AMX0035 in ALS

Amlyx Pharmaceuticals

Amlyx Pharmaceuticals has announced that the first participants have been dosed in the Phase 3 Study A35-004 (PHOENIX), a global trial evaluating the safety and efficacy of AMX0035 in people with amyotrophic lateral sclerosis (ALS). The trial will enroll approximately 600 participants with clinically definite or clinically probable ALS within 24 months from symptom onset. [Read More](#)

Preventing Leukemia by Preventing Rogue Blood Cells from Taking Over

Boston Children's Hospital

As we age, many of us acquire mutations that cause some of our blood stem cells to multiply faster than others, forming their own distinct populations or "clones." In some cases, a single clone originating from a single genetically altered or mutated stem cell can expand to comprise up to 30 percent of a person's blood cells. If such a "rogue" clone acquires more mutations, it can lead to myelodysplasia, a rare blood disease, and in turn to leukemia. The lab of Dr. Leonard Zou (pictured) wondered if these rogue populations could be nipped in the bud. [Read More](#)

A New Tool for Studying Cognitive Decline in Alzheimer's Disease

Harvard Brain Science Institute

Alzheimer's disease (AD) is a devastating neurodegenerative disorder that affects millions of people worldwide. The vast majority of patients with AD have "sporadic," late-onset AD (LOAD). Clinicians and pathologists have long recognized that LOAD is heterogeneous as some patients have a high pathological burden and dementia, while some patients have an equally high pathological burden, but have normal cognition. [Read More](#)

How Sea Stars Get Their Symmetry

Whitehead Institute

In a paper published in *Current Biology*, Dr. Zak Swartz, a postdoctoral researcher at the Whitehead Institute, along with researchers in the lab at Whitehead Institute member Dr. Iain Cheseaman (pictured) and collaborators at MIT, the University of Miami, and the Marine Biological Laboratory Embryology Course, delve into the origins of the initial polarity in an animal's first cell, which establishes an axis of symmetry for the developing organism and underlies the first steps of development. [Read More](#)

Exploring the Science of Acupuncture

Harvard Medical School

Acupuncture is a traditional Chinese technique that has been used for millennia to treat chronic pain and other health problems associated with inflammation, yet the scientific basis of the technique remains poorly understood. Now, a team of researchers led by neuroscientists at Harvard Medical School has elucidated the underlying neuroanatomy of acupuncture that activates a specific signaling pathway. [Read More](#)

A Connectome for Cognition

McGovern Institute

The lateral prefrontal cortex is a particularly well-connected part of the brain. Neurons there communicate with processing centers throughout the rest of the brain, gathering information and sending commands to implement executive control over behavior. Now, scientists at MIT's McGovern Institute have mapped these connections and revealed an unexpected order within them: The lateral prefrontal cortex contains maps of other major parts of the brain's cortex. [Read More](#)

Tufts Engineers Uncover Novel Mode of Cell Migration

Tufts Now

Dr. Jeffrey Guasto (pictured), an Associate Professor of Mechanical Engineering, and colleagues from his laboratory at Tufts are developing the fundamental knowledge that could be applied to improve the navigation of swimming cells within arteries, veins, and tissues — as well as to understand how cells migrate within the Earth's sediments and soils. [Read More](#)

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November 10 7:00 PM	How Fundamental Science Becomes Treatment at Boston Children's Hospital: A Conversation with Kevin Churchwell Online
November 12 5:00 PM	Biomedical Informatics Entrepreneurs Salon: Najat Khan, Janssen R&D Online
November 19 12:30 PM	What We Can Learn from the ACE2 Cellular Receptor — Past, Present, and Future? Online
November 30 4:00 PM	How Cancer Spreads Online
December 7 1:00 PM	Aligning Financial Management Systems to the Biotech Lifecycle: From Pre-Commercial to High Growth Online

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