

Publications of the Week

Nephrotoxicity Assessment with Human Kidney Tubuloids using Spherical Nucleic Acid-Based mRNA Nanofibers

First Author: Christian Wang | Senior Author: Joseph Bonventre (pictured)
Nano Letters | Brigham and Women's Hospital and Harvard Medical School



Drug-induced nephrotoxicity represents an important cause of acute kidney injury with associated patient morbidity and mortality and is often responsible for termination of drug development, after extensive resource allocation. The authors developed a human kidney tubuloid system that phenocopies, in 3D culture, kidney proximal tubules, a primary injury site of most nephrotoxicants. **Abstract**

Actin-Related Protein 2/3 Complex Plays a Critical Role in the Aquaporin-2 Exocytotic Pathway

First Author: Chen-Chang Steven Liu | Senior Author: Dennis Brann (pictured)
American Journal of Physiology-Renal Physiology | Massachusetts General Hospital and Harvard Medical School



The trafficking of proteins such as aquaporin-2 in the exocytotic pathway requires an active actin cytoskeleton network, but the mechanism is incompletely understood. The authors show that the actin-related protein 2/3 complex, a key factor in actin filament branching and polymerization, is involved in the shuttling of aquaporin-2 between the trans Golgi network and the plasma membrane. **Abstract**

[View All Publications](#)

Awards

Awards & Recognitions: July 2021

Harvard Medical School



Two Harvard Medical School faculty members have been named to receive Honors Awards from the American Society of Hematology and will be at the organization's annual meeting in December. Dr. Margaret Shipp (pictured), Professor of Medicine at Dana-Farber/Harvard Cancer Center, received the Ernest Beutler Lecture and Prize in recognition of her work to understand the genomics of Hodgkin lymphoma and its effects on the tumor environment. **Read More**

International Dyslexia Association Recognizes John Gabrieli with Highest Honor

McGovern Institute



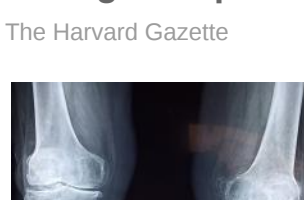
Cognitive neuroscientist Dr. John Gabrieli (pictured) has been named the 2021 winner of the Samuel Torrey Orton Award, the International Dyslexia Association's highest honor. The award recognizes achievements of leading researchers and practitioners in the dyslexia field, as well as those of individuals with dyslexia who exhibit leadership and serve as role models in their communities. **Read More**

[View All Awards](#)

Local News

Taking a Step toward Discovering the Cause of Joint Disease

The Harvard Gazette



Dr. Terence Capellini has been interested in how joints work for almost three decades. Part of it is due to personal experience, as he suffered several joint injuries as a college ice hockey player and recently developed knee osteoarthritis. The Principal Investigator of Harvard's Developmental and Evolutionary Genetics Lab has also seen the pain and limited mobility of loved ones who have received similar diagnoses and injuries. **Read More**

Thinking Without a Brain

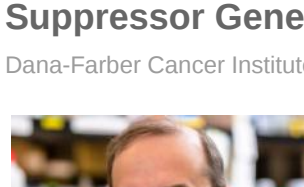
Wyss Institute



If you didn't have a brain, could you still figure out where you were and navigate your surroundings? Thanks to new research on slime molds, the answer may be "yes." Scientists in Dr. Mike Levin's (pictured) lab and their collaborators discovered that a brainless slime mold called *Physarum polycephalum* uses its body to sense mechanical cues in its surrounding environment, and performs computations similar to what we call "thinking" to decide in which direction to grow. **Read More**

Study Reveals Factor That Determines 'Fate' of Cancer Cells When Tumor Suppressor Gene Function Is Restored

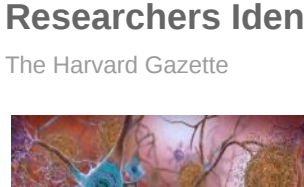
Dana-Farber Cancer Institute



Many cancers develop from cells that have a malfunctioning tumor suppressor gene, p53, which normally helps control unchecked cell growth and prevent cancer. Some scientists are pursuing a strategy of restoring p53 gene function in cancer cells to stop their unruly growth or kill them. A new study led by Drs. Anthony Letai (pictured) and Tyler Jacks identified a major factor that influences which path tumor cells will take when p53 is restored. **Read More**

Researchers Identify Signaling Molecule That May Help Prevent Alzheimer's

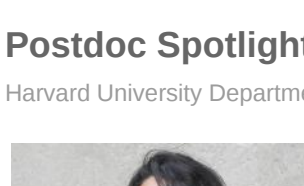
The Harvard Gazette



New research in humans and mice identifies a particular signaling molecule that can help modify inflammation and the immune system to protect against Alzheimer's disease. "Neuron death can be caused by improper immune responses and excessive neuroinflammation, triggered by high levels of amyloid beta deposits and tau tangles, two hallmarks of Alzheimer's disease," explains the paper's co-senior author Dr. Filip Swirski. **Read More**

Postdoc Spotlight: Haleh Fotowat

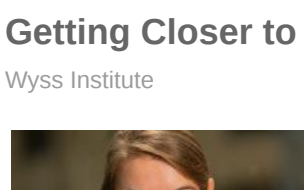
Harvard University Department of Molecular and Cellular Biology



Postdoc Dr. Haleh Fotowat (pictured) of the Engert Lab has always split her time between scientific and creative pursuits. "I always grew up with a strong hobby in my life — I always had something other than going to school or working," Dr. Fotowat says. "I'm not as happy if I do only one or the other. If I didn't do art, I don't think I'd be able to do as good science." **Read More**

Getting Closer to a Greener World

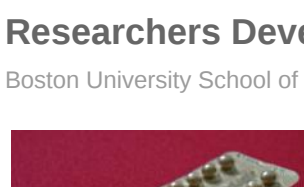
Wyss Institute



It sounds like science fiction: tweak the metabolism of microbes so that they can consume greenhouse gases and produce carbon-neutral products. But the Circe team of Drs. Shannon Nangle and Marka Ziesack (pictured) is well on its way to making this dream a reality. Initiated in 2017 in the lab of Wyss core faculty member Dr. Pam Silver, Circe has been designated a Wyss Institute project based on its potential to drive significant improvements in sustainability. **Read More**

Researchers Develop Novel, Woman Controlled Contraceptive Product

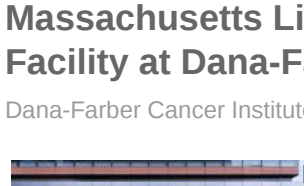
Boston University School of Medicine (BUSM)



Despite the availability of numerous effective birth control methods, more than 40 percent of pregnancies worldwide are unintended. BUSM researchers and ZabBio have developed an anti-sperm monoclonal antibody, the Human Contraception Antibody, which they found to be safe and possess potent sperm agglutination (clumping) and immobilization activity in laboratory tests. **Read More**

Massachusetts Life Sciences Center Funding to Support a Metabolomics Facility at Dana-Farber

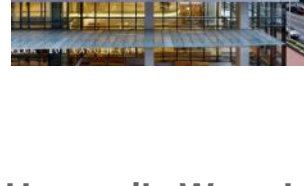
Dana-Farber Cancer Institute



The Massachusetts Life Sciences Center is awarding Dana-Farber Cancer Institute a \$1.82 million grant titled, "Mass Spectrometry Metabolomics Solutions for Highly Scalable Integrated OMics: Charting Metabolic Contributions to Disease Development and Therapeutic Outcomes". This award will help support a new facility at Dana-Farber that will provide cutting-edge metabolomics tools. **Read More**

Harvard's Wyss Institute and Brigham and Women's Hospital Launch Diagnostic Accelerator

Wyss Institute



The Wyss Institute for Biologically Inspired Engineering at Harvard University and Boston's Brigham and Women Hospital have announced their newly founded Diagnostic Accelerator (Brigham-Wyss DxA). By combining the institutions' broad clinical and multi-disciplinary bioengineering expertise, the Brigham-Wyss DxA will enable the fast creation of diagnostic technologies through deep collaborations in a process driven by previously unmet needs. **Read More**

Changes in Gut Microbiome in Longitudinal Study of Infants Precede Onset of Celiac Disease

Massachusetts General Hospital



By implementing a long-term, prospective approach to the development of celiac disease, a collaborative group of researchers has identified substantial microbial changes in the intestines of at-risk infants before disease onset. Using advanced genomic sequencing techniques, lead author Dr. Maureen Leonard (pictured) and her colleagues uncovered distinct preclinical alterations in several species, pathways, and metabolites in children who developed celiac disease. **Read More**

Immunology and Microbiology PhD Candidate Aims to Use Her Voice in Science Policy Career

University of Massachusetts Medical School News



Sarah Cleveland (pictured) is as passionate about her work studying T cells in the lab of Dr. Eric Huseby, Professor of Pathology, as she is about the need for diversity in academia. "It's so cool to me how our body can either learn to attack itself or attack foreign objects. It can tell the difference, and it can remember things. Out of every single cell and organ in our body, the only things that can remember things are our brains and T cells and B cells." **Read More**

A "Tail" of Two RNA Regulatory Systems

Wyss Institute



Usually, mRNAs are short lived, constantly being created and degraded to help regulate how much protein is made from a gene at any given time. However, in the earliest stages of development, before the embryo can make enough of its own mRNAs, they are a limited resource and the embryo cannot afford to destroy them. In 2014, Dr. David Bartel's (pictured) lab discovered ways in which cells regulate protein production differently during this early developmental period. **Read More**

HIV and Coronary Artery Plaque

Harvard Medical School



Significant amounts of atherosclerotic plaque have been found in the coronary arteries of people with HIV, even in those considered by traditional measures to be at low-to-moderate risk of future heart disease. This finding emerged from the global Randomized Trial to Prevent Vascular Events in HIV study, in which Harvard Medical School researchers at Massachusetts General Hospital are playing a key coordinating role. **Read More**

Biomaterial Vaccines Ward off Broad Range of Bacterial Infections and Septic Shock

Wyss Institute



According to the Centers of Disease Control and Prevention, "each year, at least 1.7 million adults in America develop sepsis." However, for the most common bacterial pathogens that cause sepsis and many other diseases, there are still no vaccines available. Dr. David Mooney (pictured) and his team developed a biomaterial-based infection vaccine approach as a solution that could be broadly applied to this pervasive problem. **Read More**

Large Genomic Analysis Highlights COVID-19 Risk Factors

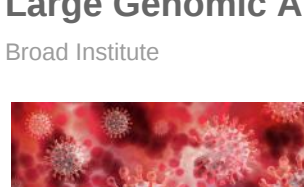
Broad Institute



In March of 2020, thousands of scientists around the world united to answer a pressing and complex question: what genetic factors influence why some COVID-19 patients develop severe, life-threatening disease requiring hospitalization, while others escape with mild symptoms or none at all? A comprehensive summary of their findings to date, published in *Nature*, reveals 13 locations in the human genome that are strongly associated with infection or severe COVID-19. **Read More**

New Imaging Technique May Boost Biology and Neuroscience Research

The Harvard Gazette



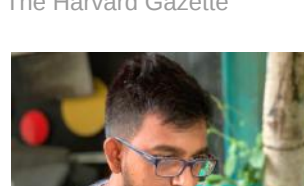
Microscopists have long sought a way to produce high-quality, deep-tissue imaging of living subjects in a timely fashion. To date, they have had to choose between image quality or speed when looking into the inner workings of complex biological systems. A better imaging system would have a powerful impact on researchers in biology and in neuroscience. Dr. Dushan Wadduwage (pictured), along with a team from MIT, has detailed a new technique that would make that possible. **Read More**

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Interesting Articles

The Rise of 'ARPA-Everything' and What It Means for Science

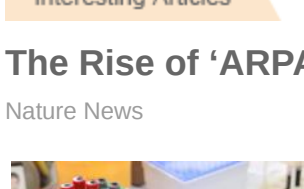
Nature News



US President Joe Biden's administration wants to create a \$6.5 billion agency to accelerate innovations in health and medicine. Dubbed the Advanced Research Projects Agency for Health (ARPA-H), it is the latest in a line of global science agencies now being modelled on the renowned US Defense Advanced Research Projects Agency, whose work a generation ago laid the foundation for the modern internet. **Read More**

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Upcoming Events in Boston



July 22 1:00 PM	Grant Writing Workshop Series Online
July 26 8:00 AM	Communicating the Future: Engaging the Public in Basic Science Online
July 28 11:00 AM	Literature Review Workshop Online
July 29 12:00 PM	Topics in Bioengineering: Fil Swirski Online
August 18 12:00 PM	Use Social Media to Promote Your Department/Center/Lab Online

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Science Jobs in Boston



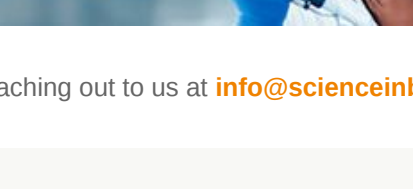
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Viral Engineering Research Scientist Broad Institute
Senior Associate Scientist/Scientist, Protein Discovery Cue Biopharma
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