

Publications of the Week

**Development of an Autonomous and Bifunctional Quorum-Sensing Circuit for Metabolic Flux Control in Engineered *Escherichia coli***

First Author: Christina Dinh | Senior Author: Kristala Prather (pictured)  
PNAS | Massachusetts Institute of Technology



Efficient microbial synthesis in challenging pathways relies on dynamic regulation of multiple metabolic fluxes to balance several competing goals. To address these situations, the authors developed an autonomous, pathway-independent, and layered regulation tool. By incorporating parts from two different quorum-sensing systems, the layers of this system can be tuned independently to ensure generalizability. [Profile](#) | [Abstract](#)

**Cytochrome P450 Oxidoreductase Contributes to Phospholipid Peroxidation in Ferroptosis**

First Author: Yilong Zou | Senior Author: Stuart Schreiber (pictured)  
Nature Chemical Biology | The Broad Institute and Harvard University



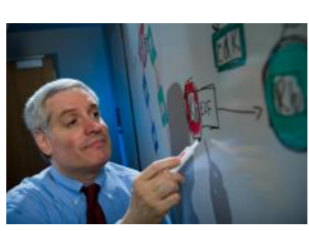
Accumulation of phospholipid hydroperoxides in cellular membranes is the hallmark and rate-limiting step of ferroptosis; however, the enzymes contributing to lipid peroxidation remain poorly characterized. Using genome-wide, CRISPR-Cas9-mediated suppressor screens, the authors identified cytochrome P450 oxidoreductase (POR) as necessary for ferroptotic cell death in cancer cells exhibiting inherent and induced susceptibility to ferroptosis. [Abstract](#)

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Awards

**Dana-Farber Research Team Awarded Pancreatic Cancer Collective “New Therapies Challenge” Grant**

Dana-Farber Cancer Institute



The Pancreatic Cancer Collective, the strategic partnership of the Lustgarten Foundation and Stand Up To Cancer, has awarded up to \$16 million to four teams of top researchers, including a team at Dana-Farber Cancer Institute, as part of its “New Therapies Challenge Grants”. The team lead by Drs. Alan D’Andrea, and James Cleary, with key collaborators Dr. Geoffrey Shapiro (pictured), Dr. Brian Wolpin, and Dr. Andrew Aguirre, will receive up to \$4 million over a three-year term for their project. [Read More](#)

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Local News

**Platinum-based Agents Are Not Superior to Standard Chemotherapy for Patients with Breast Cancer Who Carry BRCA Mutations**

Beth Israel Deaconess Medical Center



Commonly known as the breast cancer genes, the BRCA gene family plays a role in repairing damaged DNA. Inherited mutations in the genes BRCA1 or BRCA2 raise the risk of developing breast, ovarian, prostate and other cancers. Led by clinician-researchers at Beth Israel Deaconess Medical Center, a first-of-its-kind study provided new evidence about the optimal way to treat patients who carry BRCA mutations. [Read More](#)

**Here’s How Nanoparticles Could Help Us Get Closer to a Treatment for COVID-19**

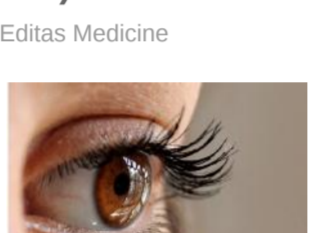
Northeastern University



There is no vaccine or specific treatment for COVID-19. Dr. Thomas Webster (pictured), who specializes in developing nano-scale medicine and technologies to treat diseases, is proposing using nanoparticles, that attach to SARS-CoV-2 viruses to disrupt their structure with infrared light treatment. This structural change would then halt the ability of the virus to survive and reproduce in the body. [Read More](#)

**Allergan And Editas Medicine Announce Dosing of First Patient in Landmark Phase 1/2 Clinical Trial of CRISPR Medicine AGN-151587 (EDIT-101) for the Treatment of LCA10**

Editas Medicine



Allergan, a leading global pharmaceutical company, and Editas Medicine, Inc., a leading genome editing company, have announced the treatment of the first patient in the BRILLIANCE clinical trial of AGN-151587 (EDIT-101). AGN-151587 is an experimental medicine delivered via sub-retinal injection under development for the treatment of Leber congenital amaurosis 10 (LCA10), an inherited form of blindness caused by mutations in the CEP290 gene. [Read More](#)

**Massachusetts General Hospital Launches New Preventive Genomics Clinic**

Mass General News



In the last two decades, scientific advances in human genetics have greatly enhanced the understanding of how variation in our DNA can contribute to a risk for many health problems - including cardiovascular disease, cancer and diabetes - while also creating opportunities for targeted therapies. Massachusetts General Hospital has announced the launch of a new Preventive Genomics Clinic, aiming to empower patients to better understand, predict and prevent disease using genetic information. [Read More](#)

**The Neural Basis of Sensory Hypersensitivity**

MIT News



Many people with autism spectrum disorders are highly sensitive to light, noise, and other sensory input. A new study in mice from MIT and Brown University has revealed a neural circuit that appears to underlie this hypersensitivity, offering a possible strategy for developing new treatments. Neuroscientists found that mice lacking a protein called Shank3, which has been previously linked with autism, were more sensitive to a touch on their whiskers than genetically normal mice. [Read More](#)

**Long-Term Hemophilia Treatment Could Lie in Patients' Own Cells**

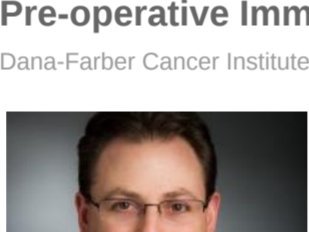
Boston Children's Hospital



Children (and adults) with hemophilia are slow to form blood clots, so are at constant risk for uncontrolled bleeding. While regularly replacing the missing or malfunctioning clotting factor can keep hemophilia under control, the protein must be infused multiple times per week — for life. So instead, Dr. Melerio-Martin’s (pictured, left) team has devised a completely new kind of gene therapy for hemophilia A — delivered by blood vessels made by the patient’s own, engineered cells. [Read More](#)

**Pre-operative Immunotherapy Shows Promise in Oral Cancers**

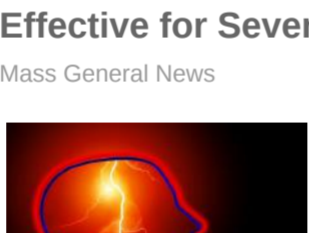
Dana-Farber Cancer Institute



A new clinical trial, led by Dr. Jonathan Schoenfeld (pictured), suggests that immunotherapy given before other treatments for oral cavity cancers can elicit an immune response that shrinks tumors, which could provide long-term benefit for patients. In the randomized trial, two neoadjuvant doses of nivolumab given with or without ipilimumab led to complete or partial tumor shrinkage in most cases and did not delay any patients from continuing on to standard treatment. [Read More](#)

**Head-to-Head Comparison Finds Three Anti-Seizure Drugs Equally Effective for Severe Form of Epilepsy**

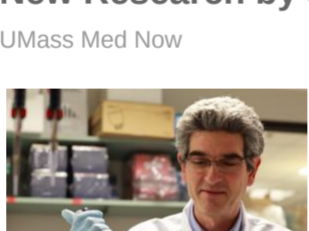
Mass General News



There are three treatment options commonly used by doctors in the emergency room to treat patients with refractory status epilepticus, severe seizures that continue even after benzodiazepine medications, which are effective in controlling seizures in more than two-thirds of patients. New findings reveal that the three drugs—levetiracetam, fosphenytoin, and valproate—are equally safe and effective in treating patients with this condition. [Read More](#)

**New Research by Jeremy Luban Examines Cause of Inflammation in HIV-1**

UMass Med Now



Depletion of a particular type of innate immune cell is the likely source of chronic inflammation in people living with HIV-1, according to new research by a team lead by scientist Dr. Jeremy Luban (pictured). The loss of innate lymphoid cells may explain why people living with HIV-1 have increased rates of cardiovascular, liver, kidney and neurological disease associated with chronic inflammation, despite being on antiretroviral therapy. [Read More](#)

**Tufts Researchers Seek to Speed Wound Healing**

Tufts University



Hard-to-heal wounds, such as those caused by explosions, are a major problem for military personnel. Likewise, chronic wounds, such as diabetic ulcers, afflict large numbers of patients. To help boost recovery options, Tufts University researchers have teamed up with colleagues at the University of California at Santa Cruz and the University of California at Davis to develop technology for improving the healing of serious wounds. [Read More](#)

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Upcoming Events in Boston

March 16 8:00 AM	<b>Management and Leadership Skills for Environmental Health and Safety Professionals</b> Harvard T.H. Chan School of Public Health
March 25 5:00 PM	<b>2020 M2D2 \$200K Challenge Pitch-Off</b> University Crossing at UMass Lowell
March 26 8:00 AM	<b>Women on Boards Getting On and Adding Value</b> Harvard T.H. Chan School of Public Health
March 30 8:00 AM	<b>The International Leadership Development Program for Physicians</b> Harvard T.H. Chan School of Public Health
April 7 8:00 AM	<b>HMX Pro Genetics – Cancer Genomics and Precision Oncology</b> Online

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Sanofi

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**Senior Scientist, Assay Development & High Throughput Screening High**  
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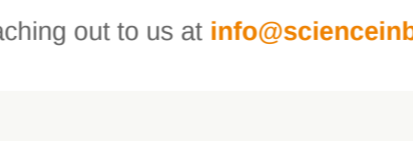
**hPSC MAINTENANCE AND BANKING**  
Webinar by Dr. Teneille Ludwig

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