

Publications of the Week
Association of Caffeine and Related Analytes with Resistance to Parkinson's Disease among *LRRK2* Mutation Carriers: A Metabolomic Study

First Author: Grace Crotty (pictured, top left) | Senior Author: Michael Schwarzschild (bottom right) | Massachusetts General Hospital and Harvard Medical School



To identify markers of resistance to developing Parkinson's disease (PD) among *LRRK2* mutation carriers, the authors carried out metabolomic profiling in individuals with PD and unaffected controls, with and without the *LRRK2* mutation. Metabolomic analyses of the *LRRK2* Cohort Consortium samples identified caffeine, its demethylation metabolites, and trigonelline as prominent markers of resistance to PD linked to pathogenic *LRRK2* mutations, more so than to idiopathic PD. [Profile](#) | [Abstract](#)

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Awards
Seven Harvard Medical School Scientists Receive NIH Awards

Harvard Medical School



Seven scientists from the Blavatnik Institute at Harvard Medical School (HMS) and HMS-affiliated hospitals have received National Institutes of Health (NIH) 2020 Director's Awards. Among the recipients is Dr. Tami Lieberman (pictured), HMS member of the affiliated Faculty of Health Sciences and Technology at MIT, whose lab is developing new tools to track and model within-person bacterial evolution. [Read More](#)

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Local News
Breakthrough Blood Test Developed for Brain Tumors

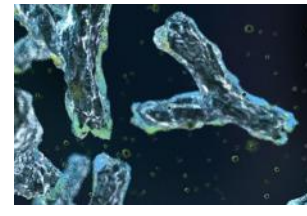
Massachusetts General Hospital



Genetic mutations that promote the growth of the most common type of adult brain tumors can be accurately detected and monitored in blood samples using an enhanced form of liquid biopsy developed by researchers at Massachusetts General Hospital. Comparing blood samples from patients with gliomas with tumor biopsy tissues from the same patients, the researchers found that a novel digital droplet polymerase chain reaction blood test they pioneered could accurately detect and monitor over time two mutations of the gene *TERT*. [Read More](#)

Protective Antibodies Persist for Months in Patients Who Survive Serious COVID-19

Harvard Medical School



People who survive serious COVID-19 have long-lasting immune responses against SARS-CoV-2, according to a new study led by Harvard Medical School researchers at Massachusetts General Hospital. The study offers hope that people infected with the virus will develop lasting protection against reinfection. The findings also demonstrate that measuring antibodies can be an accurate tool for tracking the spread of the virus in the community. [Read More](#)

A Schizophrenia Study in Africa Is Boosting Equity in Global Genetics Research

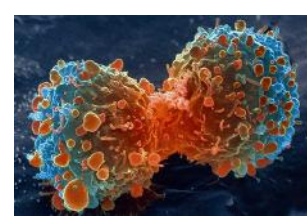
Broad Institute



The Neuropsychiatric Genetics of African Populations-Psychosis project is the largest study of psychiatric genetics ever conducted in Africa. Bringing together scientists and doctors from Uganda, Kenya, Ethiopia, South Africa, and the United States, the four-year-long project seeks to engage 35,000 Africans in a quest to gain a deeper biological understanding of schizophrenia and bipolar disorder across a diversity of populations. The project is being conducted at the Broad Institute by the Stanley Center for Psychiatric Research. [Read More](#)

Dana-Farber/Harvard Cancer Center Wins Prestigious Federal Grant to Accelerate Ovarian Cancer Research

Dana-Farber



Dana-Farber/Harvard Cancer Center (DF/HCC) has been awarded a \$12 million grant from the National Cancer Institute to bring promising ovarian cancer research from the laboratory to clinical practice. The highly competitive grant will help fund three research studies on overcoming the problem of treatment resistance in ovarian cancer and enable DF/HCC-affiliated institutions to build on recent therapeutic advances in this disease. [Read More](#)

The Tiny Choroid Plexus Protects the Prenatal Brain — But May Also Pass On Inflammation From the Mother

Boston Children's Hospital



Floating in fluid deep in the brain are small, little-understood fronds of tissue. Two new studies from Boston Children's Hospital reveal that these miniature organs are a hotbed of immune system activity. This activity may protect the developing brain from infections and other insults — but may also contribute to neurodevelopmental disorders like autism. [Read More](#)

Anti-Malarial Compounds Could Help Treat Deadly Diarrheal Disease

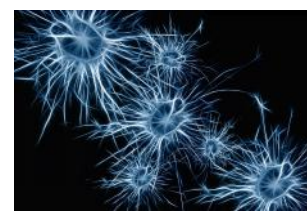
Broad Institute



A team of scientists has discovered a new way of targeting the pathogen that causes a deadly form of diarrheal disease. Led by researchers at the Broad Institute and elsewhere, the new study revealed that compounds used for malaria treatment also kill the intestinal parasite *Cryptosporidium*, a leading cause of diarrheal disease and death in children that has no cure. [Read More](#)

Scar-Free Healing after Spinal Cord Injury Relies on Specialized Cells

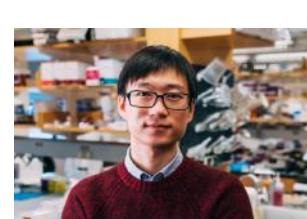
Boston Children's Hospital



One of the reasons people rarely recover from spinal cord injury is the scar tissue that develops, preventing nerve cells from reconnecting. But a new study from Dr. Zhigang He of the F.M. Kirby Neurobiology Center at Boston Children's Hospital has demonstrated a way to minimize scar cell formation in adult mice after a spinal cord injury. The study offers insights for new approaches to treating spinal cord injuries. [Read More](#)

To Make Mini-Organs Grow Faster, Give Them a Squeeze

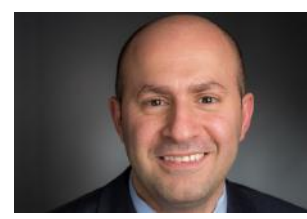
MIT News



The closer people are physically to one another, the higher the chance for exchange, of things like ideas, information, and even infection. Now, researchers led by Dr. Ming Guo (pictured) at MIT and Boston Children's Hospital have found that, even in the microscopic environment within a single cell, physical crowding increases the chance for interactions, in a way that can significantly alter a cell's health and development. [Read More](#)

Biomarker Search Reveals Unexpected Associations in Treatment of Advanced Kidney Cancer

Dana-Farber



Scientists led by Dr. Toni Choueiri (pictured), Director of Dana-Farber's Lank Center for Genitourinary Oncology, have undertaken a biomarker search using data from a phase 3 clinical trial called JAVELIN Renal 101. This clinical trial found that previously untreated patients with advanced kidney cancer who were treated with a combination of avelumab plus axitinib had significantly prolonged progression-free survival compared with patients who received sunitinib. [Read More](#)

Reviving Cells after a Heart Attack

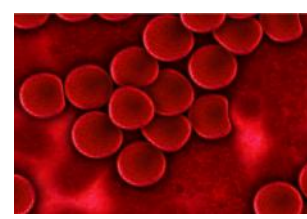
Wyss Institute



Researchers from Harvard's Wyss Institute and John A. Paulson School of Engineering and Applied Sciences have unraveled potential mechanisms behind the healing power of extracellular vesicles and illuminated their capacity to not only revive cells after a heart attack, but also keep cells functioning while deprived of oxygen during a heart attack. [Read More](#)

Studies Reveal Mutations that Boost Blood Stem Cell Growth and Increase Leukemia and Heart Disease Risk

Broad Institute



As people grow older, certain genetic mutations in hematopoietic stem cells (HSCs) — which give rise to blood and immune cells — can eventually cause cancer or predispose people to cardiovascular disease. Now, two teams of scientists at the Broad Institute, Massachusetts General Hospital, Boston Children's Hospital, and Dana-Farber have each discovered a set of inherited gene variants that increase the risk of accumulating these mutations in HSCs over people's lifetimes. [Read More](#)

New 3D Model of a DNA-Regulating Complex in Human Cells Provides Cancer Clues

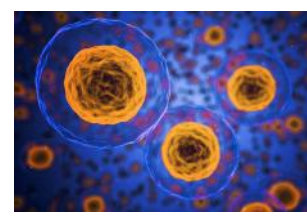
Dana-Farber



Scientists have created an unprecedented 3D structural model of a key molecular "machine" known as the BAF complex, which modifies DNA architecture and is frequently mutated in cancer and some other diseases. The researchers, led by Dr. Cigall Kadoch (pictured) of Dana-Farber, have reported the first 3D structural "picture" of BAF complexes purified directly from human cells in their native states. [Read More](#)

Technique Recovers Lost Single-Cell RNA-Sequencing Information

MIT News



Sequencing RNA from individual cells can reveal a great deal of information about what those cells are doing in the body. MIT researchers have now greatly boosted the amount of information gleaned from each of those cells, by modifying the commonly used Seq-Well technique. With their new approach, the MIT team could extract 10 times as much information from each cell in a sample. [Read More](#)

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Upcoming Events in Boston

October 22 11:00 AM	MassBio Town Hall with Special Guest Abbie Celniker, Partner, Third Rock Ventures
October 27 5:00 PM	Science for All Seasons – Gut Reactions: Using Chemistry to Decipher the Human Microbiome
November 6 1:00 PM	Tufts University Health & Life Sciences Career Fair
November 12 8:00 AM	Virtual Discover Brigham 2020
November 12 6:00 PM	Beyond Academia: A Career Panel Discussion for Life Science PhDs

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