

Publications of the Week

**CDH1 Germline Variants Are Enriched in Patients with Colorectal Cancer, Gastric Cancer, and Breast Cancer**

First Authors: Elio Adb, Talal El Zarif, and Amin Nassar | Senior Authors: David Kwiatkowski and Guru Sonpavde (pictured)  
British Journal of Cancer | Brigham and Women's Hospital, Harvard Medical School, and Dana-Farber Cancer Institute



CDH1 germline variants have been linked to heritability in diffuse gastric and lobular breast cancer. The authors evaluated CDH1 germline pathogenic and likely pathogenic variants in 212,944 patients at one Clinical Laboratory Improvement Amendments-certified laboratory (Invitae) and described their frequency in seven cancer types. They screened for CDH1 variant enrichment in each cancer relative to a cancer-free population from the Genome Aggregation Database version 3.

[Abstract](#)

**Modulation of Sensory Perception by Hydrogen Peroxide Enables Caenorhabditis elegans to Find a Niche That Provides Both Food and Protection from Hydrogen Peroxide**

First Authors: Jodie Schaffer (pictured, left) and Stephanie Stumber (right) | Senior Author: Javier Agfeldt  
PLOS Pathogens | Northeastern University



One of the most common lethal threats that nematodes encounter is hydrogen peroxide, which is produced by a wide variety of microorganisms. In this microbial battlefield, how do nematodes find a niche that provides the food and safety necessary for growth and reproduction? The authors developed a model ecosystem to study the behavioral mechanisms that enable the nematode C. elegans to find those niches. [Abstract](#)

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Awards

**Zaida Ramirez-Ortiz Awarded Lupus Innovation Award for Cell Research in Lupus**

UMass Chan Medical School



Dr. Zaida Ramirez-Ortiz (pictured), Assistant Professor of Medicine, received a 2021 Lupus Innovation Award by the Lupus Research Alliance for her work probing an underlying mechanism of lupus. The award offers up to \$150,000 for up to two years, and early-stage investigators are eligible for an additional year of funding upon successful completion of the original grant. [Read More](#)

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Local News

**Paula and Rodger Riney Foundation Makes \$40 Million Transformative Grant to Further Multiple Myeloma Research at Dana-Farber Cancer Institute**

Dana-Farber Cancer Institute



Paula and Rodger Riney of St. Louis, Missouri, through the Paula and Rodger Riney Foundation, have announced a \$40 million grant to support multiple myeloma research at Dana-Farber Cancer Institute. The grant represents the largest single award supporting multiple myeloma research in Dana-Farber's history. The Paula and Rodger Riney Foundation has been a strong supporter of Dana-Farber and with this grant has cumulatively donated nearly \$60 million to the Institute. [Read More](#)

**Twin Gene-Editing System Gives Twice the Efficiency**

The Harvard Gazette



A team of researchers led by Harvard and Broad Institute scientists has developed twin prime editing, a new, CRISPR-based gene-editing strategy that enables manipulation of gene-sized chunks of DNA in human cells without cutting the DNA double helix. "Such a capability could advance gene therapy by enabling genes to be restored in their native sequence locations, without increased risk of cancer from semi-random or uncontrolled integration at other locations in the genome," says senior author Dr. David Liu (pictured). [Read More](#)

**AstraZeneca and Ovid Therapeutics Team Up Against Epilepsy**

BioSpace



Ovid Therapeutics has partnered with AstraZeneca for exclusive access to a library of early-stage small molecules that target the KCC2 transporter, including OV350 — the lead candidate. Under the terms of the deal, AstraZeneca will receive \$5 million in cash and \$7.5 million in shares of Ovid common stock upfront. AstraZeneca also stands to gain up to \$8 million in clinical development milestones and up to \$45 million in regulatory milestones. [Read More](#)

**Towards More Effective Tendon Repair with a Multi-Functional Biomaterial**

Wyss Institute



A collaborative research team led by Drs. David Mooney (pictured), Eckhard Weber, and Daniel Kaufmann developed a new biomaterial-based tendon therapy that addresses key challenges in the regeneration process. The two-sided material firmly adheres to tendons with one of its specifically engineered surfaces, while allowing normal gliding of healing tendons with its opposite mechanically tough yet elastic surface. [Read More](#)

**The Shape of Things**

Harvard Medical School



How do cells fold themselves so precisely into such complicated configurations during development? What are the fundamental forces driving this process? New research, done in zebrafish, reveals that the process involves a combination of hyaluronic acid, produced by cells, that swells with water, and thin connectors between cells that direct the force of this swelling to shape the tissue. [Read More](#)

**Speeding Up Directed Evolution of Molecules in the Lab**

MIT News



In recent years, scientists have found ways to speed up evolution on a small scale, allowing them to rapidly create new proteins and other molecules in their lab. Dr. Kevin Esvelt (pictured) and a team at MIT have now developed a robotic platform that can perform directed-evolution experiments in parallel, giving many more populations the chance to come up with a solution, while monitoring their progress in real-time. [Read More](#)

**Anti-Microbial Drug Targets Key Driver of Chronic Lymphocytic Leukemia**

Dana-Farber Cancer Institute



Dana-Farber scientists have found that a generic anti-microbial drug can block a key molecular driver of chronic lymphocytic leukemia (CLL) cells, and when tested in a small clinical trial of advanced CLL patients who had relapsed, the drug slowed disease progression in half of them. "This is a great example of how disease-focused foundations, which are looking to fill a niche in the development of new therapies, can have a powerful impact in developing new treatments for our patients," says first author Dr. Jennifer Brown (pictured). [Read More](#)

**Gene Involved in Sense of Smell Could Play a Role in the Spread of Breast Cancer to the Brain**

Massachusetts General Hospital



An olfactory receptor gene that aids in the sense of smell may also play a role in the metastasis of breast cancer to the brain, bones and lung, researchers from Massachusetts General Hospital have found. "Our work suggests that the olfactory receptor 5B21 is also a novel oncogene that may figure prominently in cancer progression by driving breast cancer cells to the brain and other sites in the body," says Dr. Bakhos Tannous (pictured). [Read More](#)

**Challenge upon Challenge**

Harvard Medical School



Fresh off their COVID-19 vaccinations and a cross-country move, Drs. Jennifer Oylet-Yaniv (pictured, right) and her partner Dr. Alon Oylet-Yaniv (left) celebrated the first immune cell purifications — fundamental procedures for conducting their research — in their joint lab at Harvard Medical School in June 2021. Although campus didn't have the vibrant feel they knew existed from their interview process, "People went out of their way to create a feeling of community," Jennifer said. [Read More](#)

**Study Compares COVID-19 Vaccines' Ability to Stimulate Immune Protection against the Coronavirus**

Massachusetts General Hospital



A team of scientists at Massachusetts General Hospital has conducted one of the first comparisons of how effectively each of the three COVID-19 vaccines authorized or approved in the United States stimulates a protective immune response against the virus. This study also includes an analysis of data from several other studies on how well each vaccine guards against breakthrough cases of COVID-19, or infections that occur in people who have received the inoculations. [Read More](#)

**Sensor Based on Quantum Physics Could Detect SARS-CoV-2 Virus**

MIT News



A novel approach to testing for the presence of the virus that causes COVID-19 may lead to tests that are faster, less expensive, and potentially less prone to erroneous results than existing detection methods. Though the work, based on quantum effects, is still theoretical, these detectors could potentially be adapted to detect virtually any virus, the researchers say. [Read More](#)

**Researchers Uncover New Details behind Inflammation That Promotes Heart Disease**

Massachusetts General Hospital



High cholesterol and inflammation are key drivers of heart disease, and an inflamed buildup of lipids can cut off the blood supply through a coronary artery to cause a heart attack. Because white blood cells, which usually defend against infection, trigger inflammation in these situations, a team led by scientists at Massachusetts General Hospital recently studied aspects related to the cells' production. "In patients with heart disease, white blood cells are more numerous," says senior author Dr. Matthias Nahrendorf (pictured). [Read More](#)

**Cracking the Code for a New System of Cell-to-Cell Signaling**

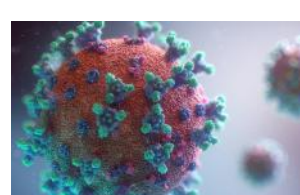
Joslin Diabetes



Many labs are focusing on exosomes carrying microRNAs. These are very short RNAs that can regulate the ability of other longer RNAs that make different cellular proteins and control cell function. Thus, microRNAs affect many aspects of cellular behavior in health and disease. Scientists at Joslin Diabetes Center now have discovered how cells pick a collection of microRNAs for their exosomes, said Dr. C. Ronald Kahn (pictured). [Read More](#)

**Tracking the Omicron Variant in Massachusetts**

Broad Institute



Through a partnership with the Massachusetts Department of Public Health, researchers at the Broad Institute are using mCARVEN, a CRISPR-based technology that can rapidly differentiate between Omicron, Delta, and other COVID-19 variants, to get a provisional look at the rising prevalence of Omicron in the state. [Read More](#)

**Emerging Protein-Based COVID-19 Vaccines Could Be Game-Changing**

Boston Children's Hospital



Current messenger RNA vaccines appear to offer at least some protection against new SARS-CoV-2 variants, including Omicron, especially for people who have received boosters. But manufacturing costs and the need for ultra-cold refrigeration have limited availability of these vaccines in low- and middle-income countries. That's where emerging protein-based COVID-19 vaccines — including two candidates developed at Boston Children's Hospital — could change the game. [Read More](#)

**'Risky' Research**

The Picower Institute



Aware that 40Hz frequency brain waves were reduced in Alzheimer's disease patients and mouse models, and knowing that the Alzheimer's-focused Tsai lab had shown how to increase the power of exactly those 40Hz "gamma" rhythms, graduate student Hunter Iaccarino figured Dr. Li-Huei Tsai (pictured) would take a chance on testing whether boosting the rhythms would affect the course of the disease. [Read More](#)

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**Upcoming Events in Boston**

January 11 11:00 AM	<b>Nano Explorations: Peptide Beacon Integrated Planar Waveguide Sensor for Low-Cost, Rapid and Highly Sensitive Detection of COVID-19</b> Online
January 11 1:00 PM	<b>Frontiers in Biostatistics: Studies on COVID-19 and Cancer Using National Real-World VA Data</b> Online
January 12 12:00 PM	<b>Amyloid PET Ordering and Implications in VA Boston Memory Disorders Clinic with Dr. Turk</b> Online
January 14 8:00 AM	<b>Forsyth Postdoctoral Symposium</b> Online
January 14 4:00 PM	<b>Barry Paw Lectureship with Dr. David Langenau</b> Online

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**Science Jobs in Boston**

**Research Assistant I**

Beth Israel Deaconess Medical Center

**Research Associate II, Protein Science**

Broad Institute

**Engineer II, Islet Beta Cell Differentiation**

Sana Biotechnology

**Process Development Senior Associate**

Amgen

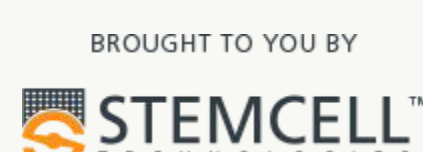
**Associate Scientist, In Vivo Pharmacology**

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