



Publications of the Week

Human Immunodeficiency Virus and Antiretroviral Therapies Exert Distinct Influences Across Diverse Gut Microbiomes

First Author: Karolina Jabbar | Senior Authors: Douglas Kwon (pictured) and Ramnik Xavier
Nature Microbiology | Broad Institute, Ragon Institute, Massachusetts General Hospital, Harvard Medical School, and MIT



Human immunodeficiency virus (HIV) infection alters gut microbiota composition and function, but the impact of geography and antiretroviral therapy remains unclear. Here, researchers determined gut microbiome alterations linked to HIV infection and antiretroviral treatment in 327 individuals with HIV and 260 control participants in cohorts from Uganda, Botswana and the USA via fecal metagenomics. [Abstract](#) | [Press Release](#)

Restoration of cGAS in Cancer Cells Promotes Antitumor Immunity via Transfer of Cancer Cell–Generated cGAMP

First Author: Alexander Cryer | Senior Author: Natalie Artzi (pictured)
Proceedings of the National Academy of Sciences | Brigham and Women's Hospital, Harvard Medical School, Wyss Institute, and MIT



Stimulator of interferon genes (STING) agonists are a promising class of innate immune agonists and can promote antitumor immunity. However, direct administration can cause deleterious side effects. Here, researchers utilize the cancer cells to generate STING agonist molecules while simultaneously circumventing commonly found dysfunctional cancer cell STING signaling. [Abstract](#) | [Press Release](#)

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Awards

Scientific Director Dr. Facundo Batista Elected to the National Academy of Medicine

Ragon Institute



The Ragon Institute's Dr. Facundo Batista (pictured) has been elected to the National Academy of Medicine (NAM), one of the highest honors in health and medicine. Election to NAM recognizes individuals who have demonstrated outstanding professional achievement and a commitment to service. Dr. Batista is internationally recognized for pioneering research that has reshaped our understanding of antibody-producing B cells. [Read More](#)

UMass Chan Medical School Scientists to Assess Gene Editing Technologies for Treating Frontotemporal Dementia

UMass Chan Medical School



Investigators at UMass Chan Medical School received a \$6.6 million grant from the National Institute of Neurological Disorders and Stroke to evaluate potential gene editing technologies to correct granulin mutations, one of the major genetic causes of frontotemporal dementia, with the hope that one will potentially advance to a clinical trial. The four- year project is led by Drs. Fen-Biao Gao, Erik Sontheimer, Jonathan Watts, and Scot Wolfe (pictured). [Read More](#)

Postdoctoral Fellow Nikita Bhalerao Honored by National Pancreas Foundation

UMass Chan Medical School



Dr. Nikita Bhalerao (pictured), a postdoctoral fellow at UMass Chan Medical School, has received the prestigious 2025 Rising Star Award from the National Pancreas Foundation and a postdoctoral fellowship from the Pancreatic Cancer Alliance for her research on pancreatic cancer in the lab of Dr. Jason Pitarresi. The Rising Star Award recognizes an individual who has shown exceptional promise, innovation, and compassion. [Read More](#)

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Local News

New Method Could Improve Manufacturing of Gene-Therapy Drugs

MIT News



Some of the most expensive drugs currently in use are gene therapies to treat specific diseases, and their high cost limits their availability for those who need them. Part of the reason for the cost is that the manufacturing process yields as much as 90% non-active material, and separating it out accounts for almost 70% of the total gene therapy manufacturing cost. But now, researchers at MIT have found a way to greatly improve that separation process. [Read More](#)

Crossing the Barrier: Wyss Brain Targeting Program Is Delivering on Its Promise

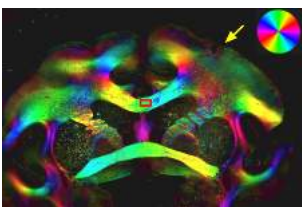
Wyss Institute



Launched in 2019 as an ambitious idea, the Wyss Brain Targeting Program was designed to address a critical challenge in neuroscience and brain health: how to safely and effectively deliver drugs across the blood-brain barrier (BBB). The BBB is a tightly regulated gateway that protects the brain from toxins and pathogens but also prevents nearly all large-molecule drugs from reaching brain tissue in therapeutic concentrations. [Read More](#)

Researchers Develop Highly Sensitive Imaging Technique to Detect Myelin Damage

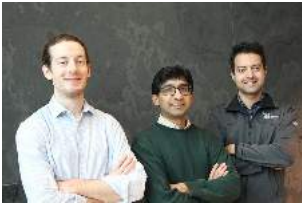
Boston University Chobanian & Avedisian School of Medicine



While electron microscopy is considered the gold standard for ultrastructural imaging of myelin, it is considered impractical for large-scale studies. In a new study, researchers from the lab of Dr. Alex Gray used a special microscope called birefringence microscopy paired with an automated deep learning algorithm to reliably count and map myelin damage across whole sections of the brain. [Read More](#)

A New Colorful Method for Nanoscale Imaging Harnesses Electron-Induced Light

Harvard University Department of Molecular and Cellular Biology



Imaging probes that are only nanometers apart require excitation at spatial scales that match the distance between them—something that visible light cannot achieve due to its diffraction limit. To tackle this challenge, Drs. Jeremy Conway, Sohaib Abdul Rehman, and Max Prigozhin (pictured, left to right) created a new approach that combines the resolution of electron microscopy with the multicolor capability of fluorescence imaging. [Read More](#)

New Nanoparticles Stimulate the Immune System to Attack Ovarian Tumors

MIT News



To elicit a better response from cancer immunotherapy, MIT researchers led by Dr. Paula Hammond (pictured) have designed new nanoparticles that can deliver an immune-stimulating molecule called IL-12 directly to ovarian tumors. When given along with immunotherapy drugs called checkpoint inhibitors, IL-12 helps the immune system launch an attack on cancer cells. [Read More](#)

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Upcoming Events in Boston

November 13 12:30 PM	Transforming Healthcare and Life Sciences Using Generative AI on AWS 101 Main Street
November 20 8:00 AM	2025 R&D Reimagined MassBioHub
December 11 - 12 9:00 AM	Boston International Symposium: Accelerating PSC-Derived Cell Therapies Hyatt Regency Cambridge
December 11 4:30 PM	Better Together Ragon Institute
December 3 5:00 PM	MassBioHub 2025 Annual Holiday Party Mixer 100 Technology Square

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- Manufacturing Science and Technology Senior Scientist**
Vertex
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