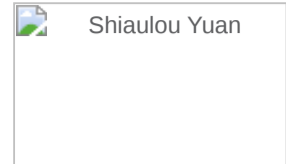


Publications of the Week

Cilia Function as Calcium-Mediated Mechanosensors That Instruct Left-Right Asymmetry

First Authors: Lydia Djenoune and Mohammed Mahamdeh | Senior Author: Shialou Yuan (pictured)
Science | Massachusetts General Hospital and Harvard Medical School



In most vertebrates, left-right differences are specified during early embryogenesis by a small cluster of cells called the left-right organizer. Working with mouse embryos, the authors found that immotile cilia sense the mechanical force generated by the directional flow of extracellular fluid and suggest a biophysical mechanism by which the direction of the flow is sensed. [Profile](#) | [Abstract](#) | [Press Release](#)

[Profile](#) | [Abstract](#) | [Press Release](#)

CanB Is a Metabolic Mediator of Antibiotic Resistance in *Neisseria gonorrhoeae*

First Author: Daniel Rubin | Senior Author: Yonatan Grad (pictured, top left)
Nature Microbiology | Harvard University and Brigham and Women's Hospital



The evolution of the obligate human pathogen *Neisseria gonorrhoeae* has been shaped by selective pressures from diverse host niche environments and antibiotics. Using a genome-wide association study and experimental investigations, the authors show that CO₂ dependence is attributable to a single substitution in a β-carbonic anhydrase, CanB. [Profile](#) | [Abstract](#)

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Awards

Trio of UMass Chan Researchers Receive Awards for Studies on Age-Related Macular Degeneration

UMass Chan Medical School



Three UMass Chan Medical School researchers are receiving awards from the American Macular Degeneration Foundation as part of the nonprofit's \$1.1 million investment into studies aimed at disease prevention, risk reduction, new treatments and cures for age-related macular degeneration. Drs. Claudio Punzo (pictured), Johanna Seddon, and Shun-Yun Cheng are among the eight recipients of an expanded round of grants from the foundation. [Read More](#)

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Two BU Researchers Receive over \$1 Million Each in Funding from the Chan Zuckerberg Initiative

The Brink



In an effort to take biological imaging to the next level, two Boston University College of Engineering researchers are spearheading projects aimed at finding better ways to visualize the cellular mechanisms that drive our everyday life. Drs. Ji-Xin Cheng (pictured) and Lei Tian will each receive more than \$1 million in funding from the Chan Zuckerberg Initiative, a highly competitive program, to develop new methods for seeing cells, molecules, proteins, and neuron networks in real time. [Read More](#)

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Local News

MD/PhD Student Approaches Alzheimer's Disease Through Gut Microbiome Research

UMass Chan Medical School

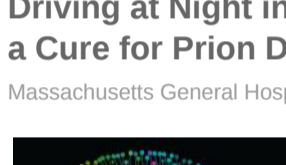


Ethan Loew's (pictured) passion for problem-solving and his family's background working on Italian olive farms inspire his academic pursuits as an MD/PhD student at UMass Chan Medical School and fuel his desire to give back through mentorship. After majoring in chemistry at Union College, Loew was torn between practicing bench science or becoming a clinician. His experience working as a lab technician at Harvard while volunteering in a hospital showed him how he could combine the two. [Read More](#)

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Driving at Night in the Fog: Sonia Vallabh and Eric Minikel's Unique Path to a Cure for Prion Disease

Massachusetts General Hospital

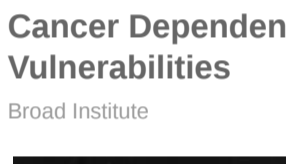


The process of getting a drug to patients is cumbersome and heroic. For Drs. Sonia Vallabh and Eric Minikel, who founded the Prion Alliance to develop therapeutics for human prion disease, their path has been, they say, like "driving at night in the fog," quoting E.L. Doctorow: "You can only see as far as your headlights, but you can make the whole trip that way." [Read More](#)

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Cancer Dependency Map Consortium Accelerates Research into Tumor Vulnerabilities

Broad Institute

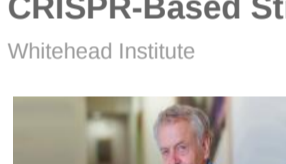


The Broad Institute's Cancer Dependency Map Consortium, an academic-industrial partnership program that was first announced in 2019, is accelerating its research into tumor vulnerabilities and identifying key biomarkers. As the consortium enters a new phase, a total of 19 pharmaceutical and biotechnology organizations are partnering in this project. [Read More](#)

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CRISPR-Based Strategy Restores Neurons Affected by Rett Syndrome

Whitehead Institute



Rett syndrome is a rare, progressive neurodevelopmental disorder that typically affects girls, causing severe intellectual disability, loss of motor skills, and autism-like symptoms, and there is currently no cure. In a paper published in *Science Translational Medicine*, Dr. Rudolf Jaenisch (pictured), Dr. Shawn Liu, Junming Qian, and Dr. Xiaonan Guan show that they can reactivate the normal copies of *MECP2* in Rett syndrome neurons in the laboratory, and that this can effectively restore neuronal function. [Read More](#)

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Finding HIV's Hidden Reservoir Cells

Ragon Institute



Antiretroviral drugs have transformed the treatment of HIV/AIDS, extending the lives of patients and rendering a once deadly disease into a chronic, manageable condition. But currently available treatment does not cure HIV infection — instead, the virus persists lifelong, and antiviral treatment needs to be taken indefinitely to suppress the virus. Dr. Mathias Lichtenfeld's (pictured) lab studies samples from patients with HIV to learn about HIV-1 reservoir cells. [Read More](#)

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Fresh Insights into Inflammation, Aging Brains

The Harvard Gazette



Results from a new study by Harvard researchers just published in *Cell* offer insights into the relationship between inflammation and the cognitive impairment we experience as we age, and suggest the possibility that it may be a result of a kind of cellular chain reaction. "Understanding aging is one of the most important goals in biomedicine," said Dr. Xiaowei Zhuang. [Read More](#)

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Upcoming Events in Boston

- February 22 12:00 PM **Stem Cells in Space** Online
- February 28 10:00 AM **2023 Rare Disease Day** Massachusetts State House
- March 8 12:00 PM **Clarifying the Mysteries of Choosing Statistical and Machine-Learning Methods in Genomics Research** Online
- March 14 4:00 PM **Soma Weiss Student Research Day** TMEC Atrium
- March 24 12:30 PM **Cell Therapies for Parkinson's Disease: How Far Have We Come, and Where Are We Going?** Online

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