

Publications of the Week
Cell Swelling, Softening and Invasion in a Three-Dimensional Breast Cancer Model

 First Author: Yu Long Han | Senior Author: Ming Guo *(pictured)*
 Nature Physics | MIT and Harvard University


Control of the structure and function of three-dimensional multicellular tissues depends critically on the spatial and temporal coordination of cellular physical properties, yet the organizational principles behind them remain poorly understood. Using a multicellular mammary cancer organoid model, the authors map the spatial and temporal evolution of positions, motions and physical characteristics of individual cells in three dimensions. [Abstract](#)

Unique Structural Features in an Nrapm Metal Transporter Impart Substrate-Specific Proton Cotransport and a Kinetic Bias to Favor Import

 First Author: Aaron Bozzi | Senior Author: Rachelle Gaudet *(pictured)*
 Journal of General Physiology | Harvard University


Natural resistance-associated macrophage protein (Nrapm) transporters enable uptake of essential transition metal micronutrients in numerous biological contexts and are believed to function as secondary transporters that harness the electrochemical energy of proton gradients. The authors used the *Deinococcus radiodurans* Nrapm homologue, for which they determined crystal structures in multiple conformations, to investigate mechanistic details of metal and proton transport. [Abstract](#)

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Awards
Gregory Pazour Elected to American Society for Cell Biology

UMass Med Now



Dr. Gregory J. Pazour *(pictured)*, Professor of Molecular Medicine at the University of Massachusetts, is one of 16 scientists named a 2019 fellow of the American Society for Cell Biology (ASCB). Fellows are recognized for their meritorious efforts to advance cell biology and its applications and for their service to ASCB. An expert in cilia function and assembly, Dr. Pazour was the first to draw an unexpected link between cilia dysfunction and polycystic kidney disease. [Read More](#)

Jesse Delia Receives 2019 Belamarich Award

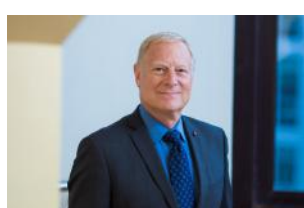
BU School of Medicine



Dr. Jesse Delia *(pictured)* in the Warkentin lab was selected as the winner of the 2019 Belamarich Award for his doctoral dissertation in Biology titled "Ecology and Evolution of Parent-Embryo Interactions in Neotropical Glassfrogs." This award is given annually to a recent PHD candidate at Boston University for their outstanding doctoral dissertation completed in the Department of Biology. Jesse is also a past recipient of the Thomas H. Kunz award (2015 & 2016). [Read More](#)

Whitehead Institute Member Richard Young Elected to National Academy of Medicine

Whitehead Institute



Whitehead Institute Member Dr. Richard A. Young *(pictured)* has been elected to the United States National Academy of Medicine (NAM). Along with the National Academy of Sciences and National Academy of Engineering, the NAM provides objective, evidence-based advice to the nation, under a congressional charter. Election to the NAM is considered one of the highest honors for U.S. medical practitioners, public health leaders, and biomedical researchers. [Read More](#)

Dulac Receives Award from Society for Neuroscience

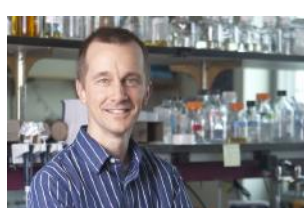
Harvard MCB



The Society for Neuroscience (SfN) has named Harvard School of Molecular and Cellular Biology faculty Dr. Catherine Dulac *(pictured)* as a recipient of the 2019 Ralph W. Gerard Prize. The prize honors lifetime achievement in neuroscience and is the highest honor awarded by the SfN. Dulac and co-honoree Michael Greenberg of Harvard Medical School will be recognized with a ceremony at the annual SfN meeting, which attracts over 30,000 participants. [Read More](#)

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Local News
Biologists Build Proteins That Avoid Crosstalk with Existing Molecules

MIT News



Inside a living cell, many important messages are communicated via interactions between proteins. For these signals to be accurately relayed, each protein must interact only with its specific partner, avoiding unwanted crosstalk with any similar proteins. A new MIT study led by Dr. Michael Laub *(pictured)*, sheds light on how cells are able to prevent crosstalk between these proteins, and also shows that there remains a huge number of possible protein interactions that cells have not used for signaling. [Read More](#)

A New Strategy for Treating High Blood Pressure

BU School of Medicine



The key to treating blood pressure might lie in people who are "resistant" to developing high blood pressure even when they eat high salt diets. Boston University School of Medicine researchers, led by Dr. Richard Wainford *(pictured)*, Associate Professor of Pharmacology and Medicine, looked at how cells in a specific part of the brain (called the hypothalamus) controlled salt-resistance and found a structural change in the cells that allows for them to change their response to salt. [Read More](#)

A New Hope: Biogen's Aducanumab Headed to Regulators for Treating Alzheimer's Disease

BioSpace



No one expected this. In March, Biogen and its collaboration partner, Tokyo-based Eisai, announced they were discontinuing the global Phase III clinical trials, ENGAGE and EMERGE, of Aducanumab in patients with mild cognitive impairment from Alzheimer's and mild Alzheimer's dementia. But, the two companies announced that after discussions with the U.S. Food and Drug Administration (FDA), Biogen will pursue regulatory approval for Aducanumab. [Read More](#)

Towards 'Universal' Protection: Designing the Next-Generation Influenza Vaccine

Ragon Institute



Scientists from the Ragon Institute of MGH, MIT and Harvard, led by Dr. Aaron Schmidt, Assistant Professor of Microbiology, have partnered with the Duke Human Vaccine Institute (DHVI) on a nation-wide, multidisciplinary program to develop a more universally protective influenza vaccine. The research is aimed at the development of vaccine candidates through testing in preclinical studies, clinical trials and controlled human challenge studies. [Read More](#)

Real Texture for Lab-Grown Meat

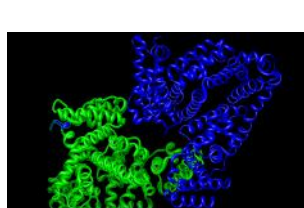
Harvard Gazette



Lab-grown or cultured meat could revolutionize food production, providing a greener, more sustainable, more ethical alternative to large-scale meat production. Now, researchers at Harvard University have grown rabbit and cow muscle cells on edible gelatin scaffolds that mimic the texture and consistency of meat, demonstrating that realistic meat products may eventually be produced without the need to raise and slaughter animals. [Read More](#)

Listening In to How Proteins Talk and Learning Their Language

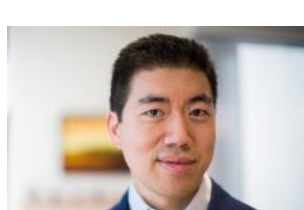
Wyss Institute



Synthetic biologists have taken evolution of proteins into their own hands by changing some that occur in nature or even by synthesizing them from scratch. Now, a research team at Harvard University has created a third approach to engineering proteins that uses deep learning to distill the fundamental features of proteins directly from their amino acid sequence without the need for additional information. [Read More](#)

New CRISPR Genome Editing System Offers a Wide Range of Versatility in Human Cells

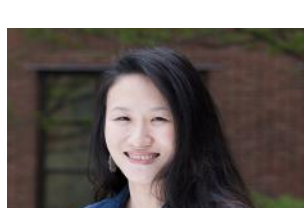
Broad Institute



A team from the Broad Institute of MIT and Harvard, led by Dr. David Liu *(pictured)*, has developed a new CRISPR genome-editing approach by combining two of the most important proteins in molecular biology — CRISPR-Cas9 and a reverse transcriptase — into a single machine. The system, called "prime editing," is capable of directly editing human cells in a precise, efficient, and highly versatile fashion. [Read More](#)

A Homeostatic Circuit for Hunger

Harvard University MCB



Decades ago, pioneering studies in cats and rodents identified regions within an ancient part of the brain, the hypothalamus, that are sufficient to increase or reduce appetite. Now Dr. Caroline Wee *(pictured)* and colleagues report that lateral and medial hypothalamic circuits in the larval zebrafish, while sharing parallel functions with mammals, may in fact have more complex and dynamic roles in the control of energy homeostasis. [Read More](#)

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Upcoming Events in Boston

October 28 12:00 PM	Life Sciences & Biotech Internship and Job Career Fair UMass Amherst
October 29 8:30 AM	Forsyth Symposium: Immune Modulation of the Host-Microbe Interface Forsyth Institute
November 1 8:00 AM	Questrom's Seventh Annual Health & Life Sciences Conference Questrom School of Business
November 3 11:30 AM	PurpleStride Boston 2019: Walk with Elstar Therapeutics Boston Common – Parkman Bandstand
November 7 11:00 AM	Discover Brigham Brigham and Women's Hospital

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