

**Publications of the Week**
**The Perlman Syndrome DIS3L2 Exoribonuclease Safeguards Endoplasmic Reticulum-Targeted mRNA Translation and Calcium Ion Homeostasis**

 First Author: Mehdi Pirouz | Senior Author: Richard Gregory (pictured)  
 Nature Communications | Boston Children's Hospital and Harvard Medical School


DIS3L2-mediated decay (DMD) is a surveillance pathway for certain non-coding RNAs. While mutations in DIS3L2 are associated with Perlman syndrome, the biological significance of impaired DMD is obscure and pathological RNAs have not been identified. By ribosome profiling, the authors found specific dysregulation of endoplasmic reticulum-targeted mRNA translation in DIS3L2-deficient cells.

[Abstract](#)
**Maternal H3K27me3-Dependent Autosomal and X Chromosome Imprinting**

 First Author: Zhiyuan Chen | Senior Author: Yi Zhang (pictured)  
 Nature Reviews Genetics | Boston Children's Hospital


Genomic imprinting and X-chromosome inactivation (XCI) are classic epigenetic phenomena that involve transcriptional silencing of one parental allele. Germline-derived differential DNA methylation is the best-studied epigenetic mark that initiates genomic imprinting, but evidence indicates that other mechanisms exist. Recent studies have revealed that maternal trimethylation of H3K27 mediates autosomal maternal allele-specific gene silencing and has an important role in imprinted XCI through repression of maternal Xist. [Abstract](#)

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**Awards**
**Whitehead Institute Graduate Student Kristina Lopez Receives Ford Foundation Fellowship**

Whitehead Institute



Kristina Lopez (pictured), a first-year graduate student at MIT working in Whitehead Fellow Dr. Kristin Knouse's lab, has received the Ford Foundation Fellowship, an award designated by the National Academy of Sciences and funded by the Ford Foundation to encourage diversity in education. Lopez, a native of the mid-size South Texas city of McAllen, is the first person in her family to go to college.

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**Local News**
**Researchers Discover New Member of Novel Drug Family for 'Undruggable' Targets**

Broad Institute



A research team led by Dr. Benjamin Ebert (pictured) at the Broad Institute has discovered a new molecular glue degrader called CR8. By dissecting the details of CR8's molecular mechanism of action, the researchers show how it may be possible to build more of these unique compounds as potential treatments for a variety of diseases. [Read More](#)

**Sleep, Death and...the Gut?**

Harvard Medical School



Harvard Medical School neuroscientists have identified an unexpected, causal link between sleep deprivation and premature death. In a study on sleep-deprived fruit flies, researchers found that death is always preceded by the accumulation of molecules known as reactive oxygen species (ROS) in the gut. When fruit flies were given antioxidant compounds that neutralize and clear ROS from the gut, sleep-deprived flies remained active and had normal lifespans. [Read More](#)

**Researchers Identify Secretion Mechanisms for a Protein Necessary for Maintaining Healthy Connective Tissue Structure**

BU School of Medicine



Neya Vishwanath (pictured) and colleagues at the BU School of Medicine have discovered that a defective form of aortic carboxypeptidase-like protein from patients with Ehlers-Danlos syndrome (EDS) is retained in cells and induces cellular stress. This finding may provide targets for pharmacologic and therapeutic interventions in treating individuals with EDS as well as wound healing disorders and fibrosis. [Read More](#)

**Researchers Shed Light on Serotonin's Role in Obstructive Sleep Apnea**

Beth Israel Deaconess Medical Center



Researchers at Beth Israel Deaconess Medical Center have demonstrated that the neurotransmitter serotonin plays a critical role in rousing the brain from sleep when CO<sub>2</sub> levels rise. Building on previous work that identified the specific neural circuitry at work in brains of mice in simulated apnea conditions, the new findings could lead to potential new drug therapies to help patients with obstructive sleep apnea get more rest. [Read More](#)

**Object Origins**

Harvard Medical School



Every year, an estimated 48 million Americans get sick from foodborne illnesses, resulting in some 128,000 hospitalizations and 3,000 deaths. In a novel solution that can help determine the origin of agricultural products and other goods, Harvard Medical School scientists have developed a DNA-barcoded microbial system that can be used to label objects in an inexpensive, scalable and reliable manner. [Read More](#)

**Unlocking the Secrets of a Plastic-Eater**

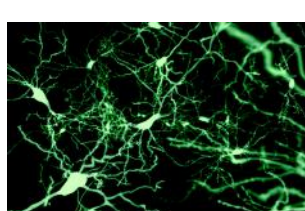
MIT News



It was during a cruise in Alaska that Linda Zhong (pictured) realized that the world didn't have to be full of plastic. "I grew up in cities, so you're very used to seeing all kinds of trash everywhere," says the graduate student in microbiology. Seeing the pristine, plastic-free landscape, Zhong decided to find a way to get rid of plastic waste. "I'm a biologist, so I approached it from a biological standpoint," she says. [Read More](#)

**State of Stasis: Neuroscientists Discover Neurons that Control Hibernation-Like Behaviors in Mice**

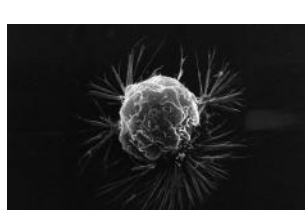
Harvard Medical School



Harvard Medical School neuroscientists have discovered a population of neurons in the hypothalamus that controls hibernation-like behavior, or torpor, in mice, revealing for the first time the neural circuits that regulate this state. The team demonstrated that when these neurons are stimulated, mice enter torpor and can be kept in that state for days. When the activity of these neurons is blocked, natural torpor is disrupted. [Read More](#)

**Mass General Researchers Identify a Promising Treatment for Deadly Cancer**

Massachusetts General Hospital



A drug already in use for several cancers was found effective in a study from Mass General treating leptomeningeal dissemination of cancer (LMD). LMD affects the lining of the brain and spinal cord, called the meninges. About 5-10% of patients with solid tumors eventually develop cancers in these parts of the central nervous system. [Read More](#)

**Study Finds Path for Addressing Alzheimer's Blood-Brain Barrier Impairment**

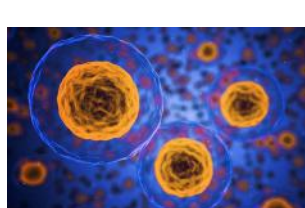
The Picower Institute



By developing a lab-engineered model of the human blood-brain barrier, neuroscientists at MIT's Picower Institute for Learning and Memory have discovered how the most common Alzheimer's disease risk gene causes amyloid protein plaques to disrupt the brain's vasculature, and showed they could prevent the damage with medications already approved for human use. [Read More](#)

**Evera, a Harvard Consumer Biotech Company, Brings Stem Cell Banking to You**

Forbes



Throughout the past decade, consumer biology tests have been all the rage. With recent advances in stem cell research, a new opportunity within the consumer biology market has appeared. Nabeel Qurayshi, Michael Chen and Zeel Patel are three Harvard undergraduates who observed the unmet, rising demand of control over one's stem cells. They worked together to create Evera, the first "at-home stem cell banking company." [Read More](#)

**Lab-Grown Mini-Lungs Could Reveal Why COVID-19 Kills**

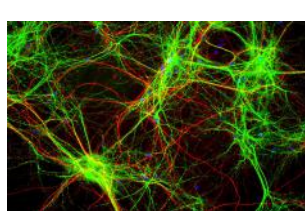
MIT Technology Review



Inside the biosafety level 4 lab at the National Emerging Infectious Diseases Laboratories in Boston, researchers wear three sets of gloves and breathe air piped into moon suits through snaking tubes. Before them, under a plastic shield, are human lung-sac cells grown from organoids, blobs of cells that mimic organs. Now it's time to infect them with the coronavirus. [Read More](#)

**Research Highlights Immune Molecule's Complex Role in Huntington's Disease**

MIT News



More than a decade before people with Huntington's disease (HD) show symptoms, they can exhibit abnormally high levels of an immune-system molecule called interleukin-6 (IL-6), which has led many researchers to suspect IL-6 of promoting the eventual neurological devastation associated with the genetic condition. But MIT neuroscientists have found that Huntington's model mice bred to lack IL-6 showed exacerbated symptoms compared to HD mice that still had it. [Read More](#)

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**Upcoming Events in Boston**

June 16

9:00 AM

**BU Center for Regenerative Medicine Seminar: PI Showcase featuring Jason Rock**  
 Online

June 17

10:00 AM

**RNA Collaborative Seminar Series**  
 Online

June 17

12:00 PM

**New Horizons in Therapeutic Antibody Discovery: Challenges and Opportunities for Improvement**  
 Online

June 18

8:00 AM

**From Brainstorm to Boardroom: When Is the Right Time for a Faculty to Form a Startup?**  
 Online

June 22

2:00 PM

**Helen Gurley Brown Presidential Summit on Women and Science**  
 Online

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**Science Jobs in Boston**
**Research Scientist I, CRISPR-Based RNA Cleavage Assays**  
 Broad Institute

**Sr. Research Associate**  
 SQZ Biotechnologies

**Senior Research Associate/Associate Scientist, Cell Biology**  
 Rheos Medicine

**In Vivo Pharmacologist, Oncology and Gene Editing**  
 Bluebird Bio

**Oncology Cancer Biology Scientist, Small Molecule Discovery**  
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