SCIENCE IN BOSTON

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Publications of the Week

A Membrane-Bound Nuclease Directly Cleaves Phage DNA During Genome Injection

First Author: Daniel Saxtno | Senior Author: Michael Laub *(pictured)*
Nature | MIT

In bacteria, CRISPR–Cas and restriction-modification systems to distinguish self from non-self by recognizing specific DNA sequences or DNA modifications, respectively. Alternative mechanisms probably remain to be discovered. Here, researchers characterize SNIPE, an anti-bacteriophage defence system that constitutively localizes to the bacterial cell membrane in *Escherichia coli* to block phage λ infection. **Abstract | Press Release**

Sialylated CD43 Forms a Glyco-Immune Barrier That Restrains Antileukemic Immunity

First Authors: Jooho Chung and Mounica Vallurupalli | Senior Author: Robert Manguso *(pictured)*
Science | Broad Institute, Massachusetts General Hospital, Harvard Medical School, Dana-Farber Cancer Institute, Massachusetts General Brigham Cancer Center, and MIT

Macrophages in the tumor microenvironment exert antitumorigenic effects through phagocytosis and/or direct tumoricidal activity. To systematically identify the key pathways that regulate phagocytosis by human macrophages, researchers performed genome-scale knockout CRISPR screens in human acute myeloid leukemia cell lines cocultured with human monocyte-derived macrophages.
Abstract | Press Release

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Awards

Stephen L. Buchwald Wins 2026 Willard Gibbs Award

MIT Chemistry

Camille Dreyfus Professor of Chemistry Dr. Stephen L. Buchwald *(pictured)* has been named the winner of the 2026 Willard Gibbs Award by the Chicago Section of the American Chemical Society. The Willard Gibbs Award has been given annually for over a century "to recognize eminent chemists who, through years of application and devotion, have brought to the world developments that enable everyone to live more comfortably and to understand this world better." **Read More**

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Local News

How Stem Cell Descendants Preserve Flexibility While Maintaining Distinct Identities

Whitehead Institute

In a new study, researchers at Whitehead Institute identify two complementary mechanisms that allow cells to preserve stem cell potential while adopting distinct identities. Led by Drs. Yukiko Yamashita and Amelie Raz *(pictured)*, the study focuses on the male fruit fly germline stem cells, which give rise to sperm. These cells sit at the foundation of a lineage that continues across generations.
Read More

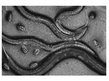
How AML Leukemia Cells Use a "Sugar Coat" to Hide from the Immune System, CRISPR Screen Finds

Dana-Farber Cancer Institute

Dana-Farber Cancer Institute researchers, including Dr. Todd Golub *(pictured)*, used a genome wide CRISPR knockout screen, a method that turns off genes one at a time, to pinpoint which genes help human acute myeloid leukemia (AML) leukemia cells avoid being engulfed, or eaten, by immune cells called macrophages. They ran the screen in a human system, growing human AML cells together with human macrophages. **Read More**

With Navigating Nematodes, Scientists Map Out How Brains Implement Behaviors

Picower Institute



Animal behavior reflects a complex interplay between an animal's brain and its sensory surroundings. Only rarely have scientists been able to discern how actions emerge from this interaction. A new study in *Nature Neuroscience*, researchers offer one example by revealing how circuits of neurons within *C. elegans* nematode worms respond to odors and generate movement as they pursue smells they like and evade ones they don't. **Read More**

Designing a Better Treatment for Solid Tumor Cancers That Works 'Off-The-Shelf'

Northeastern Global News

"There is a major push now to understand how to make CAR-T cells efficacious in solid tumors," said Dr. Stephen Hatfield *(pictured)*. "Right now, clinically, this approach has not been successful." Recently, he has collaborated with colleagues to overcome this critical barrier by using a type of genetic engineering known as base editing—a precise gene-editing technique that makes targeted changes to molecular DNA. **Read More**

Base Editing Repairs Mutation and Liver Function in Mouse Model of Zellweger Spectrum Disorder

Broad Institute

In a new study, Dr. David Liu *(pictured)* and his team, showed that base editing can correct mutations in the *PEX1* gene that causes Zellweger spectrum disorder, a rare, life-threatening condition that leads to liver and brain damage. The team demonstrated that this base edit, when made in a mouse model of the disorder, restored function of the liver and of peroxisomes. **Read More**

Wyss Institute Technologies Enable Breakthrough in Astronaut Health Research Aboard NASA's Artemis II Mission

Wyss Institute

Launched on April 1, 2026, Artemis II is a historic, approximately 10-day lunar flyby mission that sent four astronauts farther into space than any humans have traveled since the Apollo era. The Wyss Institute is playing a pivotal role in the Artemis mission through its groundbreaking contributions to the AVATAR (A Virtual Astronaut Tissue Analog Response) investigation. **Read More**

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Upcoming Events in Boston

April 25 8:00 AM	**NOVA 2026** Harvard University
April 27 - 28 8:00 AM	**Digital Healthcare Innovation Summit** Seaport Hotel Boston
April 30 8:00 AM	**USAIC's 20th Annual BioPharma Summit** The Newbury Boston Hotel
May 28 7:00 PM	**AI and the Future of Cancer Treatments** Museum of Science
June 3 8:30 AM	**Better Together: A Pharma & Biotech EHS Forum** Museum of Science

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