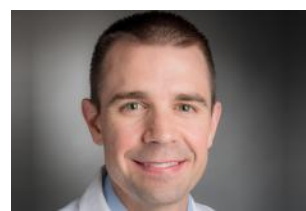


**Publications of the Week**
**Genome-Wide Analysis of Somatic Noncoding Mutation Patterns in Cancer**

 First Author: Felix Dietlein | Senior Author: Eliezer Van Allen *(pictured)*  
 Science | Dana-Farber Cancer Institute, Harvard Medical School, and the Broad Institute


Much of the genome consists of noncoding regions that do not directly encode specific proteins, but instead perform other functions such as regulating protein expression. The authors developed a computational approach to systematically detect cancer-associated mutations in noncoding regions of different cancer types and directly examined the biological function of one such region involved in breast cancer. [Abstract](#)

**Preclinical Modeling of Leiomyosarcoma Identifies Susceptibility to Transcriptional Cyclin Dependent Kinases Inhibitors through Antagonism of E2F-Driven Oncogenic Gene Expression**

 First Author: Matthew Hemming *(pictured)* | Senior Author: Ewa Sidinska  
 Clinical Cancer Research | Dana-Farber Cancer Institute and Harvard Medical School


Leiomyosarcoma (LMS) is a neoplasm characterized by smooth muscle differentiation, complex copy-number alterations, tumor suppressor loss, and the absence of recurrent driver mutations. The authors characterize patient-derived xenograft models of LMS, assessing fidelity to their tumors of origin and performing preclinical evaluation of candidate therapies. [Abstract](#)

[View All Publications](#)
**Local News**
**Schmidt Center Scientists Develop a Robust Machine Learning Approach for Virtual Drug Screening and Other Applications**

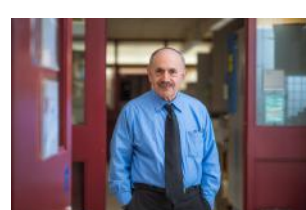
Broad Institute



A new machine learning model was designed to perform a common task called matrix completion, which underlies systems that recommend things like movies. "One of our goals in the Eric and Wendy Schmidt Center is to not only bring machine learning to bear on medical and biological challenges, but to also have new problems in the biomedical sciences, such as virtual drug screening, motivate foundational developments in machine learning," said Dr. Caroline Uhler *(pictured)*. [Read More](#)

**A Spectrum of Cancer Cells**

Whitehead Institute



Cancer is at its most deadly when it spreads and forms tumors in new tissues. This process, called metastasis, is responsible for the vast majority of cancer deaths, and yet there is still a lot that researchers do not know about how and when it happens. Whitehead Institute Founding Member Dr. Robert Weinberg *(pictured)*, also the Daniel K. Ludwig Professor for Cancer Research at MIT, studies the mechanisms behind metastasis. [Read More](#)

**Two Proteins Found to Induce Cell Death Through Incomplete Base Excision Repair**

MIT Biology



How do bacteria die? It's an important question, especially since these single-celled organisms seem to be outpacing the development of new antibiotics. However, any one bacterial cell will often die from a number of separate but related pathways acting simultaneously, making understanding bacterial death difficult. Determining how to induce those pathways is key to creating effective antibiotics, especially after bacteria evolve to resist some drugs. [Read More](#)

**Forgetting, Fast and Slow**

The Harvard Gazette



Forgetting can be a blessing and a curse. Some who've experienced a traumatic event cannot seem to forget, while others seem only to forget, and all too quickly. Dilemmas like these have led neuroscientists to question how forgetting actually works in the brain and whether it can be speeded or slowed. They are still a ways from understanding the process well enough to provide answers. But a group of Harvard-led researchers are moving a small step closer. [Read More](#)

**Mass General Brigham Investigators Can Now Access First Dataset of Nearly 100,000 Whole Genome Sequences Released by All of Us Research Program**

Bench Press



The National Institutes of Health's All of Us Research Program has reached an important milestone with the release of its initial genomic dataset. The release brings nearly 100,000 whole genome sequences and 165,000 genotyping arrays to its data analysis platform, the Researcher Workbench. Nearly 50% of the data come from participants who self-identify with a racial or ethnic minority group. [Read More](#)

**Protecting the Human Intestinal Microbiome with Synthetic Biology**

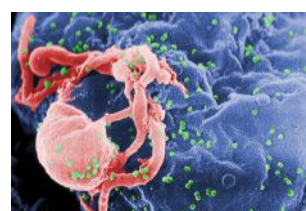
Wyss Institute



Antibiotics not only kill the pathogenic bacteria causing an infection, they also indiscriminately wreak havoc on the trillions of "good" bacteria making up the human microbiota. Known as "dysbiosis," this alteration of our gut microbial composition triggers discomforting diarrhea in up to 35% of patients in the short term, and can take months to resolve, often with the help of dietary corrections and supplements. [Read More](#)

**Safety and Tolerability of AAV8 Delivery of a Broadly Neutralizing Antibody in Adults Living with HIV: A Phase I, Dose-Escalation Trial**

Ragon Institute



Multiple clinical trials have tested potential vaccines against HIV, but unfortunately, the virus has numerous defense mechanisms that prevent a person's immune system from mounting an effective response. An alternative anti-HIV strategy designed by researchers at the Ragon Institute and Massachusetts General Hospital involves an adeno-associated viral (AAV) vector to deliver instructions to muscle cells to pump out antibodies that block the virus. [Read More](#)

**A Single Memory Is Stored Across Many Connected Brain Regions**

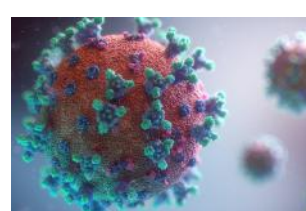
The Picower Institute



Innovative brain-wide mapping study shows that "engrams," the ensembles of neurons encoding a memory, are widely distributed, including among regions not previously realized. A new study by scientists at The Picower Institute provides the most comprehensive and rigorous evidence yet that the mammalian brain stores a single memory across a widely distributed, functionally connected complex spanning many brain regions, rather than in just one or even a few places. [Read More](#)

**How COVID-19 Triggers Massive Inflammation**

Boston Children's Hospital



Why do some people with COVID-19 develop severe inflammation, leading to respiratory distress and damage to multiple organs? A new study in the journal *Nature* provides an explanation: the SARS-CoV-2 virus infects and kills critical immune cells in the blood and lungs, which set off powerful alarm bells as they die. [Read More](#)

**Fighting Viruses Is As Easy As Breathing**

Wyss Institute



The mere motions of breathing are known to influence vital functions of the lungs, including their development in babies, the production of air-exchange-enhancing fluid on their inner surfaces, and maintenance of healthy tissue structure. Now, new research from the Wyss Institute has revealed that this constant pattern of stretching and relaxing does even more — it generates immune responses against invading viruses. [Read More](#)

[View All Articles](#) | [Submit an Article](#)
**Upcoming Events in Boston**

April 22 12:00 PM	<b>Stephen Quake Presentation: "A Decade of Molecular Cell Atlases"</b> Koch Institute
April 27 8:00 AM	<b>Turning Great Ideas into Dollars: The Life-Cycle of a Start-Up – Part One</b> MassBioHub
April 27 4:30 PM	<b>Tufts@Kendall: Advances in Immunology and Inflammation</b> MassBio
April 29 10:00 AM	<b>Annual MIT Microbiome Symposium 2022</b> MIT Media Lab
May 5 8:00 AM	<b>2022 State of Possible Conference</b> Royal Sonesta Boston

[View All Events](#) | [Submit an Event](#)
**Science Jobs in Boston**

- Senior Research Associate, Bacterial Immunology, Infectious Disease**  
Moderna
- Research Technician II**  
Massachusetts General Hospital
- Associate Scientist I, Cellular Analytical Development, Gene Editing**  
Editas Medicine
- Assistant Professor of Immunology**  
Dana-Farber Cancer Institute
- Flow Cytometry Research Assistant**  
Harvard Medical School

[View 64 Other Science Jobs](#) | [Submit a Job](#)

 Submit your articles and events by reaching out to us at [info@scienceinboston.com](mailto:info@scienceinboston.com).

BROUGHT TO YOU BY


[STEMCELL Technologies](#)  
Products | Services

[STEMCELL's Science Newsletters](#)  
Free Weekly Updates on Your Field

[The Stem Cell Podcast](#)  
Interviews and Updates on Stem Cell Science