

Publications of the Week

A Foundational Approach to Culture and Analyze Malnourished Organoids

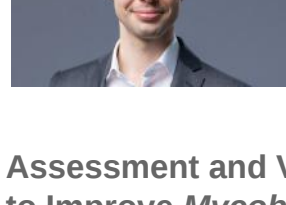
First Author: Meryl Perlman (*pictured, left*) | Senior Author: Christina Faherty (*right*)
Gut Microbes | Massachusetts General Hospital and Harvard Medical School



The gastrointestinal (GI) epithelium plays a major role in nutrient absorption, barrier formation, and innate immunity. The development of organoid-based methodology has significantly impacted the study of the GI epithelium, particularly in the fields of mucosal biology, immunity, and host-microbe interactions. This work serves as the basis for new and exciting techniques to alter the nutritional state of organoids and investigate the related impacts on the GI epithelium. [Abstract](#)

Automated Segmentation of Sacral Chordoma and Surrounding Muscles Using Deep Learning Ensemble

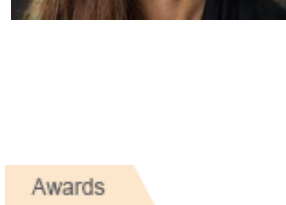
First Author: Leonard Boussioux (*pictured*) and Yu Ma | Senior Author: Jack Qian and Thomas Bortfeld
International Journal of Radiation Oncology Biology Physics | MIT, Harvard Medical School, and Massachusetts General Hospital



The manual segmentation of organ structures in radiation oncology treatment planning is a time-consuming and highly skilled task, particularly when treating rare tumors like sacral chordomas. This study evaluates the performance of automated deep learning models in accurately segmenting the gross tumor volume and surrounding muscle structures of sacral chordomas. [Abstract](#)

Assessment and Validation of Enrichment and Target Capture Approaches to Improve *Mycobacterium tuberculosis* WGS from Direct Patient Samples

First Author: Brendon Mann | Senior Author: Maha Farhat (*pictured*)
Mycobacteriology | Harvard Medical School and Boston University



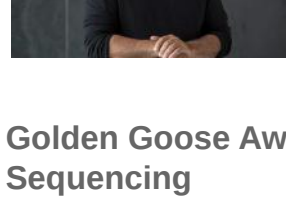
Within-host *Mycobacterium tuberculosis* diversity may detect antibiotic resistance or predict tuberculosis treatment failure and is best captured through sequencing directly from sputum. Here, researchers compared three sample pre-processing steps for DNA decontamination and studied the yield of a new target enrichment protocol for optimal whole-genome sequencing (WGS) from direct patient samples. [Abstract](#)

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Awards

Jeff Lichtman Awarded NIH BRAIN Initiative Grant to Map Entire Mouse Brain

Harvard University



Dr. Jeff Lichtman (*pictured*), from Harvard University's Department of Molecular and Cellular Biology, and his colleagues have been awarded a 30 million dollar grant from the National Institute of Health's (NIH's) Brain Research Through Advancing Innovative Neurotechnologies (BRAIN) Initiative to build a complete map of the mouse brain at the synaptic level. [Read More](#)

Golden Goose Awarded for “Impossible” Success of Nanopore DNA Sequencing

Harvard University



Dr. Daniel Branton (*pictured*), Harvard's Higgins Professor of Biology, Emeritus, and his collaborators are among the 2023 Golden Goose Award winners for their invention and research developing Nanopore Sequencing. The Golden Goose Awards are awarded to research that sounded like too esoteric an idea at first but has since in fact had a major impact on society. [Read More](#)

Marvin Caruthers Receives Inaugural Merkin Prize in Ceremony at the Broad Institute for DNA Synthesis Technology

Broad Institute



The inaugural Richard N. Merkin Prize in Biomedical Technology was awarded to Dr. Marvin Caruthers (*pictured, right*) by Dr. Richard Merkin (*left*) at the Broad Institute. The prize, created by the Merkin Family Foundation and administered by the Broad, recognizes novel technologies that have significantly improved human health and carries a \$400,000 award. [Read More](#)

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Local News

Mass General Cancer Center Receives Largest Donation in Its History to Fuel Cancer Research

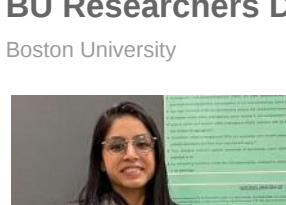
Massachusetts General Hospital



Mass General Cancer Center has received the largest gift in its 34-year history from philanthropists Jason Krantz (*pictured, left*) and Keely Krantz (*right*) to power the future of cancer research. In honor of their landmark contribution, the Cancer Center's pre-eminent research division will now be known as the Krantz Family Center for Cancer Research. [Read More](#)

The Gut Microbiome's Role in Skeletal Health

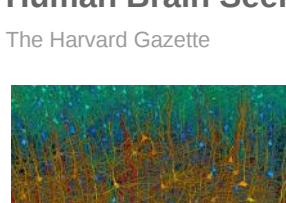
Harvard Medical School



A new study led by Harvard Medical School researchers at Hebrew SeniorLife links the gut microbiome to an important aspect of human health: bone density and strength. "We found patterns in which greater abundance of microbiota were associated with worse measures of bone density and microarchitecture," said Principal Investigator Dr. Douglas Kiel (*pictured*). [Read More](#)

BU Researchers Describe Advances in Identifying Glycopeptides

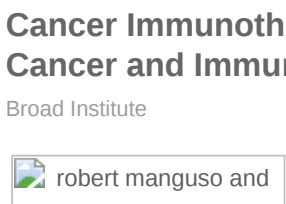
Boston University



A new study by researchers at Boston University Chobanian & Avedisian School of Medicine set out to improve on existing methods to identify glycopeptides. Due to the lack of information about glycoproteins and how they change during development and disease, corresponding author Dr. Manveen Sethi (*pictured*) believes they may be missing promising therapeutic avenues. [Read More](#)

Human Brain Seems Impossible to Map. What If We Started with Mice?

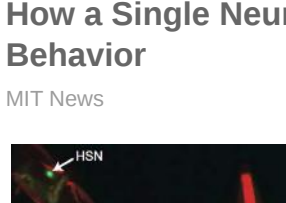
The Harvard Gazette



The human brain is a tangled highway of wires emanating from nearly 100 billion neurons, all of which communicate across trillions of junctions called synapses. "Depressingly complex," Harvard neuroscientist Dr. Jeff Lichtman calls it. The only way to understand this highway, says Lichtman, is to create a map. The ultimate goal is a whole-mammalian brain map accounting for every neural connection, a so-called "connectome." [Read More](#)

Cancer Immunotherapy Candidate Provokes Powerful Dual Response in Cancer and Immune Cells

Broad Institute



Cancer immunotherapy drugs called PD-1 inhibitors are widely used to stimulate the immune system to fight cancer, but many patients either don't respond or develop resistance to them. A team of researchers at the Broad Institute, directed by Dr. Robert Manguso (*pictured, right*) and Dr. Kathleen Yates (*left*), have developed a new small-molecule drug candidate that works through two different mechanisms to slow tumor growth and increase survival in lab animals. [Read More](#)

How a Single Neuron's Parallel Outputs Can Coordinate Many Aspects of Behavior

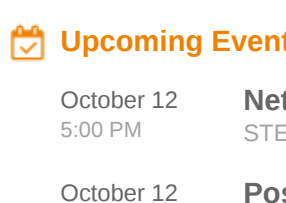
MIT News



A new MIT study provides an in-depth illustration of how individual neurons can use multiple means to drive complex behaviors. These results reveal how a single neuron, called HSN, can influence a broad suite of behaviors in *Caenorhabditis elegans* over multiple timescales and show that neurons can 'borrow' serotonin from one another to control behavior. [Read More](#)

New Research Shows That RNA-Guided Enzymes Called Fanzors Are Widespread Among Eukaryotic Organisms

McGovern Institute



A diverse set of species, from snails to algae to amoebas, make programmable DNA-cutting enzymes called Fanzors—and a new study from scientists at MIT's McGovern Institute has identified thousands of them. The newly recognized diversity of natural Fanzor enzymes gives scientists the new way to design programmable enzymes that might be adapted into new tools for research or medicine. [Read More](#)

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Upcoming Events in Boston

- October 12 5:00 PM **Networking and Customer Appreciation Night**
STEMCELL Technologies
- October 12 5:00 PM **Postdoc Happy Hour Brigham & Women's Hospital**
Carrie Hall
- October 19 - 20 8:00 AM **Pharma Partnering Summit**
Sheraton Boston Needham Hotel
- November 8 12:00 PM **2023 Discover Brigham Poster Session**
Brigham & Women's Hospital
- November 9 2:00 PM **Sing for Science**
MIT Museum

[View All Events](#) 

Other Science Jobs in Boston

- Cell & Gene Therapy Specialist, North America**
STEMCELL Technologies
- IBD Director, School of Medicine, Gastroenterology**
Boston University
- Associate Scientist, Biology**
Agiros
- Research Assistant II**
Harvard T.H. Chan School of Public Health
- Research Scientist Biochemistry**
Novartis Institutes for BioMedical Research

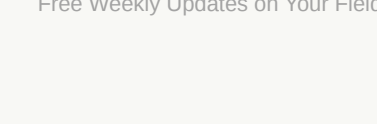
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