

Publications of the Week
Suppression of Pancreatic Ductal Adenocarcinoma Growth and Metastasis by Fibrillar Collagens Produced Selectively by Tumor Cells

 First Author: Chenxi Tian | Senior Author: Richard Hynes *(pictured)*
 Nature Communications | MIT, Harvard, and Dana-Farber Cancer Institute


Pancreatic ductal adenocarcinoma (PDAC) has a collagen-rich dense extracellular matrix (ECM) that promotes malignancy of cancer cells and presents a barrier for drug delivery. Data analysis of published mass spectrometry-based studies on enriched ECM from samples of progressive PDAC stages reveal that the C-terminal prodomains of fibrillar collagens are partially uncleaved in PDAC ECM, suggesting reduced procollagen C-proteinase activity. [Abstract](#)

ATRX Limits the Accessibility of Histone H3-Occupied HSV Genomes during Lytic Infection

 First Author: Joseph Cabral | Senior Author: David Knipe *(pictured)*
 PLOS Pathogens | Harvard and Dana-Farber Cancer Institute


Histones are rapidly loaded on the herpes simplex virus (HSV) genome upon entry into the nucleus of human fibroblasts, but the effects of histone loading on viral replication have not been fully defined. To further investigate the roles that ATRX and other histone H3 chaperones play in restriction of HSV, the authors infected human fibroblasts that were systematically depleted of nuclear H3 chaperones. [Abstract](#)

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Awards
Postdoc Joseph Zak Receives Polak Young Investigator Award

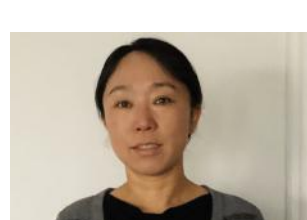
Harvard University Department of Molecular and Cellular Biology



Postdoc Dr. Joseph Zak *(pictured)* of the Murthy Lab has been chosen by leaders of the Association for Chemoreception Sciences as a recipient of this year's Polak Young Investigator Award. This award recognizes postdocs and early-career researchers who study organisms' ability to sense and respond to chemicals in their environment. [Read More](#)

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Local News
A Trait of the Rare Few Whose Bodies Naturally Control HIV: "Trained" Immune Cells

Massachusetts General Hospital



Dr. Xu Yu *(pictured)* and her colleagues recently showed that elite controllers, a rare subset of people whose immune systems can control HIV without the use of drugs, have myeloid dendritic cells, part of the innate immune response, that display traits of a trained innate immune cell. If scientists can understand how elite controllers suppress this deadly virus, they may be able to develop treatments that allow other people living with HIV to replicate the same immune response. [Read More](#)

Researchers Identify Protein "Signature" of Severe COVID-19

Broad Institute



Researchers at Massachusetts General Hospital and the Broad Institute of MIT and Harvard have identified the protein "signature" of severe COVID-19, which they describe in a new study published in *Cell Reports Medicine*. "We were interested in asking whether we could identify mechanisms that might be contributing to death in COVID-19," said Dr. Marcia Goldberg *(pictured)*. [Read More](#)

New Test Detects Residual Cancer DNA in the Blood without Relying on Tumor Data

Massachusetts General Hospital



A team led by investigators at Massachusetts General Hospital has evaluated the first "tumor-uninformed" test that detects cancer DNA circulating in the blood of patients following treatment. "The use of circulating tumor DNA, which is a type of 'liquid biopsy', is a powerful prognostic tool to detect residual disease," says lead author Dr. Aparna Parikh *(pictured)*. [Read More](#)

Move over CRISPR, the Retrons Are Coming

Wyss Institute



Researchers have created a new gene editing tool called Retron Library Recombineering that generates up to millions of mutations simultaneously, and "barcodes" mutant cells so that the entire pool can be screened at once. "We randomly chopped up a bacterial genome, turned those genetic fragments into single-stranded DNA *in situ*, and used them to screen millions of sequences simultaneously," said Dr. Max Schubert *(pictured)*. [Read More](#)

Human Organ Chips Enable Rapid Drug Repurposing for COVID-19

The Harvard Gazette



A Wyss Institute-led collaboration has used the Institute's organ-on-a-chip technology to identify the antimalarial drug amodiaquine as a potent inhibitor of infection with SARS-CoV-2. "Thanks to the openness and collaboration that the pandemic has sparked within the scientific community, our lead drug is now being tested in humans," said Dr. Don Ingber *(pictured)*. [Read More](#)

Improving the Efficacy of Therapeutic Cancer Vaccines

Tufts University School of Engineering



There are two major hurdles slowing the advancement of cancer vaccines: the high variability of tumor associated antigens and the immunosuppressive tumor microenvironment. Researchers led by first author and postdoc associate Dr. Jinjin Chen and Associate Professor Qiaobing Xu *(pictured)* have designed a lipid nanoparticle that can be administered *in situ* or locally to enhance the presentation of tumor antigens and support intercellular delivery to immune cells. [Read More](#)

Biologists Discover a Trigger for Cell Extrusion

MIT News



One way that organisms get rid of unneeded cells is through a process called extrusion, which allows cells to be squeezed out of a layer of tissue without disrupting the layer of cells left behind. MIT biologists led by Dr. H. Robert Horvitz *(pictured)* have now discovered that this process is triggered when cells are unable to replicate their DNA during cell division. [Read More](#)

Immunomics: A Conversation on the Future of Diagnostics with Ramy Arnaout

Beth Israel Deaconess Medical Center



Each encounter with a potential disease-causing agent causes the body to produce specific immune agents — proteins known as antibodies and T cell receptors — tailor-made to recognize and destroy the invader. Tasked with preventing re-infection, antibodies and T cell receptors from your previous encounters circulate throughout the body indefinitely, like a record of your personal medical history. [Read More](#)

Cervical Cancer: Oncogene YAP1 Plays Central Role in Unconventional Carcinogenesis Mechanism

Massachusetts General Hospital



Persistent infection with human papillomavirus (HPV) has been implicated in the development of cervical cancer, even years post-infection. However, new research led by Dr. Cheng Wang *(pictured)* suggests that this factor alone is not sufficient. Data from Dr. Wang's work suggest an evolving role for the YAP1 oncogene in cervical cancers, revealing an unconventional carcinogenesis mechanism. [Read More](#)

Meet a Whitehead Postdoc: Melissa Pamula

Whitehead Institute



Dr. Melissa Pamula *(pictured)* is a postdoc in Whitehead Institute Director Dr. Ruth Lehmann's lab studying the cells that make and become eggs and sperm. Their lab uses *Drosophila melanogaster* to study how these cells are established and protected throughout the life cycle of the fly. Dr. Pamula is investigating how mitochondria make it into germ cells so that they can be passed down to the next generation. [Read More](#)

Humans of MGRI: Dr. Hoang Le

Massachusetts General Research Institute



The Massachusetts General Research Institute (MGRI) is home to a research community of 9,500+ individuals working to understand disease and develop solutions to medicine's most pressing challenges. Dr. Hoang Le *(pictured, right)* is a postdoctoral research fellow in the Department of Neurology's Genetics and Aging Research Unit, which is directed by Dr. Rudolph Tanzi *(left)*. The lab focuses on the molecular genetics of Alzheimer's disease. [Read More](#)

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- May 11 4:00 PM **Biology Colloquium Series (Dr. Harmit Malik)** Online
- May 11 4:00 PM **Vaccine Equity and Efficacy in the United States and the World** Online
- May 13 4:00 PM **MIT Colloquium on the Brain and Cognition with Dr. Betty Hong, Caltech** Online
- May 17 1:00 PM **Symposium: Engineering Cancer Immunotherapy** Online
- May 18 6:30 PM **Unsung Research Heroes** Online

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