

**Publications of the Week**
**Elav1 Impacts Osteogenic Differentiation and mRNA Levels of Genes Involved in ECM Organization**

First Author: Satya Kota (*pictured*) | Senior Author: Savithri Kota  
 Frontiers in Cell and Developmental Biology | Harvard University and Beth Israel Deaconess Medical Center



Posttranscriptional gene regulation by adenylate uridylylate-rich element RNA binding protein, Elav1, has been implicated in embryonic development as well as progenitor cell differentiation. The authors' data points to Elav1 mediated negative regulation of multiple genes involved in extracellular matrix (ECM) organization that play a functional role in mesenchymal stem cell osteogenic differentiation. [Abstract](#)

**Two Macrophages, Osteoclasts, and Microglia: From Development to Pleiotropy**

First Author: Ji-Won Lee | Senior Author: Sek Won Kong (*pictured*)  
 Bone Research | Harvard Medical School and Boston Children's Hospital



Pleiotropy is the phenomenon that a genetic variant affects multiple traits and the genetic correlation between two traits could suggest a shared molecular mechanism. The authors discuss the possibility that Pyk2-mediated actin polymerization pathway in osteoclasts and microglia in bone and brain, respectively, is the horizontal pleiotropic mediator of shared risk factors for osteoporosis and Alzheimer's disease. [Abstract](#)

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**Awards**
**Eight from MIT Named 2021 Sloan Research Fellows**

MIT



The Alfred P. Sloan Foundation has announced that it has awarded Sloan Research Fellowships to eight MIT professors in the MIT Media Lab and in the Departments of Biology, Brain, and Cognitive Sciences, Chemical Engineering, Electrical Engineering and Computer Science, and Mathematics. The fellowships, which honor pre-tenure faculty members, will support their research with two-year, \$75,000 awards. [Read More](#)

**2021 Jack Spivack Excellence in Neuroscience Awards Announced**

BU School of Medicine



The recipients of the 2021 Jack Spivack Excellence in Neuroscience Awards are Drs. Michael Alisco (*pictured*), Douglas Rosene, Thor Stein, and Xiaoling Zhang. Mr. Spivack established these awards in 2013 to recognize and support the research of outstanding BU School of Medicine faculty conducting either clinical or basic research in Parkinson's, Alzheimer's, chronic traumatic encephalopathy, and other neurological disorders. [Read More](#)

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**Local News**
**Metabolic Mutations Help Bacteria Resist Drug Treatment**

Broad Institute



MIT researchers have identified a class of mutations that helps bacteria develop resistance. In a study of *E. coli*, they discovered that mutations to genes involved in metabolism can help bacteria to evade the toxic effects of several different antibiotics. The findings shed light on a fundamental facet of how antibiotics work, and suggest potential new avenues for developing drugs that could enhance the effectiveness of existing antibiotics. [Read More](#)

**Fundamentals of Drug Discovery**

Proto



The COVID-19 pandemic brought a vast mobilization of scientific ingenuity. At the same time, work on other medical threats continued to push forward. In this article, Proto looks at the most transformational non-COVID-19 research of 2020, including advances in protein structure using cryo-EM and Alpha Fold 2, a program that aims to predict the shape of a protein based only on its amino acid sequence. [Read More](#)

**A Call to Action to Build a Better Map of Cancer's Genetic Vulnerabilities**

Broad Institute



Over the last several years, researchers at the Broad Institute of MIT and Harvard and the Wellcome Sanger Institute, including Drs. Jesse Boehm (*pictured, left*) and Mathew Garnett (*right*), have led an effort to systematically identify the genes and proteins that cancer cells heavily depend on for survival. These molecules, known as dependencies or vulnerabilities, could be promising targets for new precision drugs. [Read More](#)

**How a Physician-Scientist's Clinical Experience Shapes His Infectious Disease Research**

Broad Institute



At the Broad, under the mentorship of Drs. Roby Bhattacharyya and Nir Hacohen, Dr. Pierre Ankomah (*pictured*) investigates how the immune system mediates sepsis — the body's life-threatening reactions to an infection. Here, Pierre discusses his passion for infectious disease research, his unique perspectives as a physician-scientist, a Black researcher, and an immigrant, and the people who supported him throughout his journey. [Read More](#)

**Periodontal Disease Increases Risk of Major Cardiovascular Events**

The Forsyth Institute



In a longitudinal study, Dr. Thomas Van Dyke (*pictured*), Senior Member of Staff at the Forsyth Institute, Dr. Ahmed Tawakol of Massachusetts General Hospital, and their collaborators showed that inflammation associated with active gum disease was predictive of arterial inflammation, which can cause heart attacks, strokes, and other dangerous manifestations of cardiovascular disease. [Read More](#)

**Breaking the Mold: Thy Pham**

BioGenesis



In the second episode of BioGenesis, we meet Thy Pham, a fifth-year graduate student at the Whitehead Institute. After moving to the U.S. from Vietnam at age 20, she learned English while delving into biophysics and computer science courses, opening a door to a career that she hadn't realized was available to her. She's now applying artificial intelligence to predict how cells fine tune gene expression using short sequences of RNA called microRNAs. [Read More](#)

**Broad Institute, Dana-Farber, and Count Me In Receive \$16 Million Grant to Launch Patient-Partnered Research Initiatives in Rare Cancers**

Broad Institute



The Broad Institute of MIT and Harvard, Dana-Farber Cancer Institute, and Count Me In, a non-profit research initiative that conducts patient-partnered studies of cancer, have been awarded a new \$16 million grant from the National Cancer Institute to accelerate research in two rare forms of cancer. The funding will support research projects in leiomyosarcoma and osteosarcoma. [Read More](#)

**Healey Center Receives ALS Collaborative Cohort Grant to Enhance Access to Clinical Research and Trials**

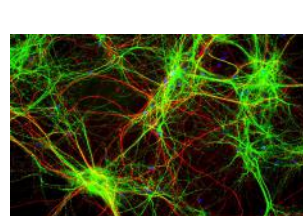
Massachusetts General Hospital



The Sean M. Healey & AMG Center for amyotrophic lateral sclerosis (ALS) at Massachusetts General Hospital will join the new ALS Collaborative Cohort program with a grant from Tambourine, Ben and Divya Silbermann's philanthropy. The Cohort consists of six US-based organizations that will work together to promote access and inclusion across the ALS landscape. [Read More](#)

**Behind Closed Doors: Insight into Stroke Recovery**

Ragon Institute



A stroke, like any traumatic event in the body, triggers an immune response and understanding this immune response is critical to improve patient outcomes and nominate new therapeutics. But immune responses in the brain are difficult to study in humans, because the brain is closed off from the rest of the body. The MISTIE III clinical trial offered researchers a unique opportunity to analyze this response. [Read More](#)

**Antibody Response May Drive COVID-19 Outcomes**

Massachusetts General Hospital



Drs. Galit Alter and Lael Yonker (*pictured*) are working to understand why COVID-19 can lead to such distinctly different outcomes in different populations. In a recent study, they and their team identified specific types of antibodies that may be driving these different responses, including one specific to severe disease in adults and another specific to multisystem inflammatory syndrome in children. [Read More](#)

**Venki Murthy Shares the Science of Smell via Podcast Interviews**

Harvard University Department of Molecular and Cellular Biology (MCB)



MCB faculty Dr. Venkatesh Murthy (*pictured*) has been appearing on the podcast and interview radio circuit, discussing the neuroscience of smell. More people are listening to podcasts than ever before, and discussions about smell's role in cognition are particularly salient right now, because COVID-19 often causes anosmia, or a loss of sense of smell. [Read More](#)

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**Upcoming Events in Boston**

March 2 4:00 pm	<b>Biology Colloquium Series</b> Online
March 3 12:00 pm	<b>Information Session: CMeRIT Award</b> Online
March 4 12:00 pm	<b>The Obesity Epidemic: The Lack of Access to Care and Treatment</b> Online
March 4 6:30 pm	<b>2021 Koch Institute Image Awards</b> Online
March 8 11:30 am	<b>How We Lead – Perspectives from Two Key Biotechnology Hubs in North America</b> Online

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**Science Jobs in Boston**

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STEMCELL Technologies
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