

### Publications of the Week

#### Ku70 Suppresses Alternative End Joining in G1-Arrested Progenitor B Cells

First Author: Zhuoyi Liang (pictured, second from left) | Senior Authors: Frederick Alt (left) and Richard Frock (right) | PNAS | Boston Children's Hospital and Harvard Medical School



Alternative end joining (A-EJ) is implicated in oncogenic translocations and mediating DNA double-strand-break (DSB) repair in cycling cells when classical nonhomologous end-joining (C-NHEJ) factors of the C-NHEJ ligase complex are absent. The authors report that Ku, a core C-NHEJ DSB recognition complex, directs repair of a variety of different targeted DSBs toward C-NHEJ and suppresses A-EJ in G1-phase cells. [Profile](#) | [Abstract](#)

#### Cis P-Tau Underlies Vascular Contribution to Cognitive Impairment and Dementia and Can Be Effectively Targeted by Immunotherapy in Mice

First Authors: Chenxi Qiu, Onder Albayram, Asami Kondo, and Bin Wang | Senior Authors: Xiao Zhen Zhou and Kun Ping Lu (pictured) | Science Translational Medicine | Beth Israel Deaconess Medical Center, Broad Institute, Harvard Medical School, and Massachusetts General Hospital



Compelling evidence supports vascular contributions to cognitive impairment and dementia (VCID) including Alzheimer's disease, but the underlying pathogenic mechanisms and treatments are not fully understood. The authors used samples from patients with vascular dementia and mouse models to show that cis P-tau was increased in the brain and played a major role in causing cognitive impairments in mice. [Abstract](#)

[View All Publications](#)

### Awards

#### Margaret O'Connor Receives Brenton R. Lutz Award

Boston University



Margaret O'Connor, a PhD candidate in the Man Lab, is the recipient of this year's Brenton R. Lutz Award. Margaret is investigating the X-linked protein NEXMIF, which is associated with Autism Spectrum Disorder. She uses a transgenic mouse model to study the role NEXMIF plays in brain development, specifically neuronal growth and dendritic spine development. [Read More](#)

#### Leah Williams Receives Charles Terner Award

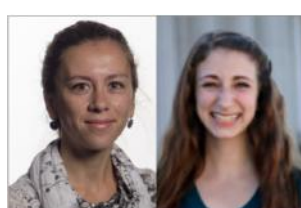
Boston University



Leah Williams, a PhD candidate in the Gilmore Lab, is this year's recipient of the Charles Terner Award. Leah studies the role of transcription factor NF-kappaB in the control of biological processes in invertebrate systems. This research has relevance to pathogen defenses in simple marine organisms, climate change-induced effects on coral health, and the evolutionary origins of immune processes in humans. [Read More](#)

#### Postdocs Earn Interdisciplinary Schmidt Science Fellowships

The Picower Institute



Two postdoctoral researchers in Picower Institute labs are among 28 around the world to have been named to a competitive Schmidt Science Fellowship, an award created in 2017 to advance interdisciplinary studies among early career researchers. Drs. Sirma Orguc (pictured, left) and Rebecca Pinals (right) will be supported for at least one and up to two years with a \$100,000 per year stipend. [Read More](#)

[View All Awards](#)

### Local News

#### Genetic Base Editing Treats Sickle Cell Disease in Mice

Broad Institute



Sickle cell disease (SCD) is the most common deadly genetic disorder, affecting more than 300,000 newborns worldwide each year. It leads to chronic pain, organ failure, and early death in patients. Dr. David Liu (pictured) and collaborators at the Broad Institute and St. Jude Children's Research Hospital have now demonstrated a base editing approach that efficiently corrects the mutation underlying SCD in patient blood stem cells and in mice. [Read More](#)

#### Who Gets Sick with TB?

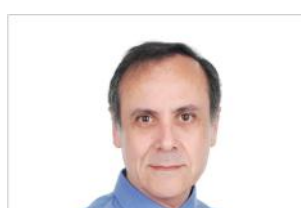
Harvard Medical School



Nearly a quarter of the world's population is estimated to be infected with *Mycobacterium tuberculosis*, the pathogen that causes tuberculosis (TB), but less than 15 percent of infected individuals develop the disease. A study led by Dr. Soumya Raychaudhuri (pictured) offers insights into the immune system that may help explain why some people have latent infections and others get sick. [Read More](#)

#### What Drives Severe Lung Inflammation in COVID-19?

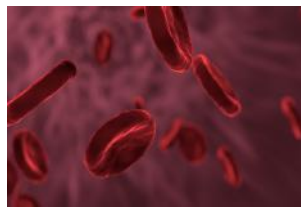
Boston Children's Hospital



A main feature of COVID-19 is lung inflammation and respiratory failure caused by an overexuberant immune response known as the cytokine storm. But why does the body produce such an excess of cytokine immune cells? New research from Dr. Talal Chatila (pictured) of the Division of Immunology at Boston Children's Hospital and colleagues provides some insights, particularly regarding the mechanisms involved in severe lung inflammation in COVID-19. [Read More](#)

#### Study Links Blood Cell Mutations to Increased Infection Risk with Age

Broad Institute



A person's risk of severe infections increases dramatically as they grow older, but scientists do not yet understand how age might be linked to weakened immunity. Now, research shows that certain age-related changes in blood cells are associated with a higher risk of a range of severe infections including severe COVID-19, other pneumonias, and sepsis. [Read More](#)

#### Study Chronicles the Evolution of a Tumor in Unprecedented Detail

Dana-Farber Cancer Institute



Scientists collect tumor samples from patients before and after treatment to analyze the genetic changes that occur in response to therapy. A new study led by Dr. David Liu (pictured) takes a much deeper dive. Based on an analysis of 37 tumor samples collected over nine years from a patient with melanoma, the paper presents the largest, most in-depth account of a tumor's evolution across all phases of its existence. [Read More](#)

#### New 'Druggable' Genetic Targets Identified in Rare Type of Bile Duct Cancer

Dana-Farber Cancer Institute



Scientists are beginning to make inroads into treating cholangiocarcinoma, a rare, lethal cancer of the bile ducts, with precision drugs. Last year, the first targeted drug for some patients with the disease was approved. Now, Dana-Farber scientists led by Dr. James Cleary (pictured) say they have identified another genetic alteration in a small percentage of cholangiocarcinoma patients that can be attacked with new and experimental targeted drugs. [Read More](#)

#### Study of Severe COVID-19 Helps Uncover the Roots of Sepsis

Broad Institute



A study led by Drs. Paul Blainey (pictured) and Nir Hacohen offers new insight into what goes awry in the immune system during sepsis. By analyzing blood cells from COVID-19 patients who progressed to sepsis, they identified a cell type that impairs the body's ability to detect and respond to the virus. The work helps explain how the immune system is suppressed in severe cases of COVID-19 and other infections. [Read More](#)

#### Exploring the Unknown

McGovern Institute



McGovern Investigator Dr. Ed Boyden (pictured) says his lab's vision is clear. "We want to understand how our brains take our sensory inputs, generate emotions and memories and decisions, and ultimately result in motor outputs. We want to be able to see the building blocks of life, and how they go into disarray in brain diseases. We want to be able to control the signals of the brain, so we can repair it," Dr. Boyden says. [Read More](#)

#### #Why!Science Q&A: A Drug Discovery Scientist Discusses the Broad Institute's Unique Role in Drug Development

Broad Institute



Dr. Ritu Singh (pictured) talks about how she helps scientists characterize the fate of their therapeutics under development, in both cells and animal models. As early as high school, Dr. Singh was fascinated by the idea of doing research at the intersection of chemistry and biology. She loved how the subjects were interconnected and, together, how they could explain biochemical pathways in the body. [Read More](#)

#### Motor Neurons Made from Patients' Cells Reveal Possible ALS Drugs and Targets

Boston Children's Hospital



Amotrophic lateral sclerosis (ALS) is a severe, fatal neurodegenerative disorder causing loss of motor neurons and voluntary muscle action. While mouse studies have identified potential treatments, these drugs have typically done very poorly in human trials. "One of the most difficult challenges in drug discovery is identifying a target that has a key role in the disease process," says Dr. Clifford Woolf (pictured). [Read More](#)

[View All Articles](#) | [Submit an Article](#)

### Upcoming Events in Boston

June 15 4:00 PM	<b>Unleashing the Antitumor Immune Response</b> Online
June 16 4:00 PM	<b>BioTech in Action: Global</b> Online
June 16 5:00 PM	<b>Biomedical Informatics Entrepreneurs Salon: Najat Khan, Janssen R&amp;D</b> Online
June 16 6:30 PM	<b>With/In/Sight Webinar: A Foot in Both Worlds</b> Online
June 17 6:00 PM	<b>An Evening with the Forsyth Institute: 111 Years of Compassion, Discovery &amp; Innovation</b> Online

[View All Events](#) | [Submit an Event](#)

### Science Jobs in Boston

#### Lab Supervisor

Broad Institute

#### Technical Associate I

MIT

#### Senior Research Associate, Targeted Nanoparticle Development

Sandoz

#### Research Associate III, Molecular Biology

Entrada Therapeutics

#### Senior Manager, Histology and Assays

Vertex Pharmaceuticals

[View 66 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 Science News

Free Weekly Updates on Your Field

#### The Stem Cell Podcast

Interviews and Updates on Stem Cell Science