

Publications of the Week

Tissue Perfusion Pressure Enables Continuous Hemodynamic Evaluation and Risk Prediction in the Intensive Care Unit

First Authors: Anand Chandrasekhar, Raimon Padrós-Valls | Senior Authors: Aaron Aguirre *(pictured)*
Nature Medicine | Massachusetts General Hospital and Harvard Medical School



The authors describe a method to continuously measure critical closing pressure in the systemic circulation using readily available blood pressure monitors and then show that tissue perfusion pressure, defined as the difference between mean arterial pressure and critical closing pressure, provides unique information compared to other hemodynamic parameters. [Abstract](#) | [Press Release](#)

Exposure of iPSC-Derived Human Microglia to Brain Substrates Enables the Generation and Manipulation of Diverse Transcriptional States *In Vitro*

First Authors: Michael-John Dolan and Martine Therrien | Senior Authors: Evan Macosko and Beth Stevens *(pictured)*
Nature Immunology | Boston Children's Hospital, The Broad Institute, MIT, and Harvard Medical School



The authors developed a platform for modeling human microglia transcriptional states *in vitro*. They found that exposure of human stem-cell-differentiated microglia to synaptosomes, myelin debris, apoptotic neurons or synthetic amyloid-beta fibrils generated transcriptional diversity that mapped to gene signatures identified in human brain microglia, including disease-associated microglia, a state enriched in neurodegenerative diseases. [Abstract](#)

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Awards

The Giuliani Foundation Pledges Gift to Establish Endowed Faculty Support Fund

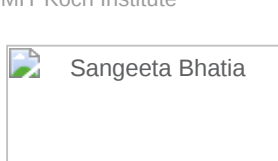
Ragon Institute



The Ragon Institute is thrilled to announce the receipt of a generous gift from the Giuliani Foundation to establish the Sabrina and Giammaria Giuliani *(pictured)* Endowed Faculty Support Fund. "Sabrina and I share a profound belief that their pioneering mission in harnessing the potential of the immune system through a cross-disciplinary approach will undoubtedly pave the way for a plethora of groundbreaking discoveries," said Giammaria Giuliani. [Read More](#)

Grant to Bhatia Lab to Advance Nanosensors to Diagnose Pediatric Pneumonia

MIT Koch Institute



Dr. Sangeeta Bhatia *(pictured)* and her group have received a grant from Open Philanthropy to develop a non-invasive, accessible platform to diagnose pediatric pneumonia in under-resourced areas. In 2022, the Bhatia Lab demonstrated that their nanosensor diagnostic could reliably and quickly measure different immune responses to viral and bacterial pneumonia in preclinical models. [Read More](#)

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Local News

Mass General Research Team is Working to Avoid the Need for Surgery in Patients with Hirschsprung Disease

Bench Press



A Mass General research team led by Dr. Allan Goldstein *(pictured)* is determined to change the course for patients with Hirschsprung disease through scientific research and innovations. The Goldstein lab uses animal models and tissues obtained from patients with Hirschsprung disease to better understand the disease and identify new strategies for treatment. [Read More](#)

Study Finds a Surprising New Role for a Major Immune Regulator

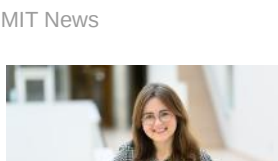
MIT News



Researchers with Dr. Nir Hacohen *(pictured)* at MIT and Harvard Medical School have discovered that the STING protein has a previously unknown role as an ion channel, which helps cells respond to danger signals such as viral infection. When STING detects that danger signal, it can turn on at least three different pathways — one leading to interferon production, one to non-canonical autophagy, and a third to formation of the inflammasome, a complex of proteins that activates inflammatory responses. [Read More](#)

A Cool Path to Disease Deceleration

MIT News



"My experience led me to a significant medical problem: How can we eventually shift the medical paradigm to develop treatments that consider not only one specific pathway or problem but contextualize systemic tissue or organ dysfunction?" To engage with this problem, Dr. Kathrin Kajderowicz *(pictured)* studies animals uniquely adapted to handle different stressors and environments, possibly modeling human disease states. [Read More](#)

DADA2: Working Together to Unpack a Rare Mystery Illness

Boston Children's Hospital



When months of fever and weight loss brought Vanessa to Boston Children's emergency room, she was admitted for evaluation and seen by Dr. Pui Lee *(pictured)*, a rheumatology Fellow. He and Rheumatology Program Director Dr. Robert Sundel diagnosed her with periodic fever syndrome — meaning Vanessa's immune system was activated despite no apparent infection. [Read More](#)

AI-Powered Arm Band to Detect Opioid Use Disorder, Withdrawals in Development at UMass Chan, URI

UMass Chan Medical School



The ability to detect if patients are taking their medications for opioid use disorder is the driving force behind a wearable device being developed by Dr. Stephanis Carreiro *(pictured)* and researchers at UMass Chan Medical School in collaboration with the Wearable Biosensing Lab at the University of Rhode Island (URI). The goal of the device is to help improve medication adherence and prevent overdose deaths. [Read More](#)

Meet a Whitehead Postdoc: Pavana Rotti

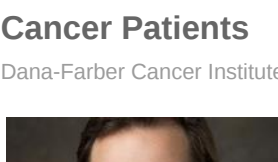
Whitehead Institute



Dr. Pavana Rotti *(pictured)* is studying the neurobiology of opioid use disorder. "There have been a lot of studies indicating that changes in the genome are associated with opioid use disorder, but nobody really knows the impact of those changes. How do those genes contribute to opioid use disorder, and what are the cellular mechanisms impacted? That's what I'm trying to understand." [Read More](#)

AI-Driven Muscle Mass Assessment Could Improve Care for Head and Neck Cancer Patients

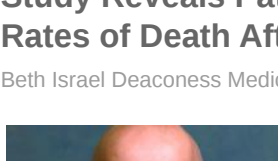
Dana-Farber Cancer Institute



Researchers with Dr. Benjamin Kann *(pictured)* at Dana-Farber Cancer Institute have found a way to use artificial intelligence (AI) to diagnose muscle wasting, called sarcopenia, in patients with head and neck cancer. AI provides a fast, automated, and accurate assessment that is too time-consuming and error-prone to be made by humans. The tool could be used by doctors to improve treatment and supportive care for patients. [Read More](#)

Study Reveals Patients Hospitalized with COVID-19 Faced Nearly Twice the Rates of Death After Discharge as Patients with Flu

Beth Israel Deaconess Medical Center



National Medicare data was used to characterize the long-term risk of death and hospital readmission after being hospitalized with COVID-19 among beneficiaries 65 years and older. "Since the early days of the pandemic, it has been evident that older adults bear a disproportionate burden of COVID-19 and our study provides several important insights into the longer-term clinical consequences of the disease in this vulnerable population," says Dr. Dhruv Kazi *(pictured)*. [Read More](#)

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📅 Upcoming Events in Boston

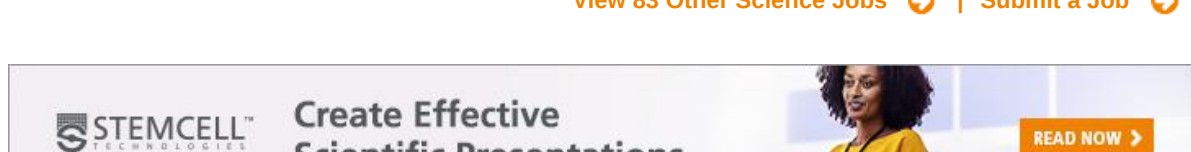
August 28 - 29 8:00 AM	The mRNA Conference 2023 DoubleTree by Hilton Hotel
Sept 7 - 10 7:30 AM	Hypertension Scientific Sessions 2023 Sheraton Boston Hotel
Sept 18 - 21 9:30 AM	BioTech Week Boston Convention and Exhibition Center
Sept 20 - 21 10:00 AM	BIOMEDevice Boston 2023 Boston Convention and Exhibition Center
Sept 27 - 30 6:00 AM	AACR Special Conference: Pancreatic Cancer Westin Copley Place

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📄 Science Jobs in Boston

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- Cellular Therapy Strategic Account Manager**
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Harvard Medical School
- Research Assistant, Blood-Brain Barrier**
Harvard Medical School
- Principal Data Scientist, Applied Clinical Biomarker Analytics**
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