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Publications of the Week

Inducible *De Novo* Expression of Neoantigens in Tumor Cells and Mice

First Author: Martina Damo | Senior Author: Nikhil Joshi *(pictured)*
Nature Biotechnology | Koch Institute at MIT

The authors developed inversion-induced joined neoantigen (NINJA) using RNA splicing, DNA recombination and three levels of regulation to prevent leakiness and allow tight control over neoantigen expression. They applied NINJA to create tumor cell lines with inducible neoantigen expression, which could be used to study antitumor immunity. **Abstract**

Regenerative Reprogramming of the Intestinal Stem Cell State via Hippo Signaling Suppresses Metastatic Colorectal Cancer

First Author: Priscilla Cheung | Senior Author: Fernando Camargo *(pictured)*
Cell Stem Cell | Boston Children's Hospital, Harvard University, MIT and UMass Medical School

Although the Hippo transcriptional coactivator YAP is considered oncogenic in many tissues, its roles in intestinal homeostasis and colorectal cancer remain controversial. The authors demonstrate that the Hippo kinases LATS1/2 and MST1/2, which inhibit YAP activity, are required for maintaining Wnt signaling and canonical stem cell function. **Abstract**

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Awards

Emily Balskus Wins $1M Waterman Award

The Harvard Gazette

Dr. Emily Balskus *(pictured)* is one of two recipients of the Alan T. Waterman Award, the National Science Foundation's most prestigious prize for scientists under 40 in the United States. Balskus is only the sixth Harvard scientist (and the only Harvard woman) to receive a Waterman, which the government has awarded annually since 1975. **Read More**

Rhoda Au Receives $2.8M Award from AHA, Bill Gates

BU School of Medicine

A multidisciplinary team of researchers at Boston University has been selected to establish a brain health and dementia technology research center, funded by a $2.8 million grant from Bill Gates and the American Heart Association (AHA). Led by Dr. Rhoda Au *(pictured)*, a Professor of Anatomy and Neurobiology, the new team will focus their work on the connections of heart and brain health, specifically in the areas of dementia and Alzheimer's disease. **Read More**

Awards and Recognitions at Harvard Medical School

Harvard Medical School

Dr. Gregory Ciottone *(pictured)*, Harvard Medical School (HMS) Associate Professor of Emergency Medicine at Beth Israel Deaconess, has received the American Academy of Disaster Medicine's 2020 Distinguished Service Award, which recognizes the vital role physician specialists play in the disaster life cycle—preparation, planning, response and recovery. Check out which other HMS faculty, staff and students received honors in July. **Read More**

View All Awards

Local News

A New Tool for Modeling the Human Gut Microbiome

MIT News

Figuring out the precise role of each strain of bacteria that lives in the human gut can be difficult because many of them can't be grown in lab studies using human tissue. However, MIT biological and mechanical engineers have designed a specialized device in which they can grow those oxygen-intolerant bacteria in tissue that replicates the lining of the colon, allowing them to survive for up to four days. **Read More**

This Molecule Helps Sweet-Toothed Protein Complex Sense Sugar

Whitehead Institute

Researchers in the lab of Whitehead Institute member Dr. David Sabatini have identified a key molecule that signals to the cell's growth-triggering complex, mTORC1, when there is sugar to be had, leading to a metabolic response. That means mTORC1 has a sweet tooth by necessity: the complex is only active when there is enough glucose in the cell. **Read More**

Single-Shot COVID-19 Vaccine Protects Non-Human Primates

Beth Israel Deaconess Medical Center

The development of a safe and effective vaccine will likely be required to end the COVID-19 pandemic. A group of scientists, led by Beth Israel Deaconess Medical Center (BIDMC) immunologist Dr. Dan Barouch, have reported that a leading candidate COVID-19 vaccine developed at BIDMC in collaboration with Johnson & Johnson raised neutralizing antibodies and robustly protected non-human primates against SARS-CoV-2, the virus that causes COVID-19. **Read More**

Rapid Antibody Development Yields Possible Treatment for Yellow Fever

MIT News

An international team of researchers, led by MIT Professor Dr. Ram Sasisekharan, has developed a potential treatment for yellow fever. Their drug, an engineered monoclonal antibody that targets the virus, has shown success in early-stage clinical trials in Singapore. The researchers demonstrated that they could design, produce, and begin clinical trials of their antibody drug within seven months. **Read More**

Nikhil Gopalkrishnan on Imaging by Sequencing

Wyss Institute

When Dr. Nikhil Gopalkrishnan *(pictured)* was younger, he loved to read science fiction and fantasy books in his spare time. At the Wyss Institute, he's turning science fiction into science fact by working on a completely new method of imaging that isn't dependent on light and can capture or observe things below a microscopic level. Learn more about Nikhil and his work in this month's *Humans of the Wyss*. **Read More**

Bringing RNA into Genomics

MIT News

In a new study that is part of the ENCODE (Encyclopedia of DNA Elements) research consortium, scientists have identified many additional sites that code for RNA molecules that are likely to influence gene expression. The research team, co-led by Dr. Christopher Burge *(pictured)* at MIT, made use of RNA-binding proteins to help them locate and assign possible functions to tens of thousands of sequences of the genome. **Read More**

A Data Scientist and Former Student Researcher Shares How the Broad Institute Helped Guide His Career

Broad Institute

Back in 2003, Dr. Manuel Rivas *(pictured)* joined the Minority Introduction to Engineering and Science (MITES) program at MIT, and graduated from MIT in 2008. Now, he is a biomedical data scientist and an Assistant Professor at Stanford University. In this Q&A with, Rivas shares how his mentors helped him grow as a researcher and how they've helped shape his own scientific values and philosophy. **Read More**

Massachusetts General Hospital, University of Minnesota to Co-Lead Collaboration Focused on Preserving Cells, Tissue, Organs, Organisms

Massachusetts General Hospital

The National Science Foundation has awarded a $26 million grant to an ambitious collaboration involving the Massachusetts General Hospital's Center for Engineering in Medicine and Surgery to establish an engineering research center that will develop, refine, and expand technologies to "stop biologic time" by preserving, stabilizing, and suspending living material. **Read More**

Dana-Farber Study Advances Understanding of Rare Sarcoma

Dana-Farber

Advancing the understanding of synovial sarcoma, a highly aggressive and rare cancer of young people, Dr. Cigall Kadoch *(pictured)* and team at Dana-Farber have discovered how an abnormal protein misdirects and disrupts the control of gene expression in cells, causing the aberrant activation of normally repressed genes that contribute to the malignant growth of sarcoma tumors. **Read More**

Computational Model Could Improve Success in Translating Drugs from Animal Studies to Humans

Purdue University

About 50% of people who take the drug infliximab for inflammatory bowel diseases, such as Crohn's disease, end up becoming resistant or unresponsive to it. Scientists might be able to catch problems like this one earlier in the drug development process, when drugs move from testing in animals to clinical trials, with a new computational model whose development and testing was led by Dr. Doug Brubaker *(pictured)* during his postdoc MIT. **Read More**

Clinical Trial to Test Cystic Fibrosis Drug for Severe COVID-19 Pneumonia

Harvard Medical School

Harvard Medical School researchers at Boston Children's Hospital and Brigham and Women's Hospital will soon begin testing an existing drug, dornase alfa, in patients with severe COVID-19 pneumonia and respiratory failure. The randomized, controlled clinical trial aims to enroll 60 adults and children over age three who require mechanical ventilation. **Read More**

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Upcoming Events in Boston

August 12 12:00 PM	**COVID-19: BioMaking Solutions – Applying Ginkgo's Platform to the COVID-19 Response** Online
August 13 3:00 PM	**Boston College Science on Tap: The Sex-Specific Impact of Anxiety on Alzheimer's Disease Progression** Online
August 14 12:00 PM	**The Dark Side of Science: Misconduct in Biomedical Research** Online
August 14-16 8:00 AM	**SciComm 2020** Online
August 20 10:00 AM	**Massachusetts Life Sciences Innovation Day 2020** Online

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Science Jobs in Boston

Assistant Professor of Cell Biology
Harvard Medical School

Group Leader – Cancer Biology, Translational Pharmacology
Broad Institute

Principal Research Associate for Biological Sciences
Ribon Therapeutics

Scientist, T Cell Reprogramming
SQZ Biotechnologies

Drug Hunter, Senior Principal Scientist – Cardio-Metabolic Disease
Novartis

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