Volume 4.29: August 1, 2022

Publications of the Week

Dissecting the Clinicopathologic, Genomic, and Immunophenotypic Correlates of *KRAS*^{G12D} Mutated Non-Small Cell Lung Cancer

First Author: Biagio Ricciuti | Senior Author: Jia Luo *(pictured)*
Dana-Farber Cancer Institute, Harvard School of Public Health, Broad Institute, and Brigham & Women's Hospital

Allele-specific KRAS inhibitors are an emerging class of cancer therapies. KRAS mutant non-small cell lung cancers (NSCLCs) exhibit heterogeneous outcomes, driven by differences in underlying biology shaped by co-mutations. KRAS^{G12D} NSCLC is associated with a tumor mutation burden with decreased PD-L1 expression and diminished infiltration of CD8^{+} T cells. **Abstract**

Declines in Prevalence Alter the Optimal Level of Sexual Investment for the Malaria Parasite *Plasmodium falciparum*

First Authors: Angela Early *(pictured, left)* and Flavia Camponovo *(right)* | Senior Authors: Lauren Childs, Lise Musset, and Daniel Neafsey
PNAS | Broad Institute and Harvard T. H. Chan School of Public Health

Successful infectious disease interventions can result in large reductions in parasite prevalence. Such demographic change has fitness implications for individual parasites and may shift the parasite's optimal life history strategy. The authors explore whether declining infection rates can alter *Plasmodium falciparum*'s investment in sexual versus asexual growth. **Abstract**

View All Publications

Awards

Eviatar Yemini Honored with 2022 Klingenstein-Simons Fellowship Award in Neuroscience

UMass Chan Medical School

Dr. Eviatar Yemini *(pictured)*, Assistant Professor of Neurobiology, is one of 13 investigators nationally to receive a 2022 Klingenstein-Simons Fellowship Award in Neuroscience. Through a partnership with the Simons Foundation, the Esther A. and Joseph Klingenstein Fund supports early career investigators engaged in basic or clinical research that may lead to a better understanding of neurological and psychiatric disorders. The three-year awards are for $225,000. **Read More**

View All Awards

Local News

New UMass Chan Research Identifies Common Antigens among Human Coronaviruses

UMass Chan Medical School

A new paper from the laboratory of Dr. Lawrence Stern *(pictured, center)* indicates that some of the antigens on the virus that causes COVID-19 are common across all the human coronaviruses, such as those that cause the common cold, and that one particular peptide in the virus spike protein is among the most common antigens that promote an immune response worldwide. **Read More**

New Technology Creates a Multi-Color Molecular Movie

Massachusetts General Hospital

Many technologies have been developed with the goal of analyzing living systems in action at the molecular level. But they are often thwarted by the lack of visual details distinguishing the various molecules, or they destroy the cells in the process. A new technology developed by Dr. Jina Ko *(pictured)* and a team at Massachusetts General Hospital sidesteps these problems. **Read More**

An Alzheimer's-Defying Brain Offer Clues to Treatment and Prevention of Dementia

Massachusetts General Hospital

The brain of a woman with a family history of early-onset Alzheimer's disease who lived dementia-free into her 70s is providing researchers with important information about the pathobiology of Alzheimer's dementia and possible ways to prevent or treat it. The woman appears to have been protected by a mutation known as APOE3 Christchurch that spared critical brain regions from characteristic tau pathology. **Read More**

Turning the Tables: How Some Melanomas Exploit the Immune Response for Their Own Survival

Dana-Farber Cancer Institute

Like a fugitive from justice, cancer cells stake their survival on their ability to remain inconspicuous. In a new study, Dana-Farber scientists have uncovered one such tumor-survival tactic. Writing in the journal *Nature*, they show how certain types of melanoma cells — bristling with neoantigens — can turn their susceptibility to an immune attack into an advantage and use it to and tame the forces arrayed against them. **Read More**

Bacterial Bullseye

Harvard Medical School (HMS)

From immunity to metabolism to mental health, it seems like the gut microbiome has been linked to every aspect of human health and disease. But with hundreds of bacterial species populating our gastrointestinal tract, it's a daunting task to pinpoint which molecules made by which bacteria affect which biological processes — and how they do so. A team led by researchers at HMS and the Broad Institute, including Dr. Ramnik Xavier *(pictured)*, has just accomplished the rare feat of connecting those dots for one important gut bacterium. **Read More**

Reversing Hearing Loss with Regenerative Therapy

Slice of MIT

Hearing loss can lead to isolation, frustration, and a debilitating ringing in the ears known as tinnitus. It is also closely correlated with dementia. The biotechnology company Frequency Therapeutics is seeking to reverse hearing loss — not with hearing aids or implants, but with a new kind of regenerative therapy. The company uses small molecules to program progenitor cells, a descendant of stem cells in the inner ear, to create the tiny hair cells that allow us to hear. **Read More**

Detecting Brain Cancer

Harvard Medical School

Researchers at Harvard Medical School and Massachusetts General Hospital who previously developed a blood test for mutations in a gene linked to gliomas, the most common type of adult brain tumors, have now applied their technology to detect additional mutations in the gene that codes for epidermal growth factor receptor. The advance provides clinicians with a powerful tool to detect the presence of gliomas, characterize the tumors, and monitor their status after treatment. **Read More**

Scientists Identify a Key Gene That Is Turned On in Most Cancer Types

Broad Institute

Physician-scientists at the Broad Institute and Dana-Farber Cancer Institute have discovered that a gene called *FOXR2* that is normally turned off in most tissues in the body is activated in at least 70 percent of cancer types and eight percent of all individual tumors. The study, led by Dr. Jessica Tsai *(pictured)*, may help scientists better understand how a variety of cancers develop. **Read More**

Studying the Link between Gum Disease and Alzheimer's Disease

TuftsNow

Fusobacterium nucleatum is a common type of bacteria that proliferates in periodontal disease. It affects the gums and jawbone, and if untreated results in unstable teeth and tooth loss. "In this study, our lab is the first to find that *Fusobacterium nucleatum* can generate systemic inflammation and even infiltrate nervous system tissues and exacerbate the signs and symptoms of Alzheimer's disease," says Dr. Jake Jinkun Chen *(pictured)*. **Read More**

Different Classes of IgG antibodies Offer Varied Levels of Protection against HIV Transmission

Ragon Institute

There are four different types of IgG naturally produced in response to HIV infection; however, the contribution of each of these subclasses to preventing HIV infection has been unknown. In a new study published in *Science Translational Medicine*, researchers from Dr. Alejandro Balazs' *(pictured)* lab at the Ragon Institute studied the potential for different IgG antibodies to prevent HIV transmission in a humanized mouse model. **Read More**

View All Articles | **Submit an Article**

Upcoming Events in Boston

August 2 11:00 AM	**American Heart Association Funding Webinar** Online
August 2 12:00 PM	**Aging Brain Seminar with Hideyuki Okano** MIT
August 11 5:00 PM	**STAT Locals** Cambridge Brewing Co., Kendall Square
September 14-16 8:00 AM	**Forsyth Dentech 2022** Forsyth Institute & Online
September 20 10:00 AM	**Precision Medicine 2022: The New "Normal"?** Joseph B. Martin Conference Center & Online

View All Events | **Submit an Event**

Science Jobs in Boston

Head of Emerging Therapeutics
Ovid Therapeutics

Scientist, Cell Biology, Preclinical NGS
Intellia

Cellular Immunotherapy / CAR T Cell Preclinical Research Technician
Dana-Farber Cancer Institute

Bioinformaticist I
Harvard University

***In Vivo* Neuroscientist, Electrophysiology**
Novartis

View 55 Other Science Jobs | **Submit a Job**

Submit your articles and events by reaching out to us at info@scienceinboston.com.