Volume 4.24: June 27, 2022

Publications of the Week

Structural Basis of Nucleosome Retention During Transcription Elongation

First Author: Martin Filipovski | Senior Author: Lucas Farnung *(pictured)*
Science | Blavatnik Institute, Harvard Medical School, and MIT

Eukaryotic cells organize their large genomes into a compacted structure called chromatin. The condensed structure of chromatin, with its fundamental unit the nucleosome, represents a challenge to nucleic acid–transacting machines including RNA polymerase II (Pol II), the enzyme responsible for the transcription of most protein-coding genes. The authors provided structural snapshots of a complex between mammalian RNA Pol II and a nucleosome that show how previously transcribed DNA rewraps the nucleosome. **Abstract**

TET2-Mutant Clonal Hematopoiesis and Risk of Gout

First Author: Mridul Agrawal | Senior Author: Benjamin Ebert *(pictured)*
Blood | Dana-Farber Cancer Institute, Boston Children's Hospital, Broad Institute, Brigham and Women's Hospital, and Massachusetts General Hospital

Gout is a common inflammatory arthritis caused by precipitation of monosodium urate crystals in individuals with hyperuricemia. Clonal hematopoiesis of indeterminate potential (CHIP) is an age-related condition predisposing to hematologic cancers and cardiovascular disease. CHIP is associated with elevated IL-1B, thus the authors investigated CHIP as a risk factor for gout. **Abstract**

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Awards

UMass Chan Postdoc Receives Two Fellowship Awards To Support Brain Research

UMass Chan Medical School

Dr. Violeta Durán Laforet *(pictured)*, a postdoc in the lab of Dr. Dorothy Schafer, has been awarded two fellowships totaling $375,000 to support her research into how cells in the brain affect aging. The new funding is from the BrightFocus Foundation Postdoctoral Fellowship Program in Alzheimer's Disease Research, which supports young researchers in their final stages of mentored training, and the Alzheimer's Association Research Fellowship, for researchers doing work related to Alzheimer's disease and dementia. **Read More**

Awards & Recognitions: June 2022

Harvard Medical School

Dr. Christopher Walsh *(pictured)*, the Bullard Professor of Pediatrics and Neurology at Harvard Medical School and Boston Children's Hospital, has been named one of four recipients of this year's Kavli Prize in Neuroscience. Awarded by the Norwegian Academy of Science and Letters, the Kavli Prize honors scientists for transformative breakthroughs in astrophysics, nanoscience, and neuroscience. **Read More**

MIT Announces 2022 Bose Grants for Ambitious Ideas

MIT News

Drs. Graham Walker *(pictured)*, Michael Hemann, Michael Yaffe, Sebastian Lourido, and Jianzhu Chen of the Department of Biology at MIT and Dr. Sangeeta Bhatia of the Department of Electrical Engineering and Computer Science and the Institute of Medical Engineering and Science received an Amar G. Bose Research Grant for their proposal, "Addressing Critical Human Health Problems with a Special Heme-Binding Peptide." **Read More**

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Local News

New Study Offers the First Evidence of Replay During Sleep in the Human Motor Cortex, Which Governs Voluntary Movement

Massachusetts General Hospital

Why do we sleep? Scientists have debated this question for millennia, but a new study by researchers at Massachusetts General Hospital, conducted in collaboration with colleagues at Brown University, the Department of Veterans Affairs, and several other institutions, adds new clues for solving this mystery. Their findings, published in the *Journal of Neuroscience*, may help explain how humans form memories and learn, and could eventually aid the development of assistive tools for people affected by neurologic disease or injury. **Read More**

Single-Cell Map of Heart Failure Suggests Possible Therapeutic Targets

Broad Institute

Scientists from Dr. Patrick Ellinor's *(pictured)* lab at the Broad Institute of MIT and Harvard and Bayer have generated detailed maps of a variety of cell types in the heart that are involved in two major causes of heart failure: dilated and hypertrophic cardiomyopathy, which both impair the heart's pumping ability. The team's findings suggest specific cell types and biological mechanisms that could be targeted by new treatments. **Read More**

Communicating Science: Elizabeth Shank Works To Identify New Antibiotics by Getting Bacteria 'Talking'

UMass Chan Medical School

More than 70 percent of the antibiotics used as clinical therapeutics today are derived from compounds made by soil bacteria. Dr. Elizabeth Shank *(pictured)*, Associate Professor of Systems Biology, studies soil bacteria and is focused on potentially developing new antibiotics. "In the soil, bacteria are surrounded by hundreds of other microbial species, and they talk to these other bacteria using chemical cues," said Dr. Shank. **Read More**

New Model Helps Identify Mutations That Drive Cancer

MIT News

Cancer cells can have thousands of mutations in their DNA. However, only a handful of those actually drive the progression of cancer; the rest are just along for the ride. Distinguishing these harmful driver mutations from the neutral passengers could help researchers identify better drug targets. To boost those efforts, an MIT-led team has built a new computer model that can rapidly scan the entire genome of cancer cells and identify mutations that occur more frequently than expected. **Read More**

Leeches As Tool for Map Biodiversity

The Harvard Gazette

In a new study by a team of researchers in Dr. Naomi Pierce's *(pictured)* lab at Harvard, DNA samples extracted from the blood meals of leeches were used to map which animals live in the Allaoshan National Nature Reserve in Yunnan, China. The findings suggest that the blood-sucking worms may serve as a simpler, much less expensive surveillance instrument for some biodiversity surveys than existing tools such as camera traps and bioacoustic recorders. **Read More**

Lab-Grown Fat Cells Help Scientists Understand Type 2 Diabetes

Whitehead Institute

In research published in the journal *Science Advances*, researchers in the lab of Whitehead Institute Founding Member Dr. Rudolf Jaenisch *(pictured)* present a way to create fat cells that can be modified to display different levels of insulin sensitivity. The cells accurately model healthy insulin metabolism, as well as insulin resistance, one of the key hallmarks of type 2 diabetes. **Read More**

To Treat or To Tolerate (Pathogens), That Is the Question

Wyss Institute

Dr. Megan Sperry *(pictured)* and a team at the Wyss Institute have discovered genetic and biological mechanisms that enhance disease tolerance — the ability of cells and tissues to resist damage in the presence of invading pathogens — in developing tadpoles of *Xenopus laevis* frogs, and identified drugs that can keep the tadpoles alive even in the presence of lethal bacteria. **Read More**

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Upcoming Events in Boston

June 28 2:00 PM	**Cancer Biology Seminar** Dana-Farber Cancer Institute & Online	
June 29 3:00 PM	**NCI SBIR Workshop for Massachusetts Biotech Innovators: Learn About NCI's Translational Funding Opportunities!** MassBioHub & Online	
July 6-8 9:00 AM	**2022 International Summer School & Genome Architecture and Function Workshop** Boston Marriott Cambridge	
July 19-21 8:00 AM	**LEAP HR: Life Sciences East 2022** Hilton Boston Logan Airport	
August 2 11:00 AM	**American Heart Association Funding Webinar** Online	

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Science Jobs in Boston

Technical Associate I, Neuroscience
MIT

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Harvard T. H. Chan School of Public Health

Computational Biologist
Broad Institute

Senior Research Associate, Analytical Development
Be Biopharma

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