

Publications of the Week

Transcription Factor Networks Disproportionately Enrich for Heritability of Blood Cell Phenotypes

First Author: Jorge Diego Martin-Rufino and Alexis Caulier | Senior Author: Vijay Sankaran (*pictured*)
Science | Boston Children's Hospital, Dana-Farber Cancer Institute, Harvard Medical School, Howard Hughes Medical Institute, Broad Institute, and MIT

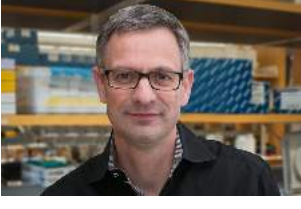


Most phenotype-associated genetic variants map to noncoding regulatory regions of the human genome, but their mechanisms remain elusive in most cases. Here, researchers developed a highly efficient strategy, Perturb-multiome, to simultaneously profile chromatin accessibility and gene expression in single cells with CRISPR-mediated perturbation of master transcription factors.

[Profile](#) | [Abstract](#)

Rules of Engagement for Condensins and Cohesins Guide Mitotic Chromosome Formation

First Authors: Kumiko Samejima and Johan Gibcus | Senior Authors: Leonid Mirny, Job Dekker (*pictured*), Anton Goloborodko, and William Earnshaw
Science | UMass Chan Medical School, MIT, and Howard Hughes Medical Institute



This study identifies three rules of engagement for condensins and cohesin complexes. Applying these rules, researchers can begin to understand how structural maintenance of chromosomes complexes acting on chromatin at the nanometer scale together convert organized interphase chromosomes into cohesed pairs of compacted and separated sister chromatids at the micrometer scale. [Abstract](#) | [Press Release](#)

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Awards

Dana-Farber Researchers Receive AACR 2025 Scientific Achievement Awards

Dana-Farber Cancer Institute



Drs. Matthew Meyerson, Toni Choueiri, and Alice Shaw (*pictured*) have been selected by the American Association for Cancer Research (AACR) as recipients of 2025 Scientific Achievement Awards. Specifically, Dr. Shaw is the recipient of the Joseph H. Burchenal Award for Outstanding Achievement in Clinical Cancer Research. [Read More](#)

Whitehead Institute Member Sebastian Lourido Receives the Tulane 2025 Science and Engineering Outstanding Alumni Award for Professional Excellence

Whitehead Institute



Whitehead Institute Member Dr. Sebastian Lourido (*pictured*) has been awarded the Tulane University School of Science and Engineering's 2025 Science and Engineering Outstanding Alumni Award for Professional Excellence. This award is the highest honor bestowed upon an alumni by the School. The Lourido laboratory studies the developmental transitions and molecular pathways that the single cell parasite *Toxoplasma gondii*. [Read More](#)

Guangmei Liu Receives the Brenton R. Lutz Award

Boston University Biology



Guangmei Liu (*pictured*), a Biology PhD student in the McCall Lab, received the Brenton R. Lutz Award. Guangmei's research focuses on glial dysfunction and its role in neurodegenerative diseases. Her work leverages a *Drosophila* model in which the phagocytic receptor Draper is knocked down in glia, leading to age-dependent neurodegeneration. [Read More](#)

UMass Chan MD/PhD Student Ayush Kumar Wins AMA Research Challenge

UMass Chan Medical School



A UMass Chan Medical School student stands alone after being awarded the grand prize for the American Medical Association's 2024 Research Challenge. Ayush Kumar (*pictured*), an MD/PhD student working in the lab of Dr. Arthur Mercurio, took the top prize for his research presentation on enhancing radio sensitivity in triple negative breast cancer by targeting a specific cell surface protein with antibodies. [Read More](#)

MCB's Daniel Cardozo Pinto and Wendy Valencia Montoya Named 2025 Harvard Junior Fellows

Harvard University Department of Molecular and Cellular Biology (MCB)



Harvard has named Daniel Cardozo Pinto (*pictured, left*) and Wendy Valencia Montoya (*right*) as two of its newest Junior Fellows, joining the prestigious Society of Fellows this year. Cardozo Pinto will study the neuroscience of reward learning and addiction. Valencia-Montoya studies sensory biology of diverse animals, including beetles and octopus. [Read More](#)

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Local News

A New Computational Framework Illuminates the Hidden Ecology of Diseased Tissues

MIT Chemistry



To understand what drives disease progression in tissues, scientists need more than just a snapshot of cells in isolation—they need to see where the cells are, how they interact, and how that spatial organization shifts across disease states. A new computational method called MESA (Multiomics and Ecological Spatial Analysis), detailed in a study published by Dr. Alex Shalek (*pictured*) in *Nature Genetics*, is helping researchers study diseased tissues in more meaningful ways. [Read More](#)

Newly Identified Antibodies Could Help Scientists Develop Diagnostic Strategy for Systemic Diseases Related to Gum Disease

ADA Forsyth



ADA Forsyth researchers made the first step in a potential diagnostic strategy for periodontitis and systemic diseases that have been linked to it. ADA's Drs. Manda Yu, Hyunyoung Kim, and Christina Rothenberger, working under Dr. Mary Ellen Davey (*pictured*), recently published research identifying a host evasion mechanism related to periodontitis. [Read More](#)

Restoring Healthy Gene Expression With Programmable Therapeutics

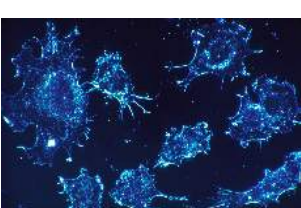
MIT News



CAMP4 is targeting a lesser-known player in the regulation of gene expression known as regulatory RNA. CAMP4 Co-Founder and MIT Professor Dr. Richard Young (*pictured*) has shown that by interacting with molecules called transcription factors, regulatory RNA plays an important role in controlling how genes are expressed. [Read More](#)

Equipping Living Cells With Logic Gates to Fight Cancer

MIT News



One of the most exciting developments in cancer treatment is a wave of new cell therapies that train a patient's immune system to attack cancer cells. Unfortunately, most proteins found on cancer cells aren't unique to tumors. Now Senti Bio is working to create smarter cell therapies using synthetic biology. The company is equipping cells with gene circuits that allow the cells to sense and respond to their environments. [Read More](#)

Unusual Labmates: Bats

The Whitehead Institute



Bats have fascinating biological properties. These include resistance to cancer, long life spans relative to their body size, extreme cold tolerance, and tolerance of viruses. In spite of these fascinating characteristics, bats have not been used in much biomedical research, because they are not easy to keep or study in the lab. The Unusual Labmates series shows how researchers at Whitehead Institute have made use of bat biology in their research. [Read More](#)

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Upcoming Events in Boston

May 4 - 7 8:00 AM	2025 AAPS National Biotechnology Conference The Westin Boston Seaport District
May 12 - 16 8:00 AM	PEGS Protein & Antibody Engineering Summit Omni Hotel Boston at the Seaport
May 28 - 29 8:00 AM	3rd Gene Therapy Potency Assay Summit Revere Hotel Boston Common
June 9 - 10 8:00 AM	Precision in Drug Discovery & Preclinical Summit Boston Revere Hotel Boston Common
June 25 - 27 8:00 AM	2025 RNA Therapeutics: From Concept to Clinic UMass Medical School

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28-29 May, 2025 | Boston, MA

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