



Publications of the Week

Priming Agents Transiently Reduce the Clearance of Cell-Free DNA to Improve Liquid Biopsies

First Authors: Carmen Martin-Alonso (*pictured*) and Shervin Tabrizi | Senior Author: Viktor Adalsteinnsson
 Science | MIT, Broad Institute, Massachusetts General Hospital, Dana-Farber Cancer Institute, Brigham and Women's Hospital, Wyss Institute, and Howard Hughes Medical Institute



Liquid biopsy for tumor analysis offers the potential for noninvasive access using a blood draw instead of a surgical procedure. However, circulating tumor DNA is usually scarce, and it can be difficult to collect enough blood for adequate detection. This study addressed this difficulty by developing two different types of priming agents that protect circulating DNA from destruction.

[Abstract](#) | [Press Release](#)

Inherited Blood Cancer Predisposition Through Altered Transcription Elongation

First Authors: Jiawei Zhao and Liam Cato | Senior Author: Vijay Sankaran (*pictured*)
 Cell | Boston Children's Hospital, Harvard Medical School, Broad Institute, Dana-Farber Cancer Institute, and Harvard Stem Cell Institute



Despite advances in defining diverse somatic mutations that cause myeloid malignancies, a significant heritable component for these cancers remains largely unexplained. Here, researchers perform rare variant association studies in a large population cohort to identify inherited predisposition genes for these blood cancers. These insights could enable targeted approaches for blood cancer prevention.

[Abstract](#)

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Awards

Dr. Paola Arlotta Wins the 2024 Pradel Research Award.

National Academy of Sciences



Dr. Paola Arlotta (*pictured*) of Harvard University has won the 2024 Pradel Research Award. The Pradel Research Award is presented annually to recognize mid-career neuroscientists whose work is making major contributions to our understanding of the nervous system. Dr. Arlotta's work provides key insights into the fundamental principles that guide development of the cerebral cortex.

[Read More](#)

Dana-Farber Researchers Receive Prestigious 2023 Outstanding Investigator Award from National Cancer Institute

Dana-Farber Cancer Institute



Three Dana-Farber Cancer Institute researchers received the prestigious Outstanding Investigator Award from the National Cancer Institute (NCI), part of the National Institutes of Health: Drs. Jean Zhao (*pictured*), Kimberly Stegmaier, and William Kaelin Junior. Dr. Zhao investigates the signaling networks regulating cellular processes in cancer. [Read More](#)

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Local News

Study Reveals a Universal Pattern of Brain Wave Frequencies

McGovern Institute



Throughout the brain's cortex, neurons are arranged in six distinctive layers, which can be readily seen with a microscope. A team of MIT and Vanderbilt University neuroscientists has now found that these layers also show distinct patterns of electrical activity, which are consistent over many brain regions and across several animal species, including humans. [Read More](#)

Blood Cell Family Trees Trace How Production Changes with Aging

Whitehead Institute



Blood cells make up the majority of cells in the human body and are produced by hematopoietic stem cells (HSCs). Researchers want to better understand HSCs and the dynamics of how they produce the many blood cell types, both in order to understand the fundamentals of human blood production and to understand how blood production changes during aging or in cases of disease. [Read More](#)

New Study Mapping Entire Genome of Oral Stem Cells Opens New Doors for Regenerative Medicine

The Forsyth Institute



A team of researchers used single-cell transcriptomic analysis to successfully map dental pulp stem cells and periodontal ligament stem cells and found remarkable differences between them. The study, which appeared in the *Journal of Dental Research*, provides the most detailed analysis of these stem cells to date, identifying the entire genome of the stem cells and their potential differentiation trajectories. [Read More](#)

Engineered Cartilage Could Turn the Tide for Patients with Osteoarthritis

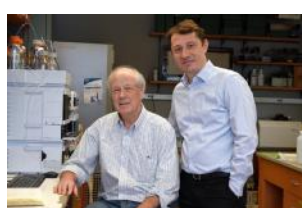
Boston Children's Hospital



About one in seven adults live with degenerative joint disease, also known as osteoarthritis (OA). With few curative treatment options, OA remains one of the leading causes of pain and disability in the US. Dr. April Craft (*pictured*) and her team want to change that. Their approach: "grow" cartilage in the lab that could be used to replace damaged articular tissues in patients' joints. [Read More](#)

A New Drug Candidate Can Shrink Kidney Cysts

MIT News



Autosomal dominant polycystic kidney disease (ADPKD), the most common form of polycystic kidney disease, can lead to kidney enlargement and eventual loss of function. Researchers including Drs. Robert Croy (*pictured, left*) and Bogdan Fedeles (*right*) have now found that a compound originally developed as a potential cancer treatment holds promise for treating ADPKD. The drug works by exploiting kidney cyst cells' vulnerability to oxidative stress. [Read More](#)

Newest Whitehead Fellows Share Their Research

Whitehead Institute



Since its founding in 1984, the Whitehead Fellows Program provides highly talented and accomplished recent PhDs the opportunity to launch their own research programs, instead of working as postdoctoral researchers in a senior scientist's lab. The Institute's newest Whitehead Fellows are Valhalla Fellow Dr. Allison Hamilos (*pictured, left*) and Dr. Aditya Raguram (*right*). [Read More](#)

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Upcoming Events in Boston

- January 30**
 4:30 PM **Science, Research, and Innovation: Job & Internship Search Success Series**
 Mignone Center for Career Success
- Jan 30 - Feb 1**
 8:30 AM **7th DDR Inhibitors Summit**
 The Colonnade Hotel
- Jan 31 - Feb 2**
 10:00 AM **Symposium on Resolution of Inflammation in Medicine and Surgery**
 Brigham & Women's Hospital
- February 1**
 1:00 PM **Science Communication in a Crisis**
 MIT Building 54
- February 13-15**
 8:00 AM **5th RNAi-Based Therapeutics Summit**
 Hilton Boston Back Bay

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Science Jobs in Boston

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Actalent
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Dana-Farber Cancer Institute
- Lead Process Scientist**
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