

Publications of the Week

## Pre-T Cell Receptor Self-MHC Sampling Restricts Thymocyte Dedifferentiation

First Author: Jonathan Duke-Cohan | Senior Author: Ellis Reinherz *(pictured)*  
Nature | Dana-Farber Cancer Institute, Harvard Medical School, and Brigham and Women's Hospital



Programming T lymphocytes to distinguish self from non-self is a vital, multi-step process arising in the thymus. The authors show the consequences of those distinctive interactions for thymocyte progression, using synchronized fetal thymic progenitor cultures differing in the presence or absence of peptide major histocompatibility complex (MHC) on support stroma, determining single cell transcriptomes at key thymocyte developmental transitions. [Abstract](#)

## The Future of Engineered Immune Cell Therapies

First Author: Darrell Irvine *(pictured)* | Senior Author: Wilson Wong  
Science | Koch Institute, Ragon Institute, MIT, Harvard University, and Boston University



Immune cells are being engineered to recognize and respond to disease states, acting as a "living drug" when transferred into patients. The authors discuss current progress in treating human disease with immune cell therapeutics, emerging strategies for immune cell engineering, and challenges facing the field, with a particular emphasis on the treatment of cancer, where the most effort has been applied to date. [Abstract](#)

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Awards

## Catherine Dulac Named University Professor, the Seventh Woman to Hold the Honor

Harvard Department of Molecular and Cellular Biology (MCB)



Dr. Catherine Dulac *(pictured)* has been named a Harvard University Professor, only the 23<sup>rd</sup> to receive this title since its creation 87 years ago in 1935, and the first MCB faculty member with the honor. "I feel greatly honored and privileged to be named Samuel W. Morris University Professor," says Dr. Dulac. "This distinction is very special to me because I am recognized both for my scientific accomplishments and my community engagement within MCB and the wider Harvard community." [Read More](#)

## Congrats to the 44 Mass General Investigators Named to Clarivate Analytics' Highly Cited Researchers List for 2022

Mass General Research Institute



Clarivate Analytics' Highly Cited Researchers List is an annual report of individuals at universities, research institutes, and commercial organizations who demonstrate a significant and broad influence in their field or fields of research. Highly cited papers are defined as those that rank in the top 1% by citations for field and publication year. Congratulations to Dr. Galit Alter *(pictured)*, one of this year's highly cited researchers. [Read More](#)

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Local News

## Researchers Decipher Structure of Crucial Immune Molecule, Paving Way for Drug Design

Harvard Medical School



Researchers in the lab of Harvard Medical School structural biologist Dr. Hao Wu *(pictured)* have deciphered the step-by-step assembly of a molecular complex that's crucial for fighting off infections, but can also give rise to a myriad of diseases involving inflammation, from gout to Alzheimer's to the cytokine storms of severe COVID-19. The findings forge a path for researchers to develop drugs that regulate the complex's formation and activity to treat or prevent the diseases with which it's associated. [Read More](#)

## Graduate Student Spotlight: Anastasia Repouliou

Harvard University Department of Cellular & Molecular Biology



Anastasia Repouliou *(pictured)* of the Extavour lab has wanted to be a scientist since the age of ten, when she set her sights on becoming an astrophysicist. "Nobody knows how and why that happened," Repouliou says. "No one in my family is a scientist, but, when I was ten, I decided to be a scientist." Now, Repouliou is focused on her PhD research investigating the molecular mechanism of a protein called Oskar, which regulates germ cell determination in fruit flies. [Read More](#)

## Strength in the Life Sciences Sustains US Advantage

Nature



Although the COVID-19 pandemic isn't over, the first victory in the fight against the virus came with the development of vaccines in record-breaking time. One of the first available was an mRNA vaccine developed by Moderna, a company based in Cambridge, Massachusetts, spun out of research by Harvard University biologist Dr. Derrick Rossi. Moderna's success was in large part down to its location, according to Co-Founder Dr. Nour Abufeyan. [Read More](#)

## A Breakthrough in Bacterial Vaginosis Treatment for Women's Health

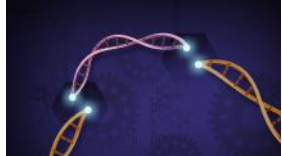
Wyss Institute



Researchers at the Wyss Institute have created a new organ chip that replicates the human vaginal tissue microenvironment, including its microbiome, *in vitro*. "There is growing recognition that taking care of women's health is critical for the health of all humans, but the creation of tools to study human female physiology is lagging," said senior study author Dr. Don Ingber *(pictured)*. [Read More](#)

## New CRISPR-Based Tool Inserts Large DNA Sequences at Desired Sites in Cells

MIT News



Building on the CRISPR gene-editing system, MIT researchers have designed a new tool that can snip out faulty genes and replace them with new ones, in a safer and more efficient way. Using this system, the researchers showed that they could deliver genes as long as 36,000 DNA base pairs to several types of human cells, as well as to liver cells in mice. [Read More](#)

## New International Partnership to Accelerate Search for Cancer Cures

Dana-Farber Cancer Institute



Cancer patients in Australia and the United States will benefit from a new research-focused collaboration between the Peter MacCallum Cancer Centre and Dana-Farber Cancer Institute in Boston. Through a Memorandum of Understanding, the institutions will explore potential areas of collaboration to drive research in the global fight against cancer. [Read More](#)

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## Upcoming Events in Boston

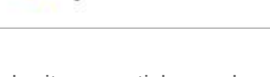
- December 5  
6:00 PM **Science on Stage**  
MIT Museum
- December 6  
4:00 PM **BioAgilytix Presents: Science After Hours at MassBioHub**  
MassBioHub
- December 7  
4:00 PM **Why Sex Matters in Health and Disease**  
Whitehead Institute
- December 7  
4:00 PM **Research on Tap: Developing Technologies for a Sustainable Future**  
Rajen Kilachand Center for Integrated Life Sciences and Engineering
- December 14  
4:00 PM **Toward a Deep Understanding of the Structural Patterns that Govern Antibody Mediated Immunity**  
Online

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## Science Jobs in Boston

- Senior Program Associate, Science in the City**  
STEMCELL Technologies
- Research Technician I**  
Massachusetts General Hospital
- Associate Scientist II**  
Voyager Therapeutics
- Senior Scientist, Clinical Pharmacology**  
Biogen
- Scientist, HTS Platform Biology**  
Korro Bio

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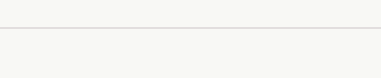


### Culturing Knowledge in Stem Cell Research

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