

Publications of the Week

HLA Class I Signal Peptide Polymorphism Determines the Level of CD94/NKG2–HLA-E-Mediated Regulation of Effector Cell Responses

First Authors: Zhansong Lin and Arman Bashirova | Senior Author: Mary Carrington *(pictured)*
 Nature Immunology | Ragon Institute



Human leukocyte antigen (HLA)-E binds epitopes derived from HLA-A, HLA-B, HLA-C, and HLA-G signal peptides (SPs) and serves as a ligand for CD94/NKG2A and CD94/NKG2C receptors expressed on natural killer and T cell subsets.

Genetic population data indicate a positive correlation between frequencies of functional SPs in humans and corresponding cytomegalovirus mimics, suggesting a means for viral escape from host responses. [Abstract](#)

Irisin Acts Through Its Integrin Receptor in a Two-Step Process Involving Extracellular Hsp90α

First Author: Mu A | Senior Author: Bruce Spiegelman *(pictured)*
 Molecular Cell | Dana-Farber Cancer Institute, Harvard Medical School, and Northeastern University



Exercise benefits the human body in many ways. Irisin is secreted by muscle, increased with exercise, and conveys physiological benefits, including improved cognition and resistance to neurodegeneration. Using mass spectrometry and cryo-electron microscopy, the authors demonstrate that the extracellular heat shock protein 90α (eHsp90α) is secreted by muscle with exercise and activates integrin αVβ5. [Abstract](#)

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Local News

Study Finds How a Genetic Variant Raises Diabetes Risk Through an Unexpected Mechanism

Broad Institute



Researchers have uncovered the mechanism through which a single DNA base change dramatically raises the risk of a subform of type 2 diabetes called metabolically obese normal weight. This genetic variant, which affects a gene called *COBLL1*, impinges a pathway that reduces the ability of subcutaneous adipocytes — fat cells under the skin — to accumulate and store lipids properly. [Read More](#)

Lung Infection May Be Less Transmissible Than Thought

Harvard Medical School



A little-known bacterium is emerging as a public health threat capable of causing severe lung infections among vulnerable populations, those with compromised immunity, or reduced lung function. Recent research found that various strains of the bacterium *Mycobacterium abscessus* were genetically similar, stoking fears that it was spreading from person to person. But a new study by Harvard Medical School researchers calls those findings into question, offering an alternative explanation behind the genetic similarity of clinical clusters. [Read More](#)

Out with the Old (Neurons), In with the New

Harvard Stem Cell Institute



As mammalian brains have evolved, so too have the neurons and circuitry responsible for sophisticated motor functions, like grasping a stick, rock, or pen, or playing the piano. In new research from the lab of Dr. Jeffrey Macklis *(pictured)*, scientists have made an important discovery about those increasingly complicated neurons and brain circuits. [Read More](#)

Immune Biomarkers Predicted COVID-19 Severity and Could Help in Future Pandemics

Boston Children's Hospital



Why did some people fall critically ill from COVID-19 and others not? In May 2020, as COVID-19 swept the world, Boston Children's Hospital helped launch a national study called IMPACC (IMmunoPhenotyping Assessment in a COVID-19 Cohort). Taking a "systems immunology" approach, the goal was to document the virus's impact on the immune system in a comprehensive, unbiased fashion and identify factors predicting severe disease and death. [Read More](#)

Decrease Oxygen to Boost Longevity?

Harvard Medical School



A strain of mice born with abnormally short life spans defied expectations and lived 50 percent longer than expected when put in an environment with low oxygen roughly equivalent to a Mount Everest base camp, Harvard Medical School scientists including Dr. Vamsi Mootha *(pictured)* report in a new study. The findings add to a growing list of approaches shown to lengthen life in animal models and provide the first demonstration that oxygen restriction could extend life span in a mouse model of aging. [Read More](#)

Gut Microbiome Changes Linked to Precancerous Colon Polyps

Massachusetts General Hospital



A new study by investigators from Mass General Brigham has linked certain types of gut bacteria to the development of precancerous colon polyps. "Researchers have done a lot of work to understand the relationship between the gut microbiome and cancer. But this new study is about understanding the microbiome's influence on precancerous polyps," said co-corresponding author Dr. Daniel Chung *(pictured)*. [Read More](#)

Meet a Whitehead Postdoc: Tomo Kumon

Whitehead Institute



Dr. Tomo Kumon *(pictured)* is a postdoc in Whitehead Institute member Dr. Yukiko Yamashita's lab studying the function of repetitive DNA. He studies satellite DNA, which is a type of repetitive DNA or DNA that contains many repeated copies of the same short sequence of nucleotides or genetic bases. Satellite DNA is enriched near the centromere, the region of DNA that helps cells segregate their chromosomes correctly during cell division, but it is also present throughout the genome. [Read More](#)

Exploring the Links Between Diet and Cancer

MIT News



The rapid turnover of cells in the intestine relies on intestinal stem cells, which give rise to all of the other types of cells found in the intestine. Recent research has shown that those stem cells are heavily influenced by diet, which can help keep them healthy or stimulate them to become cancerous. "Low-calorie diets such as fasting and caloric restriction can have antiaging effects and antitumor effects, and we want to understand why that is," says Dr. Omer Yilmaz *(pictured)*, Associate Professor of Biology at MIT. [Read More](#)

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Upcoming Events in Boston

- June 6
6:30 PM
Community Concert at BIO
Big Night Live
- June 12-13
9:00 AM
Boston Bacterial Meeting
Harvard Science Center
- June 13
7:00 PM
Public Symposium: Stem Cells at the Planetarium
Museum of Science
- June 14-17
9:00 AM
ISSCR 2023
Boston Convention and Exhibition Center
- June 20-23
8:00 AM
FOCIS 2023
Boston Marriott Copley Place

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Novartis
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Relay Therapeutics
- Lead Research Associate, *In Vivo***
Dana-Farber Cancer Institute

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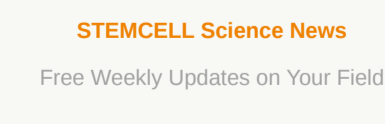
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