

Publications of the Week
IL-1 β -Driven Osteoclastogenic T Regulatory Cells Accelerate Bone Erosion in Arthritis

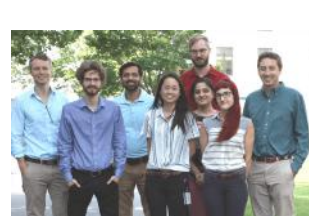
First Author: Anais Levescot | Senior Author: Peter Nigrovic (*pictured*)
Journal of Clinical Investigation | Brigham and Women's Hospital and Boston Children's Hospital



Interleukin (IL)-1 β is a pro-inflammatory mediator with roles in innate and adaptive immunity. The authors show that IL-1 β contributes to autoimmune arthritis by inducing osteoclastogenic capacity in T regulatory cells. Using mice with joint inflammation arising through deficiency of the IL-1 receptor antagonist, they observed that IL-1 β blockade attenuated disease more effectively in early arthritis than in established arthritis, especially with respect to bone erosion. [Abstract](#)

Age-Dependent Regulation of SARS-CoV-2 Cell Entry Genes and Cell Death Programs Correlates with COVID-19 Severity

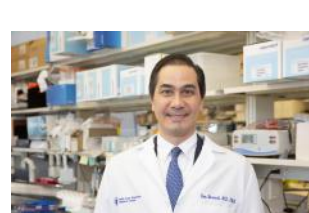
First Author: Zinits Inde | Senior Author: Kristopher Sarosiek (*pictured, far left*)
Science Advances | Harvard T. H. Chan School of Public Health, Harvard Medical School, and Massachusetts General Hospital



COVID-19 severity is highly variable, with pediatric patients typically experiencing less severe infection than adults and especially the elderly. The authors found that mRNA and protein expression of angiotensin-converting enzyme 2, the cell entry receptor for SARS-CoV-2, increases with advancing age in distal lung epithelial cells. Cells infected with SARS-CoV-2 experience endoplasmic reticulum stress, triggering an unfolded protein response and caspase-mediated apoptosis. [Abstract](#)

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Awards
BIDMC Researchers Awarded \$24.5 Million by NIH to Find a Cure for HIV

Beth Israel Deaconess Medical Center (BIDMC)



A team led by Beth Israel Deaconess Medical Center's Dr. Dan Barouch (*pictured*), who partnered with Johnson & Johnson to develop the single shot COVID-19 vaccine, has been awarded \$4.9 million in annual funding over the next five years to find a cure for HIV. Dr. Barouch and colleagues will focus on understanding the viral reservoir and on developing new immunologic strategies targeting the reservoir to control or eradicate HIV infection. [Read More](#)

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Local News
Unpacking the Body's Interferon Response to COVID-19

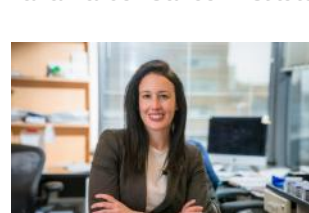
Boston Children's Hospital



Interferons are potent natural antivirals, rallying other parts of the immune system to defend against viruses. Some clinical trials have tested interferons as a treatment for COVID-19, but results have been mixed, and the science has been unclear about whether interferons are helpful or harmful. New research led by Dr. Ivan Zanon provides a more complete picture of interferons' role in mild versus severe COVID-19, informing future research and, potentially, treatment. [Read More](#)

How Chromatin Remodelers Find Their Way to DNA

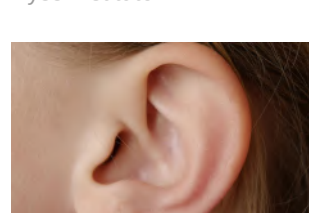
Dana-Farber Cancer Institute



Studies in the lab of Dr. Cigall Kadoch (*pictured*) are shedding new light on how molecular machines called BAF chromatin remodeling complexes "go where they need to go" within the DNA genome of cells, binding to specific locations to govern which genes turn on and off to orchestrate cell functions. The findings are the latest advance from the Kadoch lab in unraveling the workings of the chromatin regulatory system. [Read More](#)

Harvard's Eardrum-Restoring PhonoGraft Enters Commercial Development

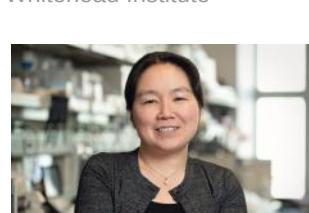
Wyss Institute



Advanced through a six-year effort in Harvard University's translational research environment, a biomimetic hearing-restoration technology invented by a multidisciplinary research team has taken an important step closer to patients. The PhonoGraft device is a 3D-printed, biocompatible graft that could be implanted to repair a damaged eardrum. [Read More](#)

So-Called "Junk" DNA Plays a Key Role in Speciation

Whitehead Institute



More than ten percent of our genome is made up of repetitive, seemingly nonsensical stretches of genetic material called satellite DNA that do not code for any proteins. Over a series of papers spanning several years, however, Whitehead Institute member Dr. Yukiko Yamashita (*pictured*) and colleagues have made the case that satellite DNA is not junk, but instead has an essential role in the cell. [Read More](#)

A Pivot from Accounting to Neuroscience

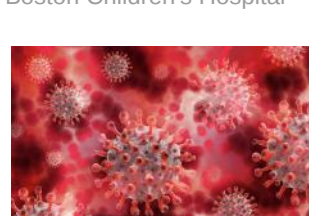
MIT News



Patricia Pujols grew up in the city of Ponce, Puerto Rico, fascinated by documentaries she had seen about human behavior and psychology. She wanted to learn the molecular roots of things like memory, love, hate, happiness, and anger. Despite her early curiosity, becoming a scientist and studying these phenomena didn't seem like a possibility. Through a summer research program at MIT, Patricia explored the neuromuscular junction, and a future in science. [Read More](#)

Why Do Some Children Get MIS-C after COVID-19? Some Early Clues

Boston Children's Hospital



Several months into the COVID-19 pandemic, a small number of children began to develop a cluster of mysterious symptoms. These included rashes, red eyes, gastrointestinal symptoms and, most worrisome, heart problems. Why does this serious illness, now known as multisystem inflammatory disorder in children (MIS-C), strike some previously healthy children? And who is most at risk? DNA sequencing is beginning to unravel the mystery. [Read More](#)

Sukanya Punthambaker on Multidisciplinary Collaboration

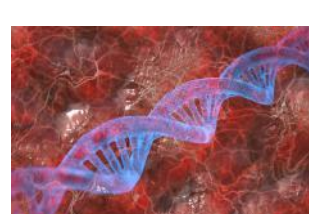
Wyss Institute



Dr. Sukanya Punthambaker (*pictured*) has always had diverse interests — as a child she mixed her artistic talents with her fascination with nature to win a drawing and painting contest. Later, she pursued a Ph.D. in molecular biology, while spending her free time on her hobbies: singing and dancing. Now, she's combining her multidisciplinary expertise and embracing the Wyss' spirit of collaboration to work with multiple groups on a range of projects from DNA nanotechnology to genetically engineered microbes for sustainability. [Read More](#)

Large Genetic Analysis Identifies Numerous Gene Variants Linked with Differences in Food Intake

Massachusetts General Hospital



A team of researchers at Massachusetts General Hospital, Boston University School of Public Health, and other institutions have identified more than two dozen genetic regions that may affect individuals' food intake. The discovery, which is described in *Nature Human Behaviour*, will point to new treatment strategies to curb the obesity epidemic. [Read More](#)

New Insights on Mechanism That Could Help Treat Muscle-Related Diseases

Massachusetts General Hospital



Investigators who previously developed a recipe for turning skin cells into primitive muscle-like cells that can be maintained indefinitely in the lab without losing the potential to become mature muscle have now uncovered how this recipe works and what molecular changes it triggers within cells. The research, which was led by Dr. Konrad Hochedlinger (*pictured*), could allow clinicians to generate patient-matched muscle cells to help treat muscle injuries or disease. [Read More](#)

The Hormone Irisin Is Found to Confer Benefits of Exercise on Cognitive Function

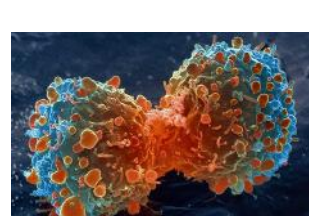
Massachusetts General Hospital



The novel hormone irisin has the ability to drive the cognitive benefits of exercise, and therefore holds great promise for treating cognitive decline in Alzheimer's disease, scientists at Massachusetts General Hospital have found. In a study led by Dr. Christiane Wrann (*pictured*), the team reported that irisin, secreted by the muscles during exercise, could be an effective therapeutic for addressing deficits of the brain that result from Alzheimer's disease. [Read More](#)

Pfizer to Acquire Trillium for \$2.3B, Boosting Cancer Pipeline

Genetic Engineering & Biotechnology News



Pfizer is acquiring Trillium Therapeutics for \$2.26 billion in a deal designed to bolster the buyer's oncology drug portfolio by adding Trillium's two lead molecules, both early clinical stage candidates designed to fight blood cancers by targeting CD47. CD47 is a protein that allows cancer cells to avoid destruction, thus allowing a patient's own innate immune system to engulf and eradicate those cancer cells—an effect nicknamed "don't eat me." [Read More](#)

Summer Research Opportunities at Harvard Offers Glimpse into Graduate School Experience

Harvard University Department of Molecular and Cellular Biology



Each year, Summer Research Opportunities at Harvard (SROH) programs place undergraduates from colleges across the country in Harvard labs as summer interns. SROH programs prioritize recruiting interns from backgrounds that are underrepresented in STEM and who attend small undergraduate institutions. This year's program took place remotely, but the overall goals remained the same: giving interns the opportunity to network, learn research techniques, and find out what being a molecular biology graduate student is like. [Read More](#)

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Upcoming Events in Boston

September 2
12:00 pm

Dana-Farber Targeted Protein Degradation Webinar Series: Dr. Stuart Schreiber
Online

September 9
12:00 pm

Topics in Bioengineering: Khluod Al Jamal, Kings College London
Online

September 10
12:30 pm

A Fair Shot: Vaccine Patent Protections and Global Access
Online

September 13
4:30 pm

The Next Normal: Global Health
Online

September 17
8:30 am

Engineering the Next Wave of Immunotherapy
Online

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Science Jobs in Boston
Sales Development Representative

STEMCELL Technologies

Scientific Sales Representative, Cell Culture Products

STEMCELL Technologies

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Harvard Medical School

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Pfizer

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