

Publications of the Week

Systemic and Mucosal Mobilization of Granulocyte Subsets during Lentiviral Infection

First Authors: Rhianna Jones (pictured, left) and Cordelia Manickam (right) | Senior Author: R. Keith Reeves (center) | Immunity | Beth Israel Deaconess Medical Center, Harvard Medical School, and the Ragon Institute



Granulocytes mediate broad immunoprotection through phagocytosis, extracellular traps, release of cytotoxic granules, antibody effector functions, and recruitment of other immune cells against pathogens. However, descriptions of granulocytes in HIV infection and mucosal tissues are limited. The authors characterized granulocyte subsets in systemic, mucosal, and lymphoid tissues during lentiviral infection using the rhesus macaque model. [Profile](#) | [Abstract](#)

Design Considerations for Macroencapsulation Devices for Stem Cell Derived Islets for the Treatment of Type 1 Diabetes

First Author: Debikanta Goswami | Senior Author: Ellen Roche (pictured) | Advanced Science | MIT



Stem cell derived insulin producing cells or islets have shown promise in reversing Type 1 Diabetes, yet successful transplantation currently necessitates long-term modulation with immunosuppressant drugs. An alternative approach to avoiding this immune response is to utilize an islet macroencapsulation device, where islets are incorporated into a selectively permeable membrane that can protect the transplanted cells from acute host response, whilst enabling delivery of insulin. [Abstract](#)

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Awards

Lourido Receives Research Award, Lodish Recognized for Online Teaching

Whitehead Institute



Whitehead Institute member Dr. Sebastian Lourido (pictured) has been named as one of the Burroughs Wellcome Fund's 2021 Investigators in the Pathogenesis of Infectious Disease. The very competitive award provides \$500,000 over five years to support higher-risk research projects that could significantly advance knowledge on infectious diseases. [Read More](#)

Dr. Rosas Named National Kidney Foundation's President-Elect; Also Receives Prestigious Distinguished Leader Award from American Society of Nephrology

Joslin Diabetes



Dr. Sylvia Rosas (pictured), a nephrologist and epidemiologist at the Joslin Diabetes Center, was named President-Elect of the National Kidney Foundation with a term to begin in October 2022. Dr. Rosas is also the Director of Joslin's Latino Kidney Clinic, and an Associate Professor of Medicine at Harvard Medical School. She was also recently selected as a recipient of the prestigious Distinguished Leader Award by the American Society of Nephrology. [Read More](#)

Laura Lewis Named a Pew Scholar

Boston University College of Engineering



Continuing a streak of honors for her ground-breaking research into the complex neural circuits that govern sleep, Assistant Professor Dr. Laura Lewis (pictured) has been selected one of 22 early-career researchers to join the Pew Scholars Program in the Biomedical Sciences. The Pew Charitable Trusts is a nongovernmental organization that promotes the power of knowledge in order to solve today's most challenging problems. [Read More](#)

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Local News

Red Meat Consumption May Promote DNA Damage-Associated Mutations in Patients with Colorectal Cancer

Dana-Farber Cancer Institute



Genetic mutations indicative of DNA damage were associated with high red meat consumption and increased cancer-related mortality in patients with colorectal cancer, according to a study led by Dana-Farber Cancer Institute researchers and published in *Cancer Discovery*, a journal of the American Association for Cancer Research. [Read More](#)

A 'Pump' Gene's Surprising Role in Early Brain Formation

Boston Children's Hospital



In polymicrogyria, the cortex of the brain has many irregular, small folds (gyria) and disorganization of its layers. Many affected children have severe developmental delay, intellectual disabilities, and epilepsy, and many need to use a wheelchair. Mutations in several different genes can cause this "overfolding of the brain" condition. [Read More](#)

Luba Perry on Engineering Vascularized Tissue

Wyss Institute



When Dr. Luba Perry (pictured) was first exposed to the field of tissue engineering at a job in industry, she was immediately hooked. Now, Luba is part of the 3D Organ Engineering Initiative where she works on fabricating vascularized tissues and testing their efficacy, with the hope of creating functional organs for people on the ever-increasing organ transplant list. [Read More](#)

How the Surfaces of Silicone Breast Implants Affect the Immune System

MIT News



Every year, about 400,000 people receive silicone breast implants in the United States. According to data from the US Food and Drug Administration, a majority of those implants needs to be replaced within ten years due to the buildup of scar tissue and other complications. A team led by Dr. Robert Langer (pictured) at MIT has now systematically analyzed how the varying surface architecture found in these implants influences the development of adverse effects. [Read More](#)

An Unexpected Discovery: Inflammatory Proteins May Slow Cognitive Decline in Aging Adults

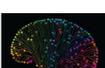
Massachusetts General Hospital



Research has previously linked inflammation to Alzheimer's disease, yet scientists from Massachusetts General Hospital and the Harvard Aging Brain Study have made a surprising discovery about that relationship. In a new study published in *Alzheimer's & Dementia: The Journal of the Alzheimer's Association*, lead author Dr. Hyun-Sik Yang (pictured) reports that elevated levels of two cytokines are associated with slower cognitive decline in aging adults. [Read More](#)

Course Correction on the Path to Liquid Brain Biopsies

Wyss Institute



A new collaborative study by Dr. David Walt's and Dr. George Church's teams at the Wyss Institute shows that a commonly targeted protein that researchers hoped would allow them to obtain liquid biopsies of neuronal tissue in the brain from patients' blood does not live up to the task. Their findings, published in *Nature Methods*, signal that alternative approaches need to be developed to move the field forward. [Read More](#)

Antibiotic Novobiocin Found to Kill Tumor Cells with DNA-Repair Glitch

Dana-Farber Cancer Institute



Research led by Dr. Alan D'Andrea (pictured) at the Dana-Farber Cancer Institute shows that an antibiotic developed in the 1950s, largely supplanted by newer drugs, effectively targets and kills cancer cells with a common genetic defect. The findings have spurred investigators to open a clinical trial of the drug, novobiocin, for patients whose tumors carry the abnormality. [Read More](#)

Meet a Whitehead Postdoc: Jessica Spinelli

Whitehead Institute



Dr. Jessica Spinelli (pictured) is a postdoc in Whitehead Institute Member Dr. David Sabatini's lab studying how mitochondria function in low oxygen environments. In diseases like cancer, with poor vascularization in the tumor microenvironment, oxygen levels can be lowered. The team is investigating how mitochondria adapt to limitations in oxygen availability. [Read More](#)

New Study Uncovers Details Behind the Body's Response to Stress

McLean Hospital



The biological mechanisms behind stress-related psychiatric conditions, including major depressive disorder and post-traumatic stress disorder, are poorly understood. New research now details the interplay between proteins involved in controlling the body's stress response and points to potential therapeutic targets when this response goes awry. [Read More](#)

Manpower and Manholes: Alm Lab Joins Fight against COVID-19

MIT Center for Microbiome Informatics & Therapeutics (CMIT)



The laboratory of CMIT Co-Director Dr. Eric Alm (pictured) has a long history of applying microbiome analytics to matters of both personal and public health decision making. When the COVID-19 pandemic was declared, both current and former members of the Alm lab jumped into action to help communities stay ahead of local case surges. [Read More](#)

Uncovering the Mysteries of Milk

MIT News



Sarah Nyquist (pictured) got her first introduction to biology during high school, when she took an online MIT course taught by genomics pioneer Dr. Eric Lander. Initially unsure what to expect, she quickly discovered biology to be her favorite subject. She began experimenting with anything she could find, beginning with an old PCR machine and some dining hall vegetables. [Read More](#)

Researchers Identify Gene Responsible for Increased Risk of Infantile Fragility

Boston University School of Medicine



An intrauterine fracture is a rare finding during routine prenatal imaging. This condition can be due to maternal trauma, genetic disorders of the skeleton, as well as other predisposing maternal metabolic and vascular disorders. Genetic disorders that have previously been reported to cause intrauterine fracture include brittle bone disease, osteopetrosis, hypophosphatasia, and Ehlers-Danlos syndrome. [Read More](#)

Alzheimer's and Brain Awareness Month 2021: Spotlighting Mass General Alzheimer's Researchers

Mass General Research Institute



Researchers across the globe are using innovative methods to investigate Alzheimer's disease (AD) and how it can be treated and prevented. For Alzheimer's and Brain Awareness Month, the Mass General Research Institute reached out to several AD investigators to learn more about their unique approaches to tackling Alzheimer's — from regenerating healthy brain cells, to AD in adults with Down syndrome and new insights in neuroimaging and genetic engineering. [Read More](#)

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Interesting Articles

'Speed and Scale.' One Year into the Job, NSF's Director Prepares for Massive Budget Growth

Science Magazine



Dr. Sethuraman Panchanathan (pictured) has a lot to celebrate this week as he marks his first anniversary as Director of the US National Science Foundation (NSF). President Joe Biden has asked Congress to boost its current \$8.5 billion budget by 20% in 2022, and a bipartisan majority in both the Senate and the House of Representatives has embraced the idea of making NSF the lead agency in a massive increase in federal research spending aimed at helping the United States outinnovate the rest of the world. [Read More](#)

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Upcoming Events in Boston

June 29 - July 1 8:00 AM	Transitioning into a Career in Clinical Research Online
July 7 8:00 AM	Introduction to Imaging for Researchers: Mechanisms & Methods Online
July 12 12:00 PM	Developing New Cancer Therapies: Patients as Partners Online
July 22 1:00 PM	Grant Writing Workshop Series Online
July 28 11:00 AM	Literature Review Workshop Online

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