

Publications of the Week

T Lymphocytes and Cytotoxic Astrocyte Blebs Correlate Across Autism Brains

First Author: Marcello DiStasio | Senior Author: Matthew Anderson *(pictured)*
Annals of Neurology | Beth Israel Deaconess Medical Center



Autism spectrum disorder (ASD) affects 1 in 59 children, yet except for rare genetic causes, the etiology in most ASD remains unknown. In the ASD brain, inflammatory cytokine and transcript profiling shows increased expression of genes encoding mediators of the innate immune response. The authors evaluated postmortem brain tissue for adaptive immune cells and immune cell-mediated cytotoxic damage that could drive this innate immune response in the ASD brain. [Abstract](#)

Retro-2 Protects Cells from Ricin Toxicity by Inhibiting ASNA1-Mediated ER Targeting and Insertion of Tail-Anchored Proteins

First Author: David Morgens | Senior Author: Vladimir Denic *(pictured)*
eLife | Harvard University



The small molecule Retro-2 prevents ricin toxicity through a poorly-defined mechanism of action (MOA), which involves halting retrograde vesicle transport to the endoplasmic reticulum (ER). The authors' work explains how Retro-2 prevents retrograde trafficking of toxins by inhibiting TA-protein targeting, describes a general CRISPR strategy for predicting the MOA of small molecules, and paves the way for drugging the TRC pathway to treat broad classes of viruses known to be inhibited by Retro-2. [Abstract](#)

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Awards

Dana-Farber Researcher Awarded 2019 Paul Marks Prize for Cancer Research

Dana-Farber Cancer Institute



Dr. Nathanael Gray *(pictured)*, the Nancy-Lurie Marks Professor of Biological Chemistry and Molecular Pharmacology at Dana-Farber Cancer Institute and Harvard Medical School, is one of three researchers awarded the 2019 Paul Marks Prize for Cancer Research by Memorial Sloan Kettering Cancer Center. The award recognizes promising scientists for their accomplishments in the area of cancer research. All recipients must be age 45 or younger at the time of their nomination. [Read More](#)

John Haran Works to Understand How Microbiome Impacts Development of Alzheimer's Disease

UMass Medical School



Dr. John P. Haran *(pictured)*, Associate Professor of Emergency Medicine and Microbiology & Physiological Systems and Clinical Director of the Center for Microbiome Research, has been awarded a 2019 Alzheimer's Association research grant to support research into how the intestinal microbiome differs in Alzheimer's patients and whether imbalances associate with memory decline. Dr. Haran will receive approximately \$150,000 over three years. [Read More](#)

Dan Alford Receives Prestigious John P. McGovern Award

BU School of Medicine



Dr. Daniel P. Alford *(pictured)*, Professor of Medicine and Associate Dean of Continuing Medical Education at Boston University School of Medicine, received the John P. McGovern Award for Excellence in Medical Education at the annual conference of the Association for Multidisciplinary Education and Research in Substance Use and Addiction (AMERSA). The McGovern Award is AMERSA's highest honor. [Read More](#)

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Local News

Pacemakers Can Improve Heart Function in Patients with Chemotherapy-Induced Heart Disease

MGH News



With the advent of new therapies, cancer patients are surviving longer than ever before — but the incidence of side-effect chemotherapy-induced cardiomyopathy (CHIC), or weakness of the heart muscle, is increasing. Research published in JAMA has shown that treating CHIC with commercially available cardiac resynchronization therapy delivered through a surgically implanted defibrillator or pacemaker can significantly improve patient outcomes. [Read More](#)

A Better Candidate for Chemo Delivery

Harvard Gazette



Chemotherapy has been the backbone of cancer treatment for decades, but it is notorious for its toxicity to healthy cells, severe side effects, and poor targeting of the intended tumors. Now, a new technique called ELeCt (erythrocyte-leveraged chemotherapy) aims to resolve those problems by using a Trojan horse, smuggling drug-loaded nanoparticles into cancerous lung tissue by mounting them onto the body's own erythrocytes, commonly called red blood cells. [Read More](#)

Curbing Inflammation Could Reduce Heart Disease Risk Linked to Blood Disorder

Broad Institute



More than 1 in 10 adults over the age of 70 have a blood disorder called clonal hematopoiesis of indeterminate potential, or CHIP, in which some blood stem cells become too abundant because of acquired cancer-predisposing mutations. Researchers have found that a common variant in the gene for an inflammatory molecule reduces that risk, suggesting that therapeutically blocking inflammation could help prevent cardiovascular disease in some patients with CHIP. [Read More](#)

7T MRI Offers New Insights into Multiple Sclerosis

BWH News



Investigators from Brigham and Women's Hospital, led by Dr. Jonathan Zurawski *(pictured)*, have completed a new study using 7 Tesla (7T) MRI — a far more powerful imaging technology — to further examine LME in MS patients. With this new powerful tool, they have found that this proposed marker of brain inflammation in MS patients is more common than previously reported and is tied to lesions in the gray matter regions of the brain. [Read More](#)

SMART Discovers Nondisruptive Way to Characterize the Surface of Nanoparticles

MIT News



Researchers from the Singapore-MIT Alliance for Research and Technology (SMART) have made a discovery that allows scientists to "look" at the surface density of dispersed nanoparticles. This technique enables researchers to understand the properties of nanoparticles without disturbing them, at a much lower cost and far more quickly than with existing methods. [Read More](#)

George Church-Founded Startup Raises \$100M toward Transplantable Pig Organs

Boston Business Journal



EGenesis is using the gene editing technology CRISPR/Cas9 to create a strain of pigs whose kidneys can be used in people. The pigs are designed to be free of viruses that could be harmful to humans and genes associated with higher rates of organ transplant rejection. The 30-person Cambridge company was co-founded by noted Harvard researcher George Church in 2015, and raised its \$38 million Series A round two years later. [Read More](#)

Liver-Chip Identifies Distinct Drug Toxicities in Human, Rat, and Dog Models

Wyss Institute



Among the numerous microengineered Organ-on-a-Chip (Organ Chip) models developed at Harvard's Wyss Institute, the Liver Chip is of special interest to a number of industries because the real-time analysis of complex biochemical interactions could greatly enhance the liver toxicity testing that is ubiquitous in the development of drugs, foods, and other consumer products. [Read More](#)

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Interesting Articles

Why NIH Is Beefing up Its Data Sharing Rules After 16 Years

Science Magazine



The U.S. National Institutes of Health (NIH) has released a draft policy that will require all investigators with NIH funding to make their data sets available to colleagues. For the first time, grantees holding any NIH-funded grant—not just those above a \$500,000 threshold in direct costs—will need to submit a detailed plan for sharing data, including steps to protect the privacy of research subjects. [Read More](#)

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Upcoming Events in Boston

- November 19 11:45 AM **Lunch & Learn with an Expert: New Paths Towards Tissue Regeneration: B Cell Immunotherapy**
STEMCELL Technologies
- November 20 3:30 PM **Commercializing Innovation: Harvard Resources for Scientist-Entrepreneurs**
Harvard Office of Technology Development
- November 20 3:00 PM **Intersectionality Conference**
Biogen
- November 21 4:00 PM **The Barry L. Karger Medal Lectures and Award**
Northeastern University
- December 4 5:00 PM **Life after PhD: A Panel and Networking Night for Life Science PhDs**
STEMCELL Tech

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- Research Scientist**
Harvard Medical School
- Associate Director, Scientific Communications**
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