

**Publications of the Week**
**Human iPSC-Derived Microglia Assume a Primary Microglia-Like State after Transplantation into the Neonatal Mouse Brain**

 First Author: Devon Svoboda | Senior Author: Rudolf Jaenisch *(pictured)*  
 PNAS | The Whitehead Institute for Biomedical Research and Massachusetts Institute of Technology


Microglia, the resident immune cells of the brain, are known to be crucial for normal brain function as well as contributing to neurodegenerative disease. The authors developed a model in which they transplant immature microglial cells derived from human stem cells into the brains of neonatal mice. By growing microglia in the environment of the mouse brain, the stem cell-derived microglial cells acquire key aspects of microglial morphology and gene expression. [Abstract](#)

**Oral Ionic Liquid for the Treatment of Diet-Induced Obesity**

 First Author: Md Nurunnabi | Senior Author: Samir Mitragotri *(pictured)*  
 PNAS | The Wyss Institute of Biologically Inspired Engineering and Harvard University


Obesity is considered a strong factor in many chronic diseases, including heart disease, diabetes, and cancer. Along with genetics, consumption of excessive fat and cholesterol-rich food are the primary causes of obesity. The authors have developed an ionic liquid that interacts with fat to form micrometer-sized particles. The ionic liquid prevents the fat from penetrating through the intestinal membrane. [Abstract](#)

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**Awards**
**Five Mass General Clinical Departments Awarded 2019 ECOCH Grants**

Mass General News



The Executive Committee on Community Health (ECOCH) offers annual grants to catalyze community health initiatives in clinical departments across Mass General. Since 2016, ECOCH has awarded \$592,516 in 17 grantees who have proposed creative, innovative ways of incorporating community health and health equity into their work. ECOCH has announced five grant awards for 2019 including the MGH Revere Chronic Pain Patient Safety and Quality Project by Dr. Sidney Jimenez *(pictured)*. [Read More](#)

**Wyss Institute Is Proud to Have 11 Highly Cited Researchers in 2019**

The Wyss Institute



Web of Science Group has announced its Highly Cited Researchers 2019 list, which identifies scientists whose papers rank in the top 1% of citations in a given field and year in Web of Science's online citation index, demonstrating significant research influence among their peers and comprising just 0.1% of researchers worldwide. 11 members of the Wyss Institute at Harvard University, including Dr. James Collins *(pictured)*, are included on the 2019 list, an increase from eight in 2018. [Read More](#)

**Five MIT students named 2020 Rhodes Scholars**

MIT News



Ali Daher *(pictured)*, Claire Halloran, Francisca Vasconcelos, Billy Andersen Woltz, and Megan Yamoah have been selected for the 2020 cohort of the prestigious Rhodes Scholarship program. They will begin fully funded postgraduate studies at Oxford University in the U.K. next fall. Each year, Rhodes awards 32 scholarships to U.S. citizens plus additional scholarships reserved for non-U.S. citizens. [Read More](#)

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**Local News**
**Restoring Vision**

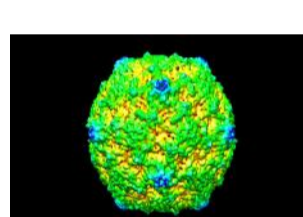
Harvard Stem Cell Institute



As the eye's outer layer of protection, the cornea needs to constantly regenerate to maintain a clear surface. Losing the cornea-regenerating stem cells leads to cloudiness — like trying to see through a perpetually dirty window. Now, Harvard Stem Cell Institute researchers have developed a therapy to replace cornea-generating stem cells and restore vision, and tested it in a patient for the first time. [Read More](#)

**Investigators Narrow in on a MicroRNA for Treating Multiple Sclerosis**

Brigham and Women's News



It turns out the gut is full of surprises. And one of those surprises may have offered up a key for unlocking a new way of treating multiple sclerosis (MS). Investigators from Brigham and Women's Hospital have discovered a microRNA — a small RNA molecule — that increases during peak disease in a mouse model of MS and in untreated MS patients. [Read More](#)

**New Diagnostic Approach Rapidly Identifies the Right Antibiotics**

The Broad Institute



Patients with bacterial infections who are promptly diagnosed and treated with the most effective antibiotic fare better than those who wait. A new diagnostic approach developed by scientists at the Broad Institute of MIT and Harvard and Massachusetts General Hospital could help tackle this problem, by allowing physicians to accurately find the best antibiotic within hours rather than days. This rapid test could potentially be applied to any bacterial infection and antibiotic. [Read More](#)

**Using AI to Find a Less-Invasive Alternative to Liver Biopsy**

Beth Israel Deaconess Medical Center News



Endocrinologists at Beth Israel Deaconess Medical Center have developed a non-invasive test that can help doctors keep tabs on patients' liver health. By measuring combinations of fats, hormones, carbohydrate and sugar molecules present in patients' blood serum, the team of scientists used machine learning to develop models that can differentiate various stages of liver disease with near-perfect accuracy. [Read More](#)

**Dana-Farber Joins with Leading Boston Teaching Hospitals and Universities in Announcing New Center for Advanced Biological Innovation and Manufacturing**

Dana-Farber Cancer Institute



Some patients who have not responded to traditional medicines are now experiencing remarkable recoveries thanks to next-generation immunotherapies. These therapies equip a patient's own immune cells to recognize, target, and destroy cancer cells. But it is a complex procedure currently available to only a small number of people. To address these challenges, a group of Massachusetts academic, healthcare, biotech, and biopharma industry leaders have come together to establish a new center. [Read More](#)

**How the Immune System Puts the Brakes on Allergic Inflammation**

The Broad Institute



When the body mistakenly reacts to an environmental stimulus, the allergic response usually includes some type of inflammation. Two recent studies led by Dr. Raminik Xavier *(pictured)* at the Broad Institute of MIT and Harvard, Massachusetts General Hospital, and Brigham and Women's Hospital have uncovered a new type of molecular crosstalk between these systems, in both the lung and the intestine in mice, in a cellular circuit that suppresses inflammation. [Read More](#)

**Committed to Reproduction**

The Whitehead Institute



While the majority of the embryo's cells go on to construct the growing body, the cells that are set aside, called primordial germ cells (PGCs), will eventually produce sperm and eggs, which will in turn produce a new body and so the circle of life continues. New research from Whitehead Institute Director Dr. David Page *(pictured)* suggests that the primordial germ cells' fate remains flexible for a long period: until much closer to the end of embryonic development. [Read More](#)

**Bacteria Help Make Low-Calorie Sugar**

TuftsNow



Imagine a sugar that has only 38 percent of the calories of traditional table sugar, is safe for diabetics, and will not cause cavities. This sugar is called tagatose. The FDA has approved it as a food additive, and there have been no reports to date of the problems that many sugar substitutes have. Using bacteria as tiny bioreactors, scientists at Tufts University have devised a way to produce this low-calorie sugar. [Read More](#)

**Predicting Vulnerability to Alzheimer's Disease and Delirium**

BIDMC News



Marked by acute temporary confusion, disorientation and/or agitation, postoperative delirium is the most common post-surgical complication in older adults, striking as many as half of adults older than 65 who undergo high-risk procedures such as cardiac surgery or hip replacements. Researchers at Beth Israel Deaconess Medical Center (BIDMC) shed new light on a genetic risk factor for Alzheimer's disease that may indirectly influence patients' risk of postoperative delirium. [Read More](#)

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**Upcoming Events in Boston**

- December 4 5:00 PM **Life after PhD: A Panel and Networking Night for Life Science PhDs**  
STEMCELL Technologies
- December 8 8:00 AM **Jingle Bell Run**  
The Arthritis Foundation
- December 10 10:00 AM **Engaging with Pharma Partners**  
University of Massachusetts
- December 11 8:00 AM **Developing Innovative Leaders in Biotech**  
Harvard University
- December 11 5:30 PM **Women in Bio: 2019 Annual Wine & Chocolate Holiday Party**  
Women in Bio

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