Volume 2.17: May 11, 2020

Publications of the Week

Disease-Associated Astrocytes in Alzheimer's Disease and Aging

First Author: Naomi Habib | Senior Author: Michal Schwartz *(pictured)*
Nature Neuroscience | The Broad Institute

The role of non-neuronal cells in Alzheimer's disease progression has not been fully elucidated. Using single-nucleus RNA sequencing, the authors have identified a population of disease-associated astrocytes in an Alzheimer's disease mouse model. These disease-associated astrocytes appeared at early disease stages, and increased in abundance with disease progression. **Abstract**

Factors Promoting Nuclear Envelope Assembly Independent of the Canonical ESCRT Pathway

First Author: Ji-Su Lee | Senior Author: David Pellman *(pictured)*
Journal of Cell Biology | Dana-Farber and Harvard Medical School

The nuclear envelope (NE) undergoes dynamic remodeling to maintain NE integrity, a process involving the inner nuclear membrane protein LEM2 recruiting CHMP7/Cmp7 and then ESCRT-III. However, prior work has hinted at CHMP7/ESCRT-independent mechanisms. To identify such mechanisms, the authors studied NE assembly in *Schizosaccharomyces japonicus*, a fission yeast that undergoes partial mitotic NE breakdown and reassembly. **Abstract**

View All Publications

Local News

Sherlock Biosciences Receives FDA Emergency Use Authorization for CRISPR SARS-CoV-2 Rapid Diagnostic

Sherlock Biosciences

Sherlock Biosciences, an engineering biology company dedicated to making diagnostic testing better, faster and more affordable, has received Emergency Use Authorization from the FDA for its Sherlock™ CRISPR SARS-CoV-2 kit for the detection of the virus that causes COVID-19, providing results in approximately one hour. **Read More**

Study Finds 'Volume Dial' for Turning Neural Communication Up or Down

The Picower Institute

Neuroscientists at MIT's Picower Institute for Learning and Memory, led by Dr. Troy Littleton *(pictured)*, have found that a protein acts like a volume dial for the release of neurotransmitters, the chemicals that neurons release across connections called synapses to stimulate muscles or communicate with other neurons in brain circuits. The findings help explain how synapses work and could better inform understanding of some neurological disorders. **Read More**

CRISPR-Based Diagnostic Chips Perform Thousands of Tests Simultaneously to Detect Viruses

MIT News

Researchers at MIT have developed a new technology that flexibly scales up CRISPR-based molecular diagnostics, using microfluidics chips that can run thousands of tests simultaneously. A single chip's capacity ranges from detecting a single type of virus in more than 1,000 samples at a time to searching a small number of samples for more than 160 different viruses, including the COVID-19 virus. **Read More**

Optogenetics with SOUL

McGovern Institute

Activating neurons deep within a given brain, especially a large primate brain but even a small mouse brain, is challenging and currently requires implanting fibers that could cause damage or inflammation. Investigators at the McGovern Institute have overcome this challenge, developing optogenetic tools that allow non-invasive stimulation of neurons in the deep brain. **Read More**

Harvard's Wyss Institute Joins Forces with Cytosurge to Improve CRISPR-Based Multiplexed Gene Editing

Wyss Institute

The Wyss Institute and Cytosurge AG, a company manufacturing unique high-precision nanotechnology instruments, will collaboratively investigate CRISPR-based approaches to more effectively introduce multiple edits into the genome of single cells, while minimizing CRISPR-related toxicity. This capability could become instrumental for the engineering of cell lines, developing transplantable immune-compatible pig organs, and the resurrection of extinct species. **Read More**

Boston Children's Hospital to Lead Nationwide Study on COVID-19 in Children

Boston Children's Hospital

Why are children largely spared from COVID-19, and why do a tiny handful become extremely sick? To find out, Boston Children's Hospital has launched a national study to perform real-time surveillance at more than 35 U.S. children's hospitals. The study will capture real-time data on 800 children and youth hospitalized with COVID-19, in search of factors that increase vulnerability to the novel coronavirus — but also what protects the vast majority of kids. **Read More**

Research Suggests New Therapeutic Target for Kidney Diseases

BU School of Medicine

Researchers led by Dr. Weining Lu *(pictured)* at the Boston University School of Medicine have found that a signaling pathway called ROBO2 is a therapeutic target for kidney diseases, specifically kidney podocyte injury and glomerular diseases. This is the first time that the ROBO2 pathway has been linked to glomerular diseases such as membranous nephropathy (affecting the filters) and focal segmental glomerulosclerosis (scarring in the kidney). **Read More**

Sherlock-Based One-Step Test Provides Rapid and Sensitive COVID-19 Detection

Broad Institute

A team of researchers at the McGovern Institute, the Broad Institute, the Ragon Institute, and the Howard Hughes Medical Institute has developed a new diagnostics platform called STOP (SHERLOCK Testing in One Pot) COVID. The test can be run in an hour as a single-step reaction with minimal handling, advancing the CRISPR-based SHERLOCK diagnostic technology closer to a point-of-care or at-home testing tool. **Read More**

Different Kinds of White Fat Are Important in Disease

Joslin Diabetes Center

Excess white fat causes obesity, which in turn can drive diabetes and many other metabolic diseases that are growing at epidemic rates around the world. But all white fat is not born equal. Researchers from Joslin Diabetes Center and Boston University have discovered different types of white fat cells, even within a single site, that may play distinct roles in disease. **Read More**

Massachusetts Eye and Ear and Massachusetts General Hospital Advancing Novel Experimental Gene-Based COVID-19 Vaccine, AAVCOVID

Massachusetts General Hospital

Massachusetts General Hospital has announced progress towards the testing and development of an experimental vaccine called AAVCOVID, a novel gene-based vaccine candidate against SARS-CoV2, the virus that causes COVID-19. The AAVCOVID vaccine program was developed in the laboratory of Dr. Luk Vandenberghe *(pictured)* from Massachusetts Eye and Ear and Harvard Medical School. **Read More**

HIV Genome Bends Over Backwards to Help Virus Take Over Cells

Whitehead Institute

Despite the HIV-1 virus' small pool of genes, it is able to use a method called alternative splicing to produce many various proteins with different purposes. Researchers at the Whitehead Institute have found that RNA sequences in the virus — even those with the exact same sequence of nucleotides — curl and twist in different ways, leading to differences in how they are chopped up later to create transcripts for proteins. **Read More**

Preliminary Results of Remdesivir Trial Are Promising, But More Research Is Needed

Massachusetts General Hospital

For the first time, a double-blind, placebo controlled clinical trial testing a new therapy for COVID-19, the antiviral drug remdesivir, has produced positive results. Preliminary data from the study, led by Dr. Elizabeth Hohmann *(pictured)* from Massachusetts General Hospital, has indicated that patients with advanced COVID-19 symptoms who received remdesivir recovered 31% faster than similar patients who received a placebo. **Read More**

View All Local News | **Submit an Article**

Interesting Articles

COVID-19 Testing Gets Boost from NIH Funding Initiative

Genetic Engineering & Biotechnology News

The National Institutes of Health (NIH) is hoping to push COVID-19 testing to the next level by funding research groups who are innovating new testing technologies. With a $1.5 billion investment from federal stimulus funding, the newly launched Rapid Acceleration of Diagnostics initiative will infuse funding into early innovative technologies to speed development of rapid and widely accessible COVID-19 testing. **Read More**

View All Interesting Articles | **Submit an Article**

Upcoming Events in Boston

May 13 11:00 AM	**2020 Virtual Grant Writing Series** Online	
May 13 3:00 PM	**Return to Workplace – Insights from Life Science CEO's across the US** Online	
May 14 4:00 PM	**Dean's Seminar: Coronavirus Seminar Series** Online	
May 19 11:00 AM	**The Socially Distant Centromere** Online	
May 20 3:00 PM	**Tissue Talk with Christopher Chen** Online	

View All Events | **Submit an Event**

Science Jobs in Boston

Principal Scientist, Respiratory Delivery
Moderna

Principal Scientist I, Immuno-Oncology
Novartis

Senior/Project Scientist, Microbial Formulations
Joyn Bio

Senior Associate Scientist II, Vector Characterization
Bluebird Bio

Research Associate I, Neurobiology
Broad Institute

View 120 Other Science Jobs | **Submit a Job**

Submit your articles and events by reaching out to us at info@scienceinboston.com.