SCIENCE in BOSTON

Events Jobs Subscribe Contact Us

Volume 5.05: February 6, 2023

Publications of the Week

In Vivo Dissection of Chamber-Selective Enhancers Reveals Estrogen-Related Receptor as a Regulator of Ventricular Cardiomyocyte Identity

First Authors: Yangpo Cao, Xiaoran Zhang, and Brynn Akerberg | Senior Author: William Pu *(pictured)*
Circulation | Boston Children's Hospital

Cardiac chamber-selective transcriptional programs underpin the structural and functional differences between atrial and ventricular cardiomyocytes. The mechanisms responsible for these chamber-selective transcriptional programs remain largely undefined. The authors nominated candidate chamber-selective enhancers by determining the genome-wide occupancy of seven key cardiac transcription factors and transcriptional coactivator P300 in atria and ventricles. **Abstract**

CRISPR Screens Reveal Genetic Determinants of PARP Inhibitor Sensitivity and Resistance in Prostate Cancer

First Authors: Takuya Tsujino, Tomoaki Takai, and Kunihiko Hinohara | Senior Author: Li Jia *(pictured)*
Nature Communications | Brigham and Women's Hospital, Harvard Medical School, Massachusetts General Hospital, and Dana-Farber Cancer Institute

Prostate cancer harboring *BRCA1/2* mutations are often exceptionally sensitive to PARP inhibitors. However, genomic alterations in other DNA damage response genes have not been consistently predictive of clinical response to PARP inhibition. The authors perform genome-wide CRISPR-Cas9 knockout screens in BRCA1/2-proficient prostate cancer cells and identify previously unknown genes whose loss has a profound impact on PARP inhibitor response. **Abstract**

View All Publications

Awards

PhD Candidate Awarded NIH Kirschstein Award for Research on Rett Syndrome

UMass Chan Medical School

David Keener *(pictured)*, a PhD candidate in the Morningside Graduate School of Biomedical Sciences Interdisciplinary Graduate Program, has received a Ruth L. Kirschstein National Research Service Award Individual Predoctoral Fellowship from the National Institute for Neurological Diseases and Stroke. The grant will help fund Keener's project on Rett syndrome, a genetic neurodevelopmental disease generally diagnosed in girls 6 to 18 months old that eventually robs patients of their ability to speak, walk, or use their hands. **Read More**

View All Awards

Local News

Why Lung Cancer Doesn't Respond Well to Immunotherapy

MIT News

Immunotherapy — drug treatment that stimulates the immune system to attack tumors — works well against some types of cancer, but it has shown mixed success against lung cancer. A new study from Dr. Stefani Spranger's *(pictured)* group at MIT helps to shed light on why the immune system mounts such a lackluster response to lung cancer, even after treatment with immunotherapy drugs. **Read More**

Researchers Map Brain Cell Changes in Alzheimer's Disease

Broad Institute

A common sign of Alzheimer's disease is the excessive buildup of two types of protein in the brain: tangles of tau proteins that accumulate inside cells, and amyloid-β proteins that form plaques outside the cells. Researchers don't know how these protein deposits are related to the other major hallmark of the disease: the death of neurons in the brain. A study by Dr. Xiao Wang's *(pictured)* group at the Broad Institute hints at some answers to this question. **Read More**

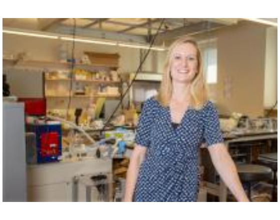
New Instrument Lets MIT Researchers Combine Previously Disparate Microscopy Techniques

MIT Biology

Inside cells, events can unfold quickly. Sub-cellular compartments constantly re-arrange while proteins move along structural fibers and membranes fuse and divide. By attaching fluorescent tags to sub-cellular structures, researchers can watch events unfold in real time using light microscopes. But to see the finest details of these processes, scientists need to shift from using light microscopy to using beams of electrons to generate even higher resolution images using a technique called electron microscopy. **Read More**

How to Make Hydrogels More Injectable

MIT News



Gel-like materials that can be injected into the body hold great potential to heal injured tissues or manufacture entirely new tissues. To help guide in the development of such materials, which are made from microscale building blocks akin to squishy LEGOs, MIT and Harvard University researchers in Dr. Ellen Roche's *(pictured)* group have created a set of computational models to predict the material's structure, mechanical properties, and functional performance outcomes. **Read More**

Postdoc Spotlight: Adnan Syed

Harvard University Department of Molecular and Cellular Biology

Postdoctoral fellow Dr. Adnan Syed *(pictured)* of the Losick lab is community-oriented in his approach to academic life, as well as in his research on bacterial biofilms. He is a founding member of the Harvard Faculty of Arts and Sciences Postdoctoral Association and became one of the first postdocs to co-lead the Harvard Microbial Sciences Initiative in 2018. **Read More**

Study Links Key Activating Enzymes to Specific Sites on Proteins in Cells

Dana-Farber Cancer Institute

Thousands of proteins in a human cell are regulated by phosphorylation — the addition of small chemical groups to the proteins' amino acids by enzymes called protein kinases. This process is known as phosphorylation. Abnormal protein phosphorylation has been implicated in a number of diseases, notably cancer and degenerative diseases like Parkinson's and Alzheimer's. **Read More**

Single-Cell Analysis of Crohn's Disease Reveals a Detailed Picture of Inflammation in the Gut

Broad Institute

Researchers in Dr. Ramnik Xavier's *(pictured)* group at the Broad Institute have constructed a high-resolution cellular map of Crohn's disease, a chronic condition in which a hyperactive immune system causes inflammation throughout the gut, leading to symptoms including abdominal pain, diarrhea, and weight loss. The disease is difficult to treat and often requires hospitalization. **Read More**

A Signature Brain Wave That Signals Windows of Brain Plasticity

Harvard University Department of Molecular and Cellular Biology (MCB)

Researchers from the Hensch lab — led by MCB faculty Dr. Takao Hensch *(pictured)*, Curriculum and Pedagogy Manager Dr. Kathleen Quast, and then graduate student Dr. Rebecca Reh — have identified biomarkers that herald neuronal plasticity in the cerebral cortex. Their results appeared in a recent issue of the journal *PNAS*. **Read More**

UMass Chan Researchers Achieve Gene Therapy Milestone for Potential Cockayne Syndrome Treatment

UMass Chan Medical School

Researchers working with UMass Chan Medical School have announced progress in developing a vector to deliver gene replacement therapy in mice models with Cockayne syndrome, a rare and fatal neurodegenerative disease that largely affects children and young adults. Dr. Ana Rita Batista *(pictured, left)* is leading the research, along with Dr. Miguel Sena-Esteves *(right)*. **Read More**

Targeting Cancer with a Multidrug Nanoparticle

MIT News

Treating cancer with combinations of drugs can be more effective than using a single drug. However, figuring out the optimal combination of drugs, and making sure that all of the drugs reach the right place, can be challenging. To help address those challenges, MIT chemists in Dr. Jeremiah Johnson's *(pictured)* lab have designed a bottlebrush-shaped nanoparticle that can be loaded with multiple drugs, in ratios that can be easily controlled. **Read More**

View All Articles | **Submit an Article**

Upcoming Events in Boston

February 15 5:00 PM	**Biomedical Informatics Entrepreneurs Salon: Daniel Day, Meta** Online
February 22 12:00 PM	**Stem Cells in Space** Online
February 28 10:00 AM	**2023 Rare Disease Day** Massachusetts State House
March 8 12:00 PM	**Clarifying the Mysteries of Choosing Statistical and Machine-Learning Methods in Genomics Research** Online
March 14 4:00 PM	**Soma Weiss Student Research Day** TMEC Atrium

View All Events | **Submit an Event**

Science Jobs in Boston

Postdoctoral Fellow, HSC Age Reversal
Wyss Institute

Director, Biostatistics
Spero Therapeutics

Scientist, Drug Product Development
Alnylam

Senior Director, Clinical Development - Immunology
Nimbus Therapeutics

RNA Accelerator Postdoctoral Fellow, RNA Delivery
Pfizer

View 47 Other Science Jobs | **Submit a Job**

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

BROUGHT TO YOU BY
STEMCELL TECHNOLOGIES

STEMCELL Technologies	**STEMCELL Science News**	**The Stem Cell Podcast**
Products | Services	Free Weekly Updates on Your Field	Interviews and Updates on Stem Cell Science