

Publications of the Week

Inducible Histone K-to-M Mutations Are Dynamic Tools to Probe the Physiological Role of Site-Specific Histone Methylation *In Vitro* and *In Vivo*

First Author: Justin Brumbaugh | Senior Author: Konrad Hochedinger (pictured)
Nature Cell Biology | Massachusetts General Hospital, Harvard University and the Broad Institute



Development and differentiation are associated with profound changes to histone modifications, yet their *in vivo* function remains incompletely understood. The authors generated mouse models expressing inducible histone H3 lysine-to-methionine (K-to-M) mutants, which globally inhibits methylation at specific sites. Their work also shows that individual chromatin modifications are required at several specific stages of differentiation. [Abstract](#)

A Generalized HIV Vaccine Design Strategy for Priming of Broadly Neutralizing Antibody Responses

First Author: Jon Steichen | Senior Author: William Schief (pictured)
Science | The Ragon Institute



Vaccine induction of broadly neutralizing antibodies (bnAbs) to human immunodeficiency virus (HIV) remains a major challenge. Germ-line-targeting immunogens hold promise for initiating the induction of certain bnAb classes; yet for most bnAbs, a strong dependence on antibody heavy chain complementarity determining region 3 (HCDR3) is a major barrier. The authors identified a diverse set of potential antibody precursors for a bnAb with dominant HCDR3 contacts. [Abstract](#)

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Awards

Joshua Sanes Receives Cowan Award for Research on Neural Development

Harvard MCB



Harvard University's Department of Molecular and Cellular Biology faculty Dr. Joshua Sanes (pictured) is the 2019 recipient of the W. Maxwell Cowan Award for achievement in the study of neural development. The biennial award was established in 2004 by the Cajal Club, which is one of the oldest neuroscience societies in the United States, and the journal publisher Wiley-Blackwell. [Read More](#)

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Local News

Sigilon Therapeutics to Present Preclinical Data Showing Six Months Durability for Cell Therapies in Rare Blood Disorders

Sigilon Therapeutics



Sigilon Therapeutics has announced that it will present data at the American Society of Hematology Annual Meeting demonstrating that its novel Shielded Living Therapeutics platform for rare bleeding disorders remains viable in animal models for at least six months. The data also demonstrates dose-responsive *in vivo* expression of human coagulation factor VIII (hFVIII) and correction of the bleeding phenotype in immunocompetent hemophilia A mice. [Read More](#)

Boosting Host Immune Defenses to Treat Tuberculosis

Boston Children's Hospital



Current treatment regimens for *Mycobacterium tuberculosis* (Mtb), the causative agent of tuberculosis, are long, complex, and hard for people to sustain. RNA sensing is part of our first-line immune defense. For the first time, researchers at Boston Children's Hospital's Program in Cellular and Molecular Medicine showed that RNA sensing is important in inhibiting Mtb's growth once it gets inside cells. [Read More](#)

Unlocking Antibody Diversity: Chromatin Loops, V(D)J Recombination, and Class Switching

Boston Children's Hospital



A new study from the laboratory of Dr. Frederick Alt (pictured) at Boston Children's Hospital revealed yet another way in which chromatin regulation enabled our immune systems to produce a wide-ranging arsenal of antibodies. The lab demonstrated how the formation of new loops in chromatin facilitates the process of V(D)J recombination, allowing bits of genetic code to be mixed and matched to generate new antibodies. [Read More](#)

Engitix Receives a Golden Ticket to LabCentral from Takeda to Advance Fibrosis and Solid Tumour Research

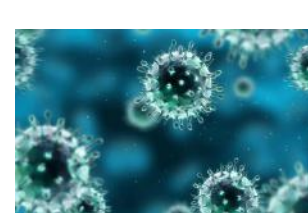
Engitix



Engitix Ltd, a private company focused on drug discovery for fibrosis and solid tumours based on its pioneering human extracellular matrix platform, announced that its subsidiary Engitix, Inc, has been awarded a Golden Ticket to LabCentral by Takeda Pharmaceutical Company Limited. The Golden Ticket provides Engitix one year of lab bench space at LabCentral, a world-class shared laboratory and office space in Cambridge, Massachusetts. [Read More](#)

Nanoparticle Orientation Offers a Way to Enhance Drug Delivery

MIT News



MIT engineers have shown that they can enhance the performance of drug-delivery nanoparticles by controlling a trait of chemical structures known as chirality — the “handedness” of the structure. The MIT team found that coating nanoparticles with the right-handed form of the amino acid cysteine helped the particles to avoid being destroyed by enzymes in the body. [Read More](#)

Combination Gene Therapy Treats Multiple Age-Related Diseases

Harvard Gazette



As people age, they tend to develop diseases such as heart failure, kidney failure, diabetes, and obesity, and the presence of any one disease increases the risk of developing others. New research from the Wyss Institute for Biologically Inspired Engineering at Harvard University and Harvard Medical School suggests that it may be possible someday to tend to multiple ailments with one treatment. [Read More](#)

3 Questions: How to Control Biofilms in Space

MIT News



Researchers from MIT have collaborated with colleagues at the University of Colorado at Boulder on an experiment that was scheduled to be sent to the International Space Station on November 2. The experiment was looking for ways to address the formation of biofilms on surfaces within the space station. These hard-to-kill communities of bacteria or fungi can cause equipment malfunctions and make astronauts sick. [Read More](#)

New Genomic Regions Linked to Common Vascular Disorder

Broad Institute



Blood clotting in veins, a disorder called venous thromboembolism (VTE), is a common vascular disease like heart attack and stroke. Now a large genetic study of VTE led by researchers at the Broad Institute of MIT and Harvard, Massachusetts General Hospital, and the US Department of Veterans Affairs Boston Healthcare System has found 22 new regions in the genome that contribute to the disease. [Read More](#)

New Technique May Reveal the Health of Human Hair Follicles

MGH News



A variety of factors can stop hair from forming and growing properly, leading to hair diseases and baldness. A new method developed by investigators at Massachusetts General Hospital examines the activity of hair follicles and could be useful for testing the effects of different treatments on hair growth. [Read More](#)

Researchers Engineer Insulin-Producing Cells Activated by Light for Diabetes

Tufts Now



Tufts University researchers have transplanted engineered pancreatic beta cells into diabetic mice, then caused the cells to produce more than two to three times the typical level of insulin by exposing them to light. The light-switchable cells are designed to compensate for the lower insulin production or reduced insulin response found in diabetic individuals. [Read More](#)

Gene Variant May Help Protect against Alzheimer's Disease

MGH News



A new study led by investigators at Massachusetts General Hospital, and in collaboration with the University of Antioquia, Schepens Eye Research Institute of Massachusetts Eye and Ear, and Banner Alzheimer's Institute, provides insights on why some people may be more resistant to Alzheimer's disease than others. The findings may lead to strategies to delay or prevent the condition. [Read More](#)

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Upcoming Events in Boston

- November 13 12:00 PM **M2D2 Presents: Lunch and Learn with ClinicalBid**
UMass Medical School
- November 13 8:00 AM **Biomufacturing for the Non-Specialist: What You Need to Know**
Biomufacturing Education & Training Center at WPI
- November 14 4:00 PM **Biosciences Seminar with Nobel Prize Winner Sir Prof Richard Roberts, Chief Scientific Officer at New England Biolabs**
Endicott College – Rose Performance Hall
- November 14 6:00 PM **Broad@15 – From Genes to Mechanisms to Medicines: Reflections on the Past, Present, and Future of Drug Discovery**
Broad Institute
- November 19 11:45 AM **Lunch & Learn with an Expert: New Paths Towards Tissue Regeneration: B Cell Immunotherapy**
STEMCELL Technologies

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