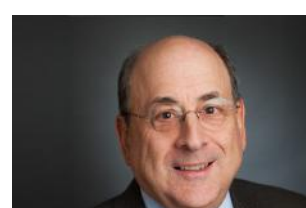


Publications of the Week
Enhancer Dependence of Cell-Type–Specific Gene Expression Increases with Developmental Age

 First Author: Wenqing Cai | Senior Author: Stuart Orkin (pictured)
 PNAS | Boston Children's Hospital and Dana-Farber


How overall principles of cell-type-specific gene regulation may change during ontogeny is largely unexplored. The authors compared transcriptomic, epigenomic, and three-dimensional genomic profiles in embryonic and adult erythroblasts. Applying a metric for enhancer dependence of transcription, they observed a progressive reliance on cell-specific enhancers with increasing ontogenetic age among diverse tissues of mouse and human origin. [Abstract](#)

A Single Human VH-gene Allows for a Broad-Spectrum Antibody Response Targeting Bacterial Lipopolysaccharides in the Blood

 First Author: Maya Sangesland | Senior Author: Daniel Lingwood (pictured)
 Cell Reports | The Ragon Institute


It has long been proposed that variable (V)-gene-encoded complementarity determining regions (CDRs) displayed by B cell receptors tune for recognition of pathogens or groups of pathogens. To experimentally evaluate this within the human antibody repertoire, the authors performed immune challenges in transgenic mice that bore diverse human CDR3 and light chains but were constrained to different human VH-genes. [Abstract](#)

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Awards
Beam Therapeutics' Nicole Gaudelli on Fortune's 40 Under 40 List

Fortune Magazine



Dr. Nicole Gaudelli (pictured), the Director and Head of Gene-Editing Technologies at Beam Therapeutics, is among the 40 influential people in healthcare highlighted by Fortune Magazine. Gaudelli is being recognized for her scientific breakthrough that is driving forward the booming, fast-moving field of gene editing, and is the basis for Beam Therapeutics. [Read More](#)

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Local News
Rejuvenating Old Organs Could Increase Donor Pool

Brigham and Women's Hospital



As the world population ages, organs from older, deceased donors represent an untapped and growing resource for patients in need. Investigators from Brigham and Women's Hospital are leading efforts to breathe new life into older organs by leveraging a new class of drugs known as senolytics, which target and eliminate old cells. [Read More](#)

Science Rehashed: A Podcast on a Mission

Mass General Research Institute



Since its inception, the *Science Rehashed* team has grown to 13 scientists and students at Mass General from different fields and cultural backgrounds in less than a year. The diverse team is a testament to the fact that science transcends culture, race and gender, which brings valuable insights to advocate for scientific communication and advancement. [Read More](#)

Synthetic Coating for the GI Tract Could Deliver Drugs or Aid in Digestion

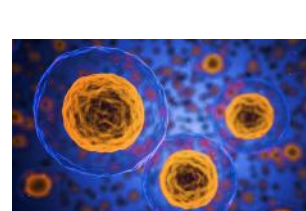
MIT News



By making use of enzymes found in the digestive tract, Dr. Giovanni Traverso (pictured) and MIT engineers have devised a way to apply a temporary synthetic coating to the lining of the small intestine. In a study conducted in pigs, the researchers demonstrated that they could use this approach to simplify the delivery of medications that normally have to be taken multiple times per day. [Read More](#)

Single-Cell Profiling of Multiple Cell Lines Can Reveal Cancer Vulnerabilities and Drug Mechanisms

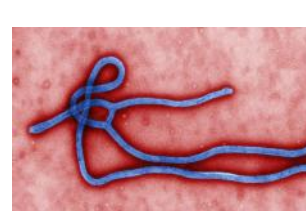
Broad Institute



A new method developed by the Broad Institute's Cancer Program uses single-cell RNA sequencing to measure the effect of drugs or genetic perturbations on dozens of cancer cell lines simultaneously. This allows scientists to rapidly observe gene activity changes in a wide range of different cancer cell types in response to drugs or genetic tweaks. These insights could reveal new details about how specific drugs work in cells and support the development of new cancer therapies. [Read More](#)

Rapid Diagnostic Detects Lassa and Ebola in Real-Time

Broad Institute



One of the keys to bringing a viral outbreak under control is rapid detection and diagnosis, which depend on the availability of fast, low-cost, easy-to-use tests that don't require labs or expensive equipment to process them. Scientists at the Broad Institute and collaborators in the United States, Nigeria, and Sierra Leone have now validated such tests for Ebola and Lassa — two of the deadliest and most transmissible human viruses — in settings with limited infrastructure. [Read More](#)

Transplanted Brown-Fat-Like Cells Hold Promise for Obesity and Diabetes

Joslin Diabetes Center



Obesity is the main cause of type 2 diabetes and related chronic illnesses that together will kill more people around the globe this year than the COVID-19 coronavirus. Scientists at Joslin Diabetes Center, led by Dr. Yu-Hua Tseng (pictured), have delivered a proof of concept for a novel cell-based therapy against this dangerous condition. [Read More](#)

"Runaway" Transcription

MIT Biology



An interdisciplinary team of biologists and physicists led by MIT's Dr. Gene-Wei Li (pictured) recently showed that the *B. subtilis* bacterium employs a different set of rules for transcription. Rather than working in tandem with the ribosome, the polymerase in *B. subtilis* speeds ahead. This system of "runaway" transcription creates alternative rules for RNA quality control, and provides insights into the sheer diversity of bacterial species. [Read More](#)

Closing, Reopening Labs Was a Complex Experiment

Harvard T.H. Chan School of Public Health



When the spreading COVID-19 pandemic forced labs around Harvard to close down in mid-March with just two weeks' notice, Dr. Sarah Fortune from the Harvard T.H. Chan School of Public Health and her colleagues faced tough choices. The work of a few researchers involved in projects related to the virus were allowed to continue with minimal personnel. All other lab members had to walk away from their work, losing investments in time, funding, and materials. [Read More](#)

Some Scientists Are Taking a DIY Coronavirus Vaccine, and Nobody Knows if It's Legal or if It Works

MIT Technology Review



Nearly 200 covid-19 vaccines are in development, and some three dozen are at various stages of human testing. But in what appears to be the first "citizen science" vaccine initiative, Preston Estep and at least 20 other researchers, technologists, or science enthusiasts, many connected to Harvard University and MIT, have volunteered as lab rats for a do-it-yourself inoculation against the coronavirus. [Read More](#)

Dana-Farber Cancer Institute to Establish Benderson Family Program for Triple-Negative Breast Cancer

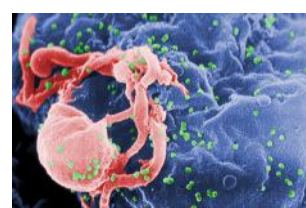
Dana-Farber



Dana-Farber Cancer Institute has received a \$5 million gift from the Benderson Family of Sarasota, Florida that will accelerate research in triple-negative breast cancer (TNBC) and strengthen Dana-Farber's capabilities for treating this disease. The gift establishes the Benderson Family Program for Triple-Negative Breast Cancer and represents the largest philanthropic donation to TNBC research at Dana-Farber. [Read More](#)

Novel Dual CAR T Cell Immunotherapy Holds Promise for Targeting the HIV Reservoir

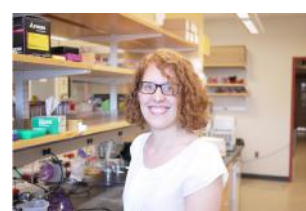
Massachusetts General Hospital



A recent study co-led by Dr. Todd Allen, a Professor of Medicine at Harvard Medical School and Group Leader at the Ragon Institute, describes a new Dual CAR T cell immunotherapy that can help fight HIV infection. Each CAR has a CD4 protein that allows it to target HIV-infected cells and a costimulatory domain, which signals the CAR T cell to increase its immune functions. [Read More](#)

Pint-Sized Science: The Mysterious Mitochondria

Science in the News



You might remember the mitochondria from biology class as the engine that produces the energy that cells (the smallest known units of life) need to function. Is that all mitochondria do though? To learn the answer, listen to the latest episode of *Pint-Sized Science* featuring Dr. Katja Hansen (pictured), a postdoctoral research fellow in the lab of Dr. Stirling Churchman at Harvard Medical School. [Read More](#)

Investigational COVID-19 Vaccine Candidate Prevents Severe Clinical Disease in Animals

Beth Israel Deaconess Medical Center



Beth Israel Deaconess Medical Center immunologist Dr. Dan Barouch (pictured) and colleagues showed in previous work that a candidate COVID-19 vaccine raised neutralizing antibodies that robustly protected non-human primates against SARS-CoV-2. Now, they have demonstrated that the optimal vaccine elicited robust immune response in Syrian golden hamsters and prevented severe clinical disease — including weight loss, pneumonia and death. [Read More](#)

Researchers Identify Proteins that Prevent COVID-19 Transmission through the Placenta

Boston Medical Center



Researchers led by Dr. Eisha Wachman (pictured) from Boston Medical Center's Maxwell Finland Laboratory for Infectious Diseases have identified properties in placenta tissue that may play an important role in preventing the transmission of COVID-19 from a mother with the virus to her fetus. The study results demonstrate that the COVID-19 virus universally invades the placenta in cases with and without evidence of fetal infection. [Read More](#)

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Upcoming Events in Boston

September 10 11:00 AM	MassBio Virtual Mixer Online
September 10 1:00 PM	FRAXA Biotech Games: Opening Round Online
September 15 3:15 PM	Harvard Catalyst Research Day Poster Session Online
September 17 1:00 PM	Getting Real World Data about COVID-19 Online
September 17 3:00 PM	MIT Microbiome Club General Body Meeting + Prof. Sean Gibbons Online

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Harvard T.H. Chan School of Public Health
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