

Publications of the Week
Secondary Structural Ensembles of the SARS-CoV-2 RNA Genome in Infected Cells

 First Author: Tammy Lan | Senior Author: Sivi Rouskin *(pictured)*
 Nature Communications | Whitehead Institute, Harvard University, MIT, and Boston University


The authors report secondary structure heterogeneity of the entire SARS-CoV-2 genome in two lines of infected cells at single nucleotide resolution. Their results reveal alternative RNA conformations across the genome and at the critical frameshifting stimulation element that are drastically different from prevailing population average models. [Abstract](#) | [Press Release](#)

Seipin Forms a Flexible Cage at Lipid Droplet Formation Sites

 First Author: Henning Aitt *(pictured)* | Senior Authors: Joel Goodman, Robert Farese Jr., and Tobias Walther
 Nature Structural & Molecular Biology | Harvard T. H. Chan School of Public Health, Harvard Medical School, Howard Hughes Medical Institute, and Broad Institute


Lipid droplets form in the endoplasmic reticulum by phase separation of neutral lipids. The authors report a structure of *S. cerevisiae* seipin based on cryogenic-electron microscopy and structural modeling data. Seipin forms a decameric, cage-like structure with the lumenal domains forming a stable ring at the cage floor and transmembrane segments forming the cage sides and top. [Abstract](#)

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Local News
Machine Learning Could Help Scientists Design Better Viral Diagnostics

Broad Institute



Scientists at the Broad Institute have developed the first fully automated system that uses machine learning to design viral diagnostics. The method, called ADAPT, helps scientists create diagnostics that are highly sensitive and specific. "ADAPT is really about developing countermeasures that target the virus that's circulating right now and being prepared to move with the virus as it changes," said Dr. Pardis Sabeti *(pictured)*. [Read More](#)

Researchers Identify Promising Drug Target in Pediatric Neuroblastoma

Dana-Farber Cancer Institute



Investigators had culled the list of suspects down to two. But which one was the guilty party, or were both? The pair worked together so seamlessly, it was difficult to tell where one's role began and the other's ended. Dana-Farber scientists led by Dr. Jun Qi *(pictured)* have now teased apart the relationship between the two suspects — the proteins EP300 and CBP — to discover that EP300 is critical for a high-risk form of pediatric neuroblastoma. [Read More](#)

Obesity Alters Molecular Architecture of Liver Cells; Repairing Structure Reverses Metabolic Disease

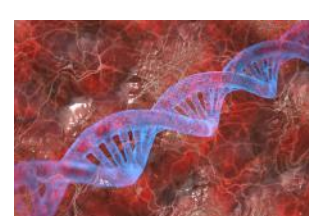
Harvard T. H. Chan School of Public Health



Cells use their molecular architecture to regulate their metabolic functions, and repairing diseased cells' architecture to a healthier state can also repair metabolism, according to a study from researchers at Harvard T.H. Chan School of Public Health. "Chronic metabolic disease, which includes obesity, diabetes, and cardiovascular and liver diseases, is the biggest global public health problem," said senior author Dr. Gökhan Hotamisligil *(pictured)*. [Read More](#)

"Genetic Baggage" Accumulates in the Genomes of Aging Mutant Animals

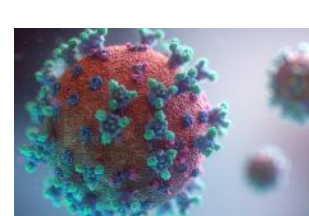
BU School of Medicine



You are probably familiar with the term that some people carry "a lot of extra baggage." Usually that term refers to that person's emotional history, but in genetics and our genomes, "extra baggage" can also describe the transposons lurking in our genomes, a historical record of our genomes surviving traumatic invasions during evolution. [Read More](#)

Greater Boston COVID Recovery Cohort Joins National Effort to Study Long-Term Effects of COVID-19

Brigham and Women's Hospital



A consortium of six sites in the Boston area led by Brigham and Women's Hospital will together recruit participants as part of a nationwide study of the long-term effects and prolonged symptoms of COVID-19. Together, the sites will recruit 909 participants over the next year to be part of the greater Boston COVID Recovery Cohort. Participants will be followed for the next three years. [Read More](#)

Come One, Come All

Harvard Medical School



As SARS-CoV-2 swept across the world in 2020, scientists worked furiously to develop vaccines that could stop the spread — or at least stave off the worst symptoms of COVID-19. In record time, multiple companies developed effective vaccines that have prevented countless deaths as the pandemic has stretched on. Now, scientists have set their sights on an even more ambitious goal: a pan-coronavirus vaccine that would work against multiple coronaviruses. [Read More](#)

Tiny Hero, Big Map

Harvard Medical School



An international research team has completed an atlas of every cell found in adult fruit flies, one of the most important animal models in science and medicine. The vast dataset, named Tabula Drosophilae, should help scientists uncover new insights into biology, genetics, and disease by delving deeper into how cells differ from one another, interact with their neighbors, form during embryonic development, and function in various tissues. [Read More](#)

An Age-Old Problem

Harvard Medical School



Huge amounts of time and money have been devoted to finding treatments for diseases that become more common as we age, like cancer and Alzheimer's. However, Dr. Leonid Peshkin, a lecturer in systems biology in the Blavatnik Institute at Harvard Medical School, is among a growing number of scientists who view such diseases as symptoms of a bigger and more universal process: aging itself. [Read More](#)

AI/ML/Human Immunology Collaborative Initiative: Spotlight on Regina Barzilay

Ragon Institute



Dr. Regina Barzilay *(pictured)*, a recently appointed Associate Member of the Ragon Institute, and an MIT School of Engineering Distinguished Professor for Artificial Intelligence (AI) and Health, is one of the principals of the new AI/Machine Learning (ML)/Human Immunology collaborative initiative of the Ragon Institute and the Abdul Latif Jameel Clinic for Machine Learning in Health and the Schwarzman College of Computing of MIT. [Read More](#)

Modifying the Vaginal Microbiome

Harvard Medical School



The female genital tract is naturally colonized by mixed communities of bacteria, known as the vaginal microbiome. Overgrowth of certain other bacterial species is linked to bacterial vaginosis, which may recur because treatment often causes the microbiome to become dominated by the species *L. iners* instead of *L. crispatus*. New research led by Dr. Seth Bloom *(pictured)* shows that *L. iners* has unique nutritional requirements that distinguish it from *L. crispatus*, potentially allowing it to be targeted using novel therapeutic strategies. [Read More](#)

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March 16 5:00 PM	Find Funding in Science & Engineering: Working with the Defense Advanced Research Projects Agency (DARPA) Online
March 23 1:00 PM	Finding Funding for Pediatric Medical Research: Meet the Thrasher Research Fund Online
March 24 2:00 PM	Biomedical Informatics Entrepreneurs Salon: Diana Brainard, AlloVir Online
March 29 5:30 PM	SCIENCE with/in/sight: How Are Cancer Researchers Fighting COVID-19? Koch Institute

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- Research Associate II/Senior Research Associate, Delivery Biology**
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- Research Scientist III, Immuno-Oncology Immune Modulation Group**
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