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Publications of the Week

Mechanisms Generating Cancer Genome Complexity from a Single Cell Division Error

First Author: Neil Umbreit | Senior Author: David Pellman *(pictured)*
Science | Harvard Medical School and Dana-Farber

The chromosome breakage-fusion-bridge (BFB) cycle is a catastrophic mutational process, common during tumorigenesis, that results in gene amplification and drives rapid genome evolution. The authors recreated essential steps of the BFB cycle in a defined system, enabling mechanistic studies and determination of the immediate and long-term genomic consequences of bridge formation. **Profile | Abstract**

A CRISPR-Based Assay for the Detection of Opportunistic Infections Post-Transplantation and for the Monitoring of Transplant Rejection

First Author: Michael Kaminski | Senior Author: James Collins *(pictured)*
Nature Biomedical Engineering | MIT, the Wyss Institute, and Brigham and Women's Hospital

The authors have developed a fast and inexpensive assay based on CRISPR–Cas13 that accurately detects BK polyomavirus DNA and cytomegalovirus DNA from patient-derived blood and urine samples, as well as *CXCL9* messenger RNA (a marker of graft rejection) at elevated levels in urine samples from patients experiencing acute kidney transplant rejection. **Abstract**

View All Publications

Awards

Alex Shalek Wins Edgerton Faculty Award

MIT Chemistry

Dr. Alex Shalek *(pictured)*, the Pfizer-Laubach Career Development Associate Professor of Chemistry at MIT, has been named the recipient of the 2019-20 Harold E. Edgerton Faculty Achievement Award. Shalek has been recognized for "his leadership and pioneering spirit, his vision, inventiveness, and enthusiasm for mentorship and collaboration; and his tremendous contributions to a critical area at the intersection of science and medicine." **Read More**

Five HMS Faculty Elected to National Academy of Sciences

Harvard Medical School

Five scientists from Harvard Medical School (HMS) have been elected to the National Academy of Sciences in recognition of their distinguished and continuing achievements in original research. They are among 120 members and 26 international members elected. The newly elected members from HMS are Drs. Joel Habener, Judy Lieberman, Margaret Livingstone *(pictured)*, Olivier Pourquié, and Suzanne Walker. **Read More**

Six From MIT Elected to American Academy of Arts and Sciences for 2020

MIT News

Dr. Catherine Drennan *(pictured)*, a Professor of Biology and Chemistry, is one of the six MIT faculty members among more than 250 leaders from academia, business, public affairs, the humanities, and the arts that have been elected to the American Academy of Arts and Sciences. One of the nation's most prestigious honorary societies, the academy is also a leading center for independent policy research. **Read More**

Thoru Pederson Elected to American Academy of Arts and Sciences

UMass Med Now

UMass Medical School cell biologist Dr. Thoru Pederson *(pictured)* has been elected a member of the American Academy of Arts and Sciences Class of 2020. Comprising artists, scholars, scientists and leaders in the public, nonprofit and private sectors, the academy recognizes excellence and expertise among its membership, representing innovative thinkers in every field and profession. **Read More**

Dana-Farber Cancer Institute Faculty Recognized as 2020 ASCO Leaders in Cancer Research and Care

Dana-Farber

The American Society of Clinical Oncology (ASCO) has recognized four Dana-Farber researchers as winners of ASCO's Special Awards, the Society's highest honors. The recipients are Drs. George Demetri, Pasi Jänne *(pictured)*, Timothy Rebbeck and Anthony D'Amico. They have all worked to transform cancer care around the world. **Read More**

View All Featured Awards

Local News

New Model of the GI Tract Could Speed Drug Development

MIT News

MIT engineers have devised a way to speed up the development of new drugs by rapidly testing how well they are absorbed in the small intestine. This approach could also be used to find new ways to improve the absorption of existing drugs so that they can be taken orally. With their new method, based on pig intestinal tissue grown in the lab, the researchers can test thousands of different versions of a drug in just hours. **Read More**

MIT's Love Lab Developing a COVID-19 Vaccine to Potentially Reach Billions

MIT News

In the lab of Professor J. Christopher Love *(pictured)* at MIT's Koch Institute for Integrative Cancer Research, a small team has been cleared to return to the lab to continue their mission: generating and testing preclinical materials to push new vaccines for COVID-19 to reach the stage of conducting human trials on a much faster timeline than the many years that vaccine development typically takes. **Read More**

Scientists Are Working on a Face Mask that Detects Coronavirus

Allen Institute

Dr. James Collins *(pictured)*, a Professor of Bioengineering at MIT and the Wyss Institute, had previously developed a technology to make rapid, inexpensive tests that could detect Ebola and Zika during those viral outbreaks by spotting the dried out cellular parts onto storable pieces of paper. Now, they're applying their technology to develop a diagnostic face mask that signals if the wearer is infected with COVID-19. **Read More**

Rome Therapeutics Debuts with $50M and Rosana Kapeller at the Helm

Fierce Biotech

In 2018, Dr. Rosana Kapeller *(pictured)* left Nimbus Therapeutics, the company she built from the ground up, "to do something different." Two years and a stint at GV later, she's unveiling that something: Rome Therapeutics, a new biotech startup looking to drug parts of the human genome previously spurned as "junk DNA." The company starts life with $50 million in series A capital. **Read More**

New Targeted Agent Produces Considerable Responses in Trial with Patients with Uterine Serous Carcinoma

Dana-Farber

In its first clinical trial in patients with a hard-to-treat form of uterine cancer, a targeted drug that subjects tumor cells to staggering levels of DNA damage caused tumors to shrink in nearly one-third of patients, accordint to investigators at Dana-Farber. The drug tested in the study – adavosertib – takes advantage of an inherent weakness in the relentless growth of some cancer cells. **Read More**

Soup to Nuts: Church Lab Tackles the New Coronavirus from Multiple Directions

Wyss Institute

The COVID-19 pandemic demands action on many fronts, from prevention to testing to treatment. Not content to focus its research efforts on just one, the laboratory of Dr. George Church *(pictured)* in the Blavatnik Institute at Harvard Medical School, and the Wyss Institute, is tackling the problem from seven different angles. **Read More**

Close-Up Views of Tumors Reveal a New Cancer Biology

Scientific American

When Brad Bernstein, a pathologist at the Broad Institute, first looked at cancer tumors cell by cell in 2014, what he found dismayed him: he realized that in any single tumor, there is not one type of cancer cell at work but many. In order to zoom in and look at a tumor one cell at a time, Bernstein and his colleagues use a technique called single-cell RNA sequencing. **Read More**

"Backpacks" Boost Immune Cells' Ability to Kill Cancer

Wyss Institute

Cancerous tumors have a nasty trick up their sleeves: they secrete substances that "switch" arriving macrophages from their tumor-killing state to a tumor-promoting state. Dr. Wyatt Shields *(pictured)* and colleagues at the Wyss Institute and John A. Paulson School of Engineering and Applied Sciences have developed cytokine-secreting "backpacks" for macrophages that keep them in their tumor-killing state for up to five days after they arrive at a tumor site. **Read More**

Immune System Changes Occur Early in Development of Multiple Myeloma

Broad Institute

Researchers at Dana-Farber, the Broad Institute, and Massachusetts General Hospital have found that long before multiple myeloma becomes a malignant disease, the collection of immune system cells and signal carriers amid the tumor cells undergoes dramatic shifts, with alterations in both the number and type of immune cells. **Read More**

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Upcoming Events in Boston

May 6 11:00 AM	**2020 Virtual Grant Writing Series** Online	
May 6 1:00 PM	**STAT Digital Event: Vaccines. Can They Come Soon Enough?** Online	
May 7 4:00 PM	**Dean's Seminar: Coronavirus Seminar Series** Online	
May 8 8:00 AM	**NIH Online Career Symposium** Online	
May 8 2:00 PM	**Life as a Scientist During the COVID-19 Pandemic** Online	

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Professor, Cell Biology
Harvard Medical School

Director Virology, Infectious Diseases
Moderna

(Senior) Associate Scientist, Protein Therapeutics
Cue Biopharma

Manager/Sr. Manager, Quality Assurance
SQZ Biotechnologies

Postdoctoral Fellow, Cardiovascular Disease Risk in HIV
Massachusetts General Hospital

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