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Volume 3.39: October 11, 2021

## Publications of the Week

### Duplex-Repair Enables Highly Accurate Sequencing, Despite DNA Damage

First Author: Kan Xiong | Senior Author: Viktor Adalsteinsson *(pictured)*
Nucleic Acids Research | The Broad Institute, Dana-Farber Cancer Institute, and Brigham and Women's Hospital

Accurate DNA sequencing is crucial in biomedicine. Underlying the most accurate methods is the assumption that a mutation is true if altered bases are present on both strands of the DNA duplex. The authors show that this assumption can be wrong. They establish that current methods to prepare DNA for sequencing, via ‘End Repair/dA-Tailing,’ may substantially resynthesize strands, leading amplifiable lesions or alterations on one strand to become indiscernible from true mutations on both strands. **Abstract**

### The Bone Marrow Niche from the Inside Out: How Megakaryocytes Are Shaped By and Shape Hematopoiesis

First Author: Andrew Stone | Senior Author: Maria Barrachina *(pictured)*
Blood | Harvard and Boston Children's Hospital

In this review, the authors explore megakaryocyte (MK) development, focusing on recent studies showing that MKs can be generated from multiple, divergent pathways. They highlight how the bone marrow niche may both encourage and alter these processes using different mechanisms of communication such as direct cell-to-cell contact, secreted molecules, and the release of cellular components such as extracellular vesicles. **Abstract**

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## Awards

### Award Aims to Accelerate Treatment Options in Metastatic Prostate Cancer

Dana-Farber Cancer Institute

Dana-Farber Cancer Institute researchers are recipients of a new Movember – Prostate Cancer Foundation Challenge Award. The $1 million award aims to support ambitious team science with the potential to develop new treatments for metastatic prostate cancer. Dana-Farber’s Dr. Matthew Freedman *(pictured)* is principal investigator. **Read More**

### C. James McKnight Named October Distinguished Faculty of the Month

BU School of Medicine

Dr. C. James McKnight *(pictured)* is October’s Boston University School of Medicine (BUSM) Distinguished Faculty of the Month. Now an Associate Professor of Physiology and Biophysics, McKnight joined the BUSM community in 1995. In addition to teaching multiple classes on campus, McKnight is a structural biologist who directs the BUSM Core Facility for Structral NMR Spectroscopy. **Read More**

### Dana-Farber’s Philip Kranzusch Receives Prestigious New Innovator Award from the National Institutes of Health

Dana-Farber Cancer Institute

Dr. Philip Kranzusch *(pictured)* of Dana-Farber Cancer Institute has received the New Innovator Award from the National Institutes of Health’s High-Risk, High-Reward Research program. The prestigious award supports exceptionally creative early career investigators pursuing highly innovative research with the potential for broad impact in biomedical, behavioral, or social sciences. **Read More**

### Tufts Professor Wins New Innovator Grant for Cancer Research

TuftsNow

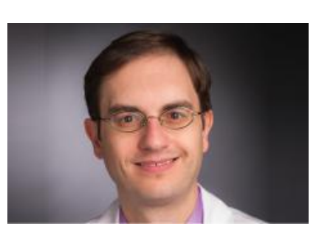
Cancer researcher Dr. Madeleine Oudin *(pictured)* has been named a New Innovator by the National Institutes of Health. The Tiampo Family Assistant Professor in the Department of Biomedical Engineering at Tufts, Oudin earned the honor for her research into a critical pathway of tumor growth. The award totals $2.3 million over five years. **Read More**

View All Awards

## Local News

### Genetic Signature of Tumor Cells Predicts Response to Chemotherapy Drug for Patients with Form of Ovarian Cancer

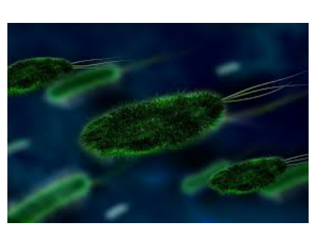
Dana-Farber Cancer Institute



For more than two decades, the chemotherapy drug gemcitabine has been a mainstay treatment for several types of cancer, producing remissions in many patients on its own or in conjunction with other drugs. Now, scientists at Dana-Farber Cancer Institute, led by Dr. Panos Konstantinopoulos *(pictured)*, have uncovered, for the first time, genetic evidence of which patients with high-grade serous ovarian cancer are likely to benefit from the drug. **Read More**

### Zeroing In on the Origins of Earth’s “Single Most Important Evolutionary Innovation”

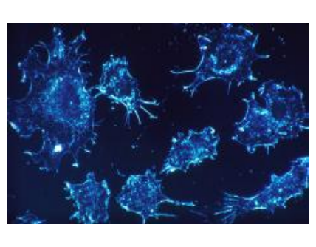
MIT News



Some time in Earth’s early history, the planet took a turn toward habitability when a group of enterprising microbes known as cyanobacteria evolved oxygenic photosynthesis. This evolutionary moment made it possible for oxygen to eventually accumulate in the atmosphere and oceans, setting off a domino effect of diversification and shaping the uniquely habitable planet we know today. Now, MIT scientists have a precise estimate for when cyanobacteria, and oxygenic photosynthesis, first originated. **Read More**

### New “Almanac” May Help Clinicians Better Tailor Cancer Treatments for Patients

Broad Institute



Researchers at the Dana-Farber Cancer Institute and the Broad Institute of MIT and Harvard have created a tool that may help improve the interpretation of tumor molecular profiles. The tool, called the Molecular Oncology Almanac and abbreviated as MOAlmanac, integrates different kinds of data from patients and their tumors to identify those connected to disease prognosis and resistance or sensitivity to therapeutics. **Read More**

### Researchers Question the Role Insulin Resistance Plays in Diabetes

BU School of Medicine (BUSM)

What if current treatment of insulin resistance was only perpetuating the disease and causing disease to get worse? According to BUSM researchers, type 2 diabetes patients are often prescribed drugs that increase insulin release into the blood, which lowers blood glucose but may in fact increase the insulin resistance with long-term use. Many of these patients have elevated insulin even when glucose is normal. **Read More**

### Counting Cells May Shed Light on How Cancer Spreads

MIT News

As tumors grow within an organ, they also release cells that enter the bloodstream. These cells can travel to other organs, seeding new tumors called metastases. MIT engineers have now developed a technique that, for the first time, allows them to measure the generation rate of these circulating tumor cells in mice. Their approach could help scientists learn more about how different types of cancers spread through the body. **Read More**

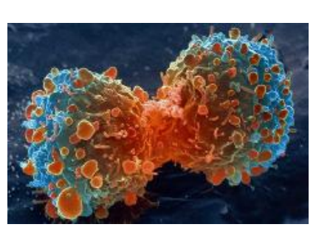
### Celia Schiffer Named Chair of Department of Biochemistry & Molecular Biotechnology

UMass Chan Medical School

Dr. Celia Schiffer *(pictured)* has accepted the position of Chair of the newly renamed Department of Biochemistry & Molecular Biotechnology. Formerly the Department of Biochemistry & Molecular Pharmacology, the new name reflects the expanded role of cutting-edge technologies such as cryo-electron microscopy and computational biology, as well as the science of pharmacology in bringing a molecular perspective to problems in biology and medicine. **Read More**

### New Study Finds Link between Patient Survival and Changes in Tumor Cell Mass in Brain Cancer

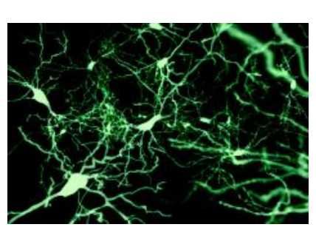
Dana-Farber Cancer Institute



Researchers at Dana-Farber Cancer Institute and MIT have developed a new way to determine whether individual patients will respond to a specific cancer drug or not. This kind of test could help doctors to choose alternative therapies for patients who don’t respond to the therapies normally used to treat their cancer. The new study focused on glioblastoma, an aggressive form of brain cancer. **Read More**

### NIH Award Funds Innovative Investigation of Neurodegenerative Motor Diseases

The Picower Institute



With a Transformative Research Award from the National Institutes of Health (NIH), a new research team will launch a groundbreaking, five-year investigation to pinpoint what may be going wrong in specific brain cells and to help identify new treatment approaches. The five-year project will bring together four labs, including two at MIT, to apply a range of innovative techniques. **Read More**

### BIDMC Launches New Translational Research Hubs to Bolster Bench-to-Bedside Innovation

Beth Israel Deaconess Medical Center (BIDMC)

Leveraging BIDMC's existing strengths in leading edge biomedical research and extraordinary patient care, BIDMC leadership launched a new initiative designed to speed up the discovery of novel treatments and advance personalized medicine. Known as Translational Research Hubs, these interdisciplinary research communities will maximize collaboration among researchers and clinicians and will focus on therapeutic areas that align with the needs of BIDMC’s patient population. **Read More**

### Exercise Hormone Irisin Shows Potential for Alzheimer’s Disease Treatment

Dana-Farber Cancer Institute

New research has yielded the strongest evidence yet that irisin, a hormone discovered by Dana-Farber’s Dr. Bruce Spiegelman *(pictured)*, is produced in the body by muscular exercise, can by itself improve cognitive functions and potentially reverse some of the memory-destroying effects of Alzheimer’s disease. **Read More**

### Dealing with Uncertainty

McGovern Institute

Neuroscientists at MIT’s McGovern Institute have homed in on key brain circuits that help guide decision-making under conditions of uncertainty. By studying how mice interpret ambiguous sensory cues, they’ve found neurons that stop the brain from using unreliable information. The findings could help researchers develop treatments for schizophrenia and related conditions. **Read More**

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## Upcoming Events in Boston

| | |
|---|---|
| October 12<br>6:00 am | **Picower Institute Fall 2021 Symposium \| Dendrites: Molecules, Structure, and Function**<br>Online |
| October 14<br>5:00 pm | **MassBio Oktoberfest**<br>Cambridge Tech Square Lawn |
| October 18<br>8:00 am | **Sanofi Pharma Day 2021**<br>Hybrid |
| October 19<br>7:00 pm | **Communicating about Science in a World of Misinformation: A Conversation with Linda Henry and Rick Berke**<br>Online |
| October 20<br>9:00 am | **Jumpstarting Your Start Up**<br>Online |

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## Other Science Jobs in Boston

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Harvard Medical School

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Civetta

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