

Publications of the Week
Beyond Conventional Immune-Checkpoint Inhibition — Novel Immunotherapies for Renal Cell Carcinoma

First Author: David Braun | Senior Author: Toni Choueiri (pictured)
 Nature Reviews Clinical Oncology | Dana-Farber Cancer Institute, Harvard Medical School and the Broad Institute of MIT and Harvard



Using the structure provided by the well-described cancer-immunity cycle, the authors outline the key steps required for a successful antitumor immune response in the context of renal cell carcinoma (RCC), and describe the development of promising new immunotherapies within the context of this framework. They summarize and analyze the most encouraging targets of novel immune-based therapies within the RCC microenvironment, and review the landscape of emerging antigen-directed therapies for this disease. [Abstract](#)

Single-Cell Lineages Reveal the Rates, Routes, and Drivers of Metastasis in Cancer Xenografts

First Author: Jeffrey Quinn | Senior Author: Jonathan Weissman (pictured)
 Science | Ragon Institute of Massachusetts General Hospital, MIT, Harvard University and the Whitehead Institute



Scientists applied a Cas9-based, single-cell lineage tracer to study the rates, routes, and drivers of metastasis in a lung cancer xenograft mouse model. They report deeply resolved phylogenies for tens of thousands of cancer cells traced over months of growth and dissemination. This revealed stark heterogeneity in metastatic capacity, arising from pre-existing and heritable differences in gene expression. [Abstract](#) | [Press Release](#)

Cryo-EM Structure of the B Cell Co-Receptor CD19 Bound to the Tetraspanin CD81

First Author: Katherine Susa | Senior Author: Stephen Blacklow (pictured)
 Science | Blavatnik Institute, Harvard Medical School and Dana-Farber Cancer Institute



The authors report a 3.8-angstrom structure of the CD19-CD81 complex bound to a therapeutic antigen-binding fragment, determined by cryo-electron microscopy (cryo-EM). The structure includes both the extracellular domains and the transmembrane helices of the complex, revealing a contact interface between the ectodomains that drives complex formation. [Abstract](#)

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Awards
Dr. Michael Alosco Awarded NIH Grant for Brain Imaging Study

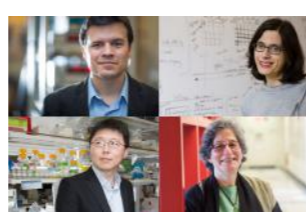
BU School of Medicine



Dr. Michael Alosco (pictured), Associate Professor of Neurology at BU School of Medicine, has been awarded a two-year, \$460,000 grant from the National Institute of Neurological Disorders and Stroke, which is part of the National Institutes of Health. Additional support for the study is provided by the Rainwater Charitable Foundation. [Read More](#)

Four MIT Scientists Honored with 2021 National Academy of Sciences Awards

MIT



Four MIT scientists, Drs. Pablo Jarillo-Herrero, Aviv Regev, Susan Solomon and Feng Zhang (pictured clockwise from top left), are among the 20 recipients of the 2021 Academy Honors for major contributions to science, the National Academy of Sciences has announced. The individuals are recognized for their "extraordinary scientific achievements in a wide range of fields spanning the physical, biological, social, and medical sciences." [Read More](#)

Joslin Physicians on Boston Magazine's Top Docs List

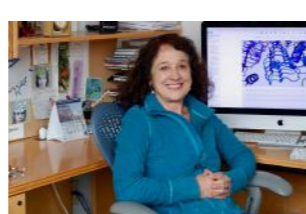
Joslin Diabetes



Eleven of Joslin Diabetes' physicians have made Boston Magazine's 2021 Top Doctors List. Each year, Boston Magazine partners with healthcare researcher Castle Connolly Medical Ltd. to create a list of the best doctors in Boston, including hundreds of experts in every medical field. Drs. Elizabeth Bashoff, Florence Brown and Elizabeth Halprin are among the eleven that have made this year's list. [Read More](#)

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Local News
A New Database of Potential Antibiotic Targets

MIT Biology



A new *PNAS* study co-authored by MIT Professor of Biology and Chemistry, Dr. Barbara Imperiali (pictured), highlights the diversity and significance of potential monotypic phosphoglycosyl transferases (monoPGTs) drug targets. Imperiali teamed up with graduate student Katherine O'Toole and Professor of Chemistry Dr. Karen Allen from Boston University to categorize over 38,000 different monoPGTs, compiling this information into the first database of its kind. [Read More](#)

'Mosaic' Gene Mutations Could Explain Some Cases of Autism

Boston Children's Hospital



The causes of autism remain mysterious. Scientists have linked autism spectrum disorder to a long list of genes, but most children with autism have no known explanation. Two new studies add to the picture, implicating mutations that affect only a fraction of a child's cells. Called mosaic mutations, they open a new avenue for research and could eventually become part of diagnostic testing for children on the autism spectrum. [Read More](#)

Personalized Vaccine Produces Long-Lasting Anti-Tumor Response in Patients with Melanoma

Dana-Farber Cancer Institute



Four years after patients with melanoma were treated with a personalized cancer vaccine, the immune response kindled by the vaccine remains robust and effective in keeping cancer cells under control, researchers at Dana-Farber Cancer Institute, Brigham and Women's Hospital, and the Broad Institute of MIT and Harvard have reported in a new study. [Read More](#)

Therapy Developed at Boston Children's Stops Preeclampsia before It Starts

Boston Children's Hospital



Preeclampsia occurs in about three to five percent of all pregnancies. Characterized by very high maternal blood pressure, it can lead to serious, sometimes fatal, complications in both mother and baby. Researchers within the Division of Newborn Medicine at Boston Children's Hospital have discovered that a compound made naturally by the body may help stop preeclampsia before it even develops. [Read More](#)

Dana-Farber Cancer Institute Opens New State-of-the-Art Location in Chestnut Hill

Dana-Farber Cancer Institute



With a major expansion of its world class oncology services, Dana-Farber Cancer Institute is opening a new hospital facility in Chestnut Hill to provide increased cancer care and outpatient services for adult patients in the region. The new 140,000 square foot, state-of-art outpatient facility is located in the Life Time Center at 300 Boylston Street (formerly the Atrium Mall). [Read More](#)

Dana-Farber Research Supports FDA Approval for Immunotherapy Combination in Advanced Kidney Cancer

Dana-Farber Cancer Institute



An immunotherapy agent combined with a tyrosine kinase inhibitor drug whose clinical testing as a first-line treatment in advanced kidney cancer was led by Dr. Toni K. Choueiri, Director of the Lank Center for Genitourinary Oncology at Dana-Farber Cancer Institute, has become a standard therapy. The combination of nivolumab and cabozantinib has been approved by the FDA as a first-line treatment for patients with advanced renal cell carcinoma. [Read More](#)

New Genetic Test for Heart Attack Risk Launched for Patients at Mass General

Broad Institute



Cardiologist Dr. Amit Khera (pictured) — Associate Director of the Program in Medical and Population Genetics at the Broad Institute of MIT and Harvard, group leader in Massachusetts General Hospital's Center for Genomic Medicine, and a key developer of polygenic scores at Broad — and his team recently introduced a clinical test that includes polygenic scores to estimate a patient's risk of heart attack. [Read More](#)

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Upcoming Events in Boston

February 3 4:00 PM	Virtual Science Super Slam Online
February 5 11:00 AM	The Third Annual Food Allergy Science Initiative Symposium, Food Biology in Health and Disease Online
February 8 12:00 PM	Research Connection Live, Virtual Edition Online
February 12 8:00 AM	Virtual Symposium: Closing the Gap Between Research and Clinical Application - Neuroimaging Indicators of Brain Structure and Function Online
February 16 12:00 PM	College of Science Connects: Research at the Frontier of Bioanalytical Chemistry Online

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