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Publications of the Week

Increasing the Throughput of Sensitive Proteomics by plexDIA

First Author: Jason Derks *(pictured, left)* | Senior Author: Nikolai Slavov *(right)*
Nature Biotechnology | Northeastern University and Bruker Daltonics

Current mass spectrometry methods enable high-throughput proteomics of large sample amounts, but proteomics of low sample amounts remains limited in depth and throughput. To increase the throughput of sensitive proteomics, the authors developed an experimental and computational framework, called plexDIA, for simultaneously multiplexing the analysis of peptides and samples. **Profile | Abstract**

Whole Genome Sequencing Reveals the Independent Clonal Origin of Multifocal Ileal Neuroendocrine Tumors

First Author: Netta Mäkinen | Senior Author: Matthew Meyerson *(pictured)*
Genome Medicine | Dana-Farber Cancer Institute, Broad Institute, and Harvard Medical School

The authors performed whole genome sequencing of 75 de-identified synchronous primary tumors, 15 metastases, and corresponding normal samples from 13 patients with multifocal ileal neuroendocrine tumors (NETs) to identify recurrent somatic genomic alterations, frequently affected signaling pathways, and shared mutation signatures among multifocal small intestinal NETs. **Abstract**

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Awards

Don Ingber to Receive 2022 Award from Japan's National Institute for Materials Science

Wyss Institute

Wyss Institute Founding Director Dr. Don Ingber *(pictured)* has been named a recipient of the 2022 NIMS Award from the National Institute for Materials Science (NIMS) in Japan. Dr. Ingber is being recognized for his proposal of the cellular tensegrity model and the invention of human organ-on-a-chip technology. He showed the significant role that mechanical forces play in tissue and organ formation as well as cancer progression. **Read More**

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Local News

MIT Engineers Develop Stickers That Can See Inside the Body

MIT News

Currently, ultrasound imaging requires bulky and specialized equipment available only in hospitals and doctors' offices. But a new design by MIT engineers might make the technology as wearable and accessible as buying Band-Aids at the pharmacy. Dr. Xuanhe Zhao's *(pictured)* team designed a new ultrasound sticker — a stamp-sized device that sticks to skin and can provide continuous ultrasound imaging of internal organs for 48 hours. **Read More**

Stopping Moles from Turning into the Deadliest Type of Skin Cancer

The Brink

Though harmless moles are extremely common, some keep growing and growing, and mutating, until they turn into melanoma. But why do some moles keep growing, while others don't? And can the same molecular function that stops regular moles from proliferating be applied to cancerous cells? Dr. Neil Ganem's *(pictured)* team at BU has some answers — and their findings could lead to new drug targets for the successful treatment of cancer. **Read More**

A New Vaccine Formulation Could Finally Protect Babies against RSV

Boston Children's Hospital

Though often mild, respiratory syncytial virus (RSV) infection can cause babies to be hospitalized with bronchiolitis or pneumonia. Globally, it is the leading cause of death in children under five. Drs. Simon van Haren *(pictured)*, Ofer Levy, and their colleagues are exploring ways to stimulate immunity against RSV in newborns safely. Their RSV vaccine formulation looks promising in early tests, inducing protective immune responses in newborn mice and in cells from human newborns. **Read More**

Advanced Imaging Reveals Mired Migration of Neurons in Rett Syndrome Lab Models

MIT News

Using an innovative microscopy method, scientists in Dr. Mriganka Sur's *(pictured)* lab at the Picower Institute observed how newborn neurons struggle to reach their proper places in advanced human brain tissue models of Rett syndrome, producing new insight into how developmental deficits observed in the brains of patients with the devastating disorder may emerge. **Read More**

Turning Muscle into a Protein Factory for Gene Therapy Treatments

UMass Chan Medical School

In a new study, researchers at UMass Amherst and UMass Chan Medical School, including Dr. Terence Flotte *(pictured)*, mapped the expression and maturation of the protein alpha-1 antitrypsin with unprecedented clarity. The results will help to develop specific therapies to treat an inherited disease known as alpha-1 antitrypsin deficiency, as well as more effectively treat a wide range of genetic diseases. **Read More**

Eliminating Racial Barriers in Genetic Testing: Dana-Farber Receives Innovative Pancreatic Cancer Research Grants

Dana-Farber Cancer Institute

The Pancreatic Cancer Action Network (PanCAN), a leading nonprofit in the fight against pancreatic cancer, has announced the recipients of its 2022 research grants program. This year, $10.5 million will be awarded for 16 new grants and PanCAN will extend funding to nine past grantees to continue their highly promising research projects. **Read More**

Scaling Up Cell Imaging

Broad Institute

Scientists have learned a lot about human biology by looking at cells under a microscope, but they might not notice tiny differences between cells or even know what they're looking for. Researchers at the Broad Institute in the laboratories of Drs. Anne Carpenter *(pictured)* and Stuart Schreiber started developing Cell Painting 13 years ago to take cell imaging to the next level. The method, further advanced by Drs. Carpenter, Shantanu Singh, and colleagues, uses six colored dyes to stain eight different cell organelles. **Read More**

Editas' Novel Sickle Cell Therapeutic Shows Early Promise

BioSpace

Editas Medicine reported promising early data for its Phase I/II RUBY trial of EDIT-301 for severe sickle cell disease (SCD). The dosing of the first patient was the first time the company's engineered AsCas12a enzyme has been used to edit human cells in a trial. EDIT-301 is a cell therapy being developed for severe SCD and transfusion-dependent beta-thalassemia. **Read More**

A Key Process in Asymmetric Cell Division Preserves the Immortality of the Germline

Whitehead Institute

A new paper from Dr. Yukiko Yamashita *(pictured)* illuminates the mechanisms that underlie nonrandom sister chromatid segregation, and suggests that the whole process may serve as a way to maintain the amount of ribosomal DNA (rDNA) that is passed on to subsequent generations. "Tying together these two processes — rDNA copy number maintenance and nonrandom chromatid segregation — is an unexpected and exciting advance in our understanding of how germ cells are able to maintain their immortality," said Dr. Yamashita. **Read More**

Hoekstra Lab Identifies Chromosomal Inversion That Helps Deer Mice Adapt to Their Environment

Harvard University Molecular and Cellular Biology

Forest-dwelling deer mice (*Peromyscus maniculatus*) can be distinguished from their prairie-roaming counterparts by their longer tails and their darker coat color, which helps them blend into a woodland environment. A new analysis from Dr. Hopi Hoekstra's *(pictured)* lab, published in the journal *Science*, found that both of these traits are located on a stretch of DNA that went through a type of DNA rearrangement called a chromosomal inversion. **Read More**

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Interesting Articles

What a Big New US Law That Reshapes Science Agencies Could Mean for Researchers

ScienceInsider

The CHIPS and Science Act, passed by the House of Representatives and Senate, will result in some of the biggest changes in US innovation policy in more than a decade. But researchers should not expect a surge of new funding anytime soon. The legislation calls for more than doubling the budget of the National Science Foundation — now $8.8 billion — over five years. **Read More**

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Upcoming Events in Boston

August 11 5:00 PM	**STAT Locals** Cambridge Brewing Co., Kendall Square
August 18 4:00 PM	**Bits in Bio @ Vertex** Vertex Pharmaceuticals
September 15–16 8:00 AM	**Forsyth Dentech 2022** Forsyth Institute & Online
September 20 10:00 AM	**Precision Medicine 2022: The New "Normal"?** Joseph B. Martin Conference Center & Online
September 23–24 12:45 PM	**15th Annual Inflammatory Bowel Disease: The Art and Science in the Diagnosis and Treatment 2022** Boston Park Plaza Hotel & Online

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Flagship Labs 75

Lead Research Associate, *In Vivo*
Dana-Farber Cancer Institute

Senior Associate Scientist, Metabolism
Pfizer

Postdoctoral Research Fellow
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