Volume 7.11, April 3, 2023

Publications of the Week

Lactate Regulates Cell Cycle by Remodeling the Anaphase Promoting Complex

First Authors: Weihai Liu, Yun Wang, Luiz Bozi, and Patrick Fischer | Senior Author: Edward Chouchani *(pictured)*
Nature | Dana-Farber Cancer Institute, Harvard Medical School, and the Broad Institute

Lactate is abundant in rapidly dividing cells due to the requirement for elevated glucose catabolism to support proliferation. However, it is not known whether accumulated lactate affects the proliferative state. The authors deploy a systematic approach to determine lactate-dependent regulation of proteins across the human proteome. **Abstract | Press Release**

Assessing the Generation of Tissue Resident Memory T Cells by Vaccines

First Author: Elizabeth Rotrosen | Senior Author: Thomas Kupper *(pictured)*
Nature Reviews Immunology | Brigham and Women's Hospital and Boston University School of Medicine

A focus on vaccine-mediated generation of neutralizing antibodies, which has been a successful approach for some pathogens, has been complicated by the emergence of escape variants, which has been seen for pathogens such as influenza viruses and SARS-CoV-2, as well as for HIV-1. The authors discuss how vaccination strategies aimed at generating a broad and robust T cell response may offer superior protection against pathogens, particularly those that have been observed to mutate rapidly. **Abstract**

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Awards

Mei Hong Wins 2023 Christian B. Anfinsen Award from the Protein Society

MIT Chemistry

Dr. Mei Hong *(pictured)* has been selected by the Protein Society as the winner of the 2023 Christian B. Anfinsen Award. This prize recognizes technological achievement or significant methodological advances in the field of protein science. Dr. Hong has been honored for her creation of innovative tools to interrogate protein structure and dynamics using solid-state nuclear magnetic resonance spectroscopy. **Read More**

HMS Neurobiologist Wins Major Neuroscience Award

Harvard Medical School (HMS)

Harvard Medical School neurobiologist Dr. Michael Greenberg *(pictured)* has won the 2023 Brain Prize for pivotal insights into brain plasticity. Dr. Greenberg's research has revealed how experiences and exposures modulate the activity of genes that regulate brain plasticity. His work has illuminated the mechanisms by which certain genes control the maturation, pruning, and stability of connections in the brain. **Read More**

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Local News

Could a Nasal Spray Deliver a Novel Gene Therapy That Stops Opioid Cravings and Reduces Relapse?

Northeastern Global News

Opioid use disorder kills tens of thousands of Americans a year, upends the lives of many more, and is notoriously difficult to treat. Could help come in the form of a nasal spray that delivers a novel gene therapy? Northeastern Pharmaceutical Sciences Professor Dr. Barbara Waszczak *(pictured)* says preliminary research shows the approach may stop drug cravings that lead to relapse and end up saving lives. **Read More**

Research Spotlight: Identification of Pre-Infection Markers and Differential Plasma Protein Expression Following SARS-CoV-2 Infection in People Living with HIV

Massachusetts General Hospital

Drs. Steven Grinspoon *(pictured)* and Marton Kolossváry are co-authors of a new study in eBiomedicine, "Identification of pre-infection markers and differential plasma protein expression following SARS-CoV-2 infection in people living with HIV". They evaluated temporal changes in plasma proteins following SARS-CoV-2 infection and identified pre-infection proteomic markers associated with future COVID-19. **Read More**

Study Reveals a Driver of Brain Cell Damage in Neurodegeneration

Broad Institute

Scientists have long known that the complement cascade, a set of immune system proteins, protects against infection in the body. But in recent years, they have uncovered new roles for the system in the brain, including helping to whittle down connections between brain cells, or synapses, to help shape the nervous system early in life. **Read More**

Sox9 Protein Enables Molecular Time Travel That Can Lead to Colorectal Cancer

Dana-Farber Cancer Institute

Normally the lining of the colon forms a series of steep hills and valleys. At the surface, where the hills peak, are functional colon cells that do the organ's work of absorption and secretion. Deep in the valleys are stem cells that constantly renew those functional cells. New research from Dr. Nilay Sethi's *(pictured)* team at Dana-Farber Cancer Institute found that the cells in those valleys can go through a transition before cancer begins. **Read More**

Bacterial Injection System Delivers Proteins in Mice and Human Cells

Broad Institute

Researchers at the Broad Institute have harnessed a natural bacterial system to develop a new protein delivery approach that works in human cells and animals. Led by Dr. Feng Zhang *(pictured)*, the team took advantage of a tiny syringe-like injection structure, produced by a bacterium, that naturally binds to insect cells and injects a protein payload into them. **Read More**

Collaborative Research Team Is the First to Link Parkinson's Disease to Red Pigment in the Brain

Massachusetts General Hospital

Two forms of melanin, black/brown eumelanin and red/yellow pheomelanin, color our skin and hair. In the brain, a specific region called substantia nigra is also pigmented, and the brain pigment also contains eumelanin and pheomelanin. This brain region loses its darkness in Parkinson's disease due to loss of neurons and pigment. **Read More**

Research Spotlight: A Parathyroid Hormone/Salt-Inducible Kinase Signaling Axis Controls Renal Vitamin D Activation and Organismal Calcium Homeostasis

Massachusetts General Hospital

It has long been appreciated that the kidney is the key organ responsible for the generation of the active form of vitamin D. However, the molecular steps involved in this signaling cascade have remained unknown. In this study, Dr. Marc Wein *(pictured)* and his team sought to define how parathyroid hormone stimulates vitamin D activation in the kidney. **Read More**

SARS-CoV-2 Infection During Pregnancy Linked to Higher Risk of Neurodevelopmental Disorders in Male Infants

Massachusetts General Hospital

In an analysis of electronic health records for 18,355 live births during the COVID-19 pandemic, maternal SARS-CoV-2 positivity during pregnancy was associated with nearly two-fold higher odds of a neurodevelopmental diagnosis at 12 months of age among male children. Maternal SARS-CoV-2 positivity was not linked with a higher risk of neurodevelopmental diagnosis at 12 months of age in female children. **Read More**

Moderna, Generation Bio Launch Up-to-$1.9B Non-Viral Genetic Medicines Collaboration

Genetic Engineering & Biotechnology News

Moderna will apply Generation Bio's proprietary stealth cell-targeted lipid nanoparticle (ctLNP) delivery system to discover and develop non-viral genetic medicines for immune system and liver disorders, through a collaboration that could generate up to $1.876 billion for Generation Bio. Moderna has acquired an option to license both ctLNP and Generation Bio's closed-end DNA novel construct technology. **Read More**

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Scientists in Solidarity: Negotiating Compensation
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5:00 PM
STEMCELL Technologies Career Open House
STEMCELL Technologies

April 19
12:00 PM
Cell and Gene Therapy Catapult Boston Showcase
MassBio

April 20
5:00 PM
Biomedical Informatics Entrepreneurs Salon: Linda Avey
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April 26
12:00 PM
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