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Publications of the Week

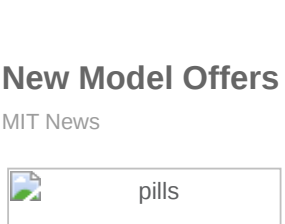
Longitudinal Single-Cell Imaging of Engineered Strains with Stimulated Raman Scattering to Characterize Heterogeneity in Fatty Acid Production

First Author: Nathan Tague | Senior Authors: Ji-Xin Cheng and Mary Dunlop *(pictured)*
Advanced Science | Boston University

Longitudinal hyperspectral stimulated Raman scattering chemical imaging is developed to directly visualize free fatty acids in engineered *Escherichia coli* over many cell cycles. Compositional analysis is also developed to estimate the chain length and unsaturation of the fatty acids in living cells. This method reveals substantial heterogeneity in fatty acid production among and within colonies that emerges over the course of many generations. **Abstract**

Thyroid Cancers Exhibit Oncogene-Enhanced Macropinocytosis That Is Restrained by IGF1R and Promotes Albumin-Drug-Conjugate Response

First Author: Huiyu Hu *(pictured)* | Senior Author: Miles Miller
Clinical Cancer Research | Massachusetts General Hospital and Harvard Medical School



The authors hypothesized that understanding links between thyroid cancer signaling and macropinocytosis might uncover new therapeutic strategies. Macropinocytosis was assessed across cells derived from papillary thyroid cancer, follicular thyroid cancer, non-malignant follicular thyroid, and aggressive anaplastic thyroid cancer, by imaging fluorescent dextran and serum albumin. **Abstract**

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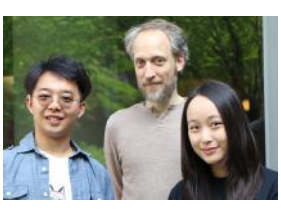
Awards

Two Undergraduates Win Hoopes Prize for Research Conducted in Hekstra Lab

Harvard Department of Molecular and Cellular Biology



Ziyuan Zhao *(pictured, left)* and Phyllis Zhang *(right)* from Dr. Doeke Hekstra's *(center)* lab have been awarded the prestigious Hoopes Prize for undergraduate thesis research. The Hekstra lab investigates the internal motions of proteins as they carry out their functions. “In practice, the motions of protein are usually small because their amino acid sequences have been ‘tamed’ by evolution—many weak interactions keep the protein structure mostly intact." **Read More**

Royal Society of Chemistry Honors BU’s Mark Grinstaff

The Brink

Boston University (BU) chemist and biomedical engineer Dr. Mark Grinstaff *(pictured)* has won the Royal Society of Chemistry’s Centenary Prize in “recognition of brilliance in research and innovation.” A world-renowned researcher and inventor, Dr. Grinstaff is the university’s inaugural Distinguished Professor of Translational Research. **Read More**

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Local News

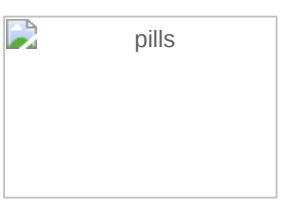
Meet the HSCRB Faculty: Fei Chen

Harvard Department of Stem Cell and Regenerative Biology

Dr. Fei Chen *(pictured)*, is an Assistant Professor at the Harvard Department of Stem Cell and Regenerative Biology, and a Core Faculty member at the Broad Institute. His lab is interested in studying how tissues are built using new tools being developed. They focus on spatial genomics, which involves looking at molecules like RNA and DNA inside cells, to understand the spatial organization of genes and their interactions within cells, tissues, and organs. **Read More**

New Model Offers a Way to Speed Up Drug Discovery

MIT News



By applying a language model to protein-drug interactions, researchers can quickly screen large libraries of potential drug compounds. Huge libraries of drug compounds may hold potential treatments for a variety of diseases, such as cancer or heart disease. Ideally, scientists would like to experimentally test each of these compounds against all possible targets, but doing that kind of screen is prohibitively time-consuming. **Read More**

Study Uncovers Role of Ultraviolet Radiation in Development of Rare Leukemia in the Skin

Dana-Farber

A change of scenery can restore one's outlook, but for some precancerous cells, a journey from the caves of the bone marrow to the sunny climes of the skin can trigger genetic changes that are a harbinger of cancer, according to a new study by Dr. Andrew Lane *(pictured)* and researchers at Dana-Farber Cancer Institute, Brigham and Women's Hospital, and the Broad Institute of MIT and Harvard. **Read More**

DNA Sequencing in Newborns Reveals Years of Actionable Findings for Infants and Families

Brigham and Women's

Researchers who lead the world’s first comprehensive sequencing program for newborn infants have published the next chapter in the ongoing study of the BabySeq Project, with new findings on infants and families who have been followed for 3-5 years. They reported that over ten percent of the first 159 infants to undergo screening through DNA sequencing were discovered to have unanticipated mutations in disease-associated genes. **Read More**

Mass General Hospital Researchers Uncover Why Light-to-Moderate Drinking Is Tied to Better Heart Health

Massachusetts General Hospital

A new study led by Dr. Ahmed Tawakol *(pictured)* and investigators from Massachusetts General Hospital offers an explanation for why light-to-moderate alcohol consumption may be associated with lower risk of heart disease. For the first time, researchers found that alcohol, in light to moderate quantities, was associated with long-term reductions in stress signaling in the brain. **Read More**

Refining Mental Health Diagnoses

McGovern Institute

Dr. Maedbh King *(pictured)* came to MIT to make a difference in mental health. As a postdoctoral fellow in the K. Lisa Yang Integrative Computational Neuroscience Center, she is building computer models aimed at helping clinicians improve diagnosis and treatment, especially for young people with neurodevelopmental and psychiatric disorders. **Read More**

New Study Suggests Simple Test Could Detect Breast and Ovarian Cancer Risk Without Genetic Sequencing

Dana-Farber

Dr. Dipanjan Chowdhury *(pictured)* and researchers from Dana-Farber Cancer Institute, Brigham and Women’s Hospital, and the Medical University of Lodz have found a way to detect increased cancer risk associated with *BRCA1* and BRCA2 mutations without genetic sequencing, according to a new study in *Nature Communications*. **Read More**

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Upcoming Events in Boston

June 20 - 23 8:00 AM	**FOCIS 2023** Boston Marriott Copley Place
June 21 2:30 PM	**Unveiling the Power Within: Tumoroids for Translational IO Drug Discovery & Development** MassBioHub
June 22 5:30 PM	**AWIS Boston: DEI Committee Kick-off Social** Magazine Beach
June 23 9:00 AM	**Koch Institute Symposium 2023: Cancer Vaccines** Koch Institute
June 26 8:00 AM	**The Investment Climate’s Impact on Biotechs, Tech Transfer & Pipeline** MassBioHub and Online

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STEMCELL Technologies

Scientific Inside Sales Representative
STEMCELL Technologies

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Voyager Therapeutics

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