



Publications of the Week

Cephalopod-Inspired Jetting Devices for Gastrointestinal Drug Delivery

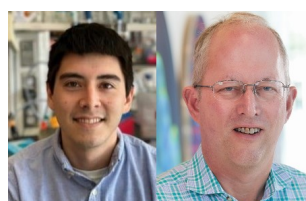
First Authors: Graham Arrick, Drago Slicker, and Aghiad Ghazal | Senior Authors: Stephen Buckley and Giovanni Traverso (*pictured*)
 Nature | Brigham and Women's Hospital, Harvard Medical School, Broad Institute, and MIT



Needle-based injections currently enable the administration of a wide range of biomacromolecule therapies across the body, including the gastrointestinal tract. Here, inspired by the jetting systems of cephalopods, researchers have developed and evaluated microjet delivery systems that can deliver jets in axial and radial directions into tissue, making them suitable for tubular and globular segments of the gastrointestinal tract. [Abstract](#) | [Press Release](#)

Tumor Integrin-Targeted Glucose Oxidase Enzyme Promotes ROS-Mediated Cell Death That Combines with Interferon Alpha Therapy for Tumor Control

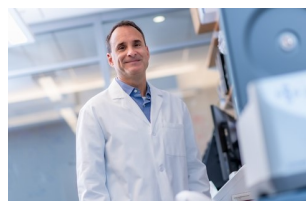
First Author: Jordan Stinson (*pictured, left*) | Senior Author: Karl Dane Wittrup (*right*)
 Molecular Cancer Therapeutics | Koch Institute and MIT



Although heightened intratumoral levels of reactive oxygen species (ROS) are typically associated with a suppressive tumor microenvironment, under certain conditions ROS contribute to tumor elimination. In this work, researchers explore the use of glucose oxidase, an enzyme which produces ROSs, to therapeutically mimic the endogenous oxidative burst from myeloid cells to promote antigen generation within the tumor microenvironment. [Abstract](#) | [Press Release](#)

Evolving Cell States and Oncogenic Drivers During the Progression of IDH-Mutant Gliomas

First Authors: Jingyi Wu and Nicolas Gonzalez Castro | Senior Authors: Bradley Bernstein (*pictured*)
 Nature Cancer | Dana-Farber Cancer Institute, Broad Institute, Harvard Medical School, Massachusetts General Hospital, and Brigham and Women's Hospital



Isocitrate dehydrogenase (IDH) mutants define a class of gliomas that are initially slow-growing but inevitably progress to fatal disease. To characterize their malignant cell hierarchy, researchers profiled chromatin accessibility and gene expression across single cells from low-grade and high-grade IDH-mutant gliomas and ascertained their developmental states through a comparison to normal brain cells. [Abstract](#) | [Press Release](#)

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Awards

Four from MIT Named 2025 Rhodes Scholars

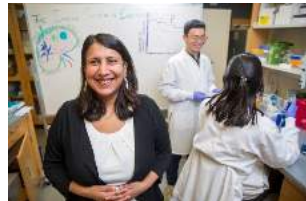
McGovern Institute



Yiming Chen (*pictured, top left*), Wilhem Hector (*top right*), Anushka Nair (*bottom left*), and David Oluigbo (*bottom right*) have been selected as 2025 Rhodes Scholars. In addition to MIT's two US Rhodes winners, Oluigbo and Nair, two affiliates were awarded international Rhodes Scholarships: Chen for Rhodes' China constituency and Hector for the Global Rhodes Scholarship. Hector is the first Haitian citizen to be named a Rhodes Scholar. [Read More](#)

Wyss Institute's iNodes Team Receives ARPA-H Sprint for Women's Health Award to Advance the First Implantable Immune Organs to Treat Ovarian Cancer

Wyss Institute



Ovarian cancer is more deadly than any other type of female reproductive organ cancer. To help overcome this striking deficit in women's health, Advanced Research Projects Agency for Health (ARPA-H) has selected a team at the Wyss Institute led by Dr. Girija Goyal (*pictured*) as an awardee of its Sprint for Women's Health effort to develop "iNodes" — implantable lymphoid organs containing patients' immune cells. [Read More](#)

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Local News

When a Cell Protector Collaborates with a Killer

MIT News



By studying the microscopic roundworm *C. elegans*, scientists at the McGovern Institute have begun to unravel a longstanding mystery about the factors that control apoptosis: how a protein capable of preventing programmed cell death can also promote it. Their study sheds light on the process of cell death in both health and disease. [Read More](#)

Podcast: Studying the Link Between Alzheimer's Disease and Type 2 Diabetes

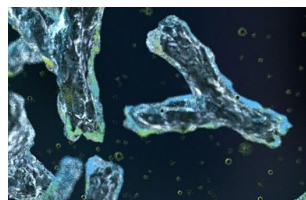
UMass Chan Medical School



In a new Voices of UMass Chan podcast, Dr. Jason Kim (*pictured*), Director of the Metabolic Disease Research Center, discussed his research into the link between Alzheimer's disease and type 2 diabetes. "Studies have shown that about 80% of people with Alzheimer's disease have type 2 diabetes. And this cannot be just purely coincidental," Dr. Kim said. [Read More](#)

Clinical Trial Shows Positive Results for Potential Treatment to Combat a Challenging Rare Disease

Massachusetts General Hospital



A team led by Mass General Brigham researchers demonstrated that inebilizumab reduced the risk of symptoms by 87% in patients with the rare affliction known as immunoglobulin G4-related disease (IgG4-RD). The study, which was an international, phase 3 clinical trial, found that treatment with inebilizumab greatly reduced the symptoms of IgG4-RD compared to placebo. [Read More](#)

How Cells Habituate

Harvard Medical School



Habituation — adaptation's less-glamorous sibling — involves the lessening response to a stimulus after repeated exposure. Up until recently, habituation was deemed the exclusive domain of complex organisms with brains and nervous systems. But a new study offers compelling evidence that even tiny single-cell creatures could exhibit habituation akin to that seen in more complex organisms with brains. [Read More](#)

Groundbreaking Discovery Uncovers Achilles' Heel of Malaria Parasite

Ragon Institute



Do individuals living in regions with continuous malaria transmission develop broadly neutralizing antibodies against the malaria parasite? According to a new study from Dr. Raphael Reyes (*pictured*) and collaborators, the answer is yes. This discovery explains how antibody-mediated immunity develops against *Plasmodium falciparum*, the parasite responsible for the most severe forms of malaria. [Read More](#)

Research Spotlight: Multiomic Landscape of the Human Placenta at Molecular Resolution

Massachusetts General Hospital



Dr. Jian Shu (*pictured*) led a study that generated by far the largest and most comprehensive spatially resolved single-cell census and molecular architecture of the first trimester human placenta. Dr. Shu and his co-authors identified spatially resolved gene expression and CRE-linked epigenetic programs likely involved in continuous placental evolution and adaptation, including tumor invasion and immune evasion mechanisms. [Read More](#)

Artifacts from a Half Century of Cancer Research

Koch Institute



Throughout 2024, MIT's Koch Institute for Integrative Cancer Research has celebrated 50 years of MIT's cancer research program and the individuals who have shaped its journey. In honor of this milestone anniversary year, the Koch Institute celebrated the opening of a new exhibition: Object Lessons: Celebrating 50 Years of Cancer Research at MIT in Ten Items. [Read More](#)

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Upcoming Events in Boston

- December 3 1:00 PM **DF/HCC Celebration of Early Career Investigators in Cancer Research**
Dana Farber Cancer Institute
- December 3 5:30 PM **Lights, Camera, Action**
Koch Institute for Integrative Cancer Research
- December 9 4:00 PM **Symposium on Biodiversity and Non-Traditional Model Organisms with Dr. Nipam Patel, Director of the Marine Biological Laboratory**
Singleton Auditorium
- December 17 12:00 PM **BWH Cancer Research Symposium**
Brigham & Women's Hospital
- January 11 1:00 PM **Science, Technology, & Ethics in the Real World**
Building 16

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Science Jobs in Boston

- Research Associate I**
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