Massachusetts Institute of Technology

The Tech

Science Stories in a Social Context

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March 28, 2026

The Tech
Established 1881

MIT's oldest and largest student newspaper

Science department: feature-style and profile-style pieces on science and scientists

Pentagon cuts service college fellowships at MIT

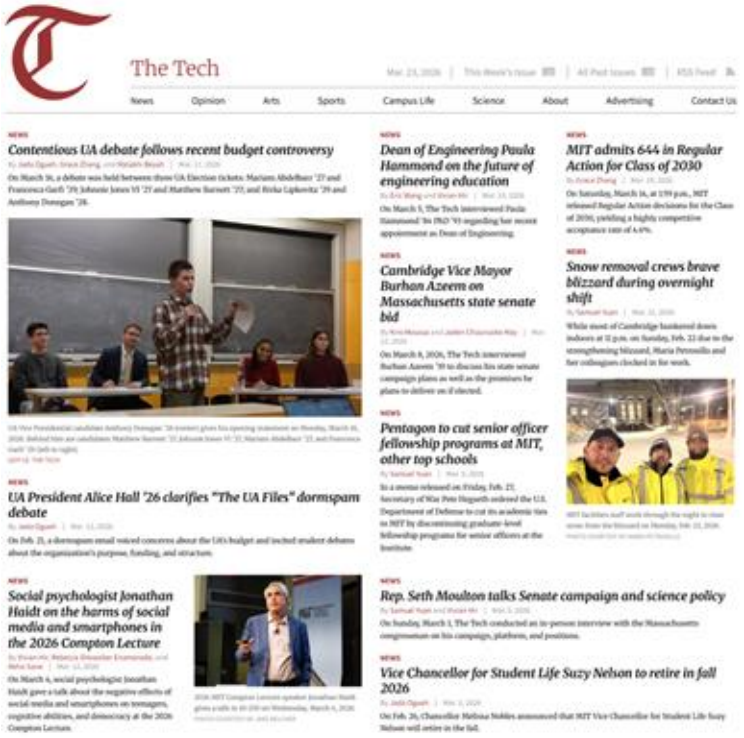
Hegseth accused MIT and peers of subjecting service members to "woke indoctrination"

Rep. Seth Moulton on Senate bid and American politics

Rep. Moulton, 47, is primarying the incumbent 79-year-old Democrat Senator Ed Markey

MIT Faculty share insights on TFUAP proposal

Some faculty applauded changes, others, including an undergrad, disapproved



The Tech

Contentious UA debate follows recent budget controversy

Dean of Engineering Paula Hammond on the future of engineering education

MIT admits 644 in Regular Action for Class of 2030

Cambridge Vice Mayor Burhan Azeem on Massachusetts state senate bid

Snow removal crews brave blizzard during overnight shift

Pentagon to cut senior officer fellowship programs at MIT, other top schools

UA President Alice Hall '26 clarifies "The UA Files" dormspam debate

Social psychologist Jonathan Haidt on the harms of social media and smartphones in the 2026 Compton Lecture

Rep. Seth Moulton talks Senate campaign and science policy

Vice Chancellor for Student Life Suzy Nelson to retire in fall 2026

MIT Integration Bee Hosts 44th Annual Competition

Integration Bee is a very embedded part of MIT culture… It's the only place where you hear "3, 2, 1, Integrate!"

The top four finalists of the 2025 Integration Bee pose with their prizes. From left to right: Jacopo Rizzo, Karthik Vedula, Brian Liu, Hanhong Zhao.

By Sophia Zhang

Major new NIH investment in women's health science arrives at MIT

A new $3 million-a-year grant from the National Institutes of Health will fund a Technology Development Center for women's health

By Katelyn Howard

Computing of tomorrow

The Social and Ethical Responsibilities of Computing (SERC) initiative challenged students to imagine "the future of computing"

By Jieruei Chang

Meyer describes the ethical concerns of her fictitious technology at SERC

Massachusetts Institute of Technology

People-focused science communication

- public perceptions of science
- staying relevant in the attention economy

When the image is not the disease

List Visual Arts Center exhibits a magnifying glass to the metaphors of multiple sclerosis

By Veronika Moroz
SCIENCE EDITOR

Inside the Hayden Gallery at the MIT List Visual Arts Center, a fragmented diaspora of LEGO robots is creaking in unison. Each robot carries an iPhone, waving the phone back and forth to increment the step count on a health-tracking app.

When companies started providing cheaper insurance to those who walk a certain number of steps, some people with chronic illnesses turned to assembling robots like these to afford the care they need. The robots, collectively entitled *Lego Pedometer Cheating Machines* (2019), are a part of *Flare-Up*, an exhibit at the List by artistic duo Simon Goldin and Jakob Senneby (Goldin+Senneby) that explores the divide between the precise facts of medicine and the spiraling reality of human illness. Open at the List until March 15, 2026, *Flare-Up* pulls from a range of modern and historical portrayals of sickness to describe Senneby's experiences as a patient suffering from multiple sclerosis (MS), a neurodegenerative disease.

White spots

On Jan. 20, 2000, a singular picture changed Jakob Senneby's life.

The picture – a Machine Resonance Imaging (MRI) scan of Senneby's brain – featured white spots characteristic of MS. It was enough for his doctor to diagnose him with the disease.

Senneby quit his job a few months later and enrolled in art school, where he part-

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Jakob Senneby (left) and Simon Goldin (right), deliver a performative lecture on opening night of Flare-Up.

placebo. The FDA "accepted the image as the disease, and approved the drug to treat it," Senneby said.

15 years later, leading MS researcher George Ebers organized a follow-up study on the original patients, but couldn't find evidence that the MRI scans predicted disability progression. Betaseron continued to be sold as an MS treatment, and is now 10 times more expensive than it was in 1993.

"Drugs are developed on a lot of end-

treatment. The name is a direct translation of *Schluckbildchen*, the German word for tiny portraits of saints that 18th- to 20th-century religious pilgrims would swallow in hopes of curing their illnesses.

Each piece in *Swallowimage* consists of a historic oil painting of health, death, or sickness, the canvas reversed and inoculated with the fungus *Isaria sinclairii* — the source of an active ingredient in the MS drug Gilenya. Though *Isaria sinclairii* is mythologized as an elixir of eternal youth in

What is multiple sclerosis (MS)?

Multiple sclerosis (MS) is a neurodegenerative disease that occurs when cells from the body's immune system enter the brain and attack the protective coating on cells called neurons. As the coating, called myelin, gets damaged, neurons in the area die and lesions form. These lesions are what doctors identify as white spots in magnetic resonance imaging (MRI) scans.

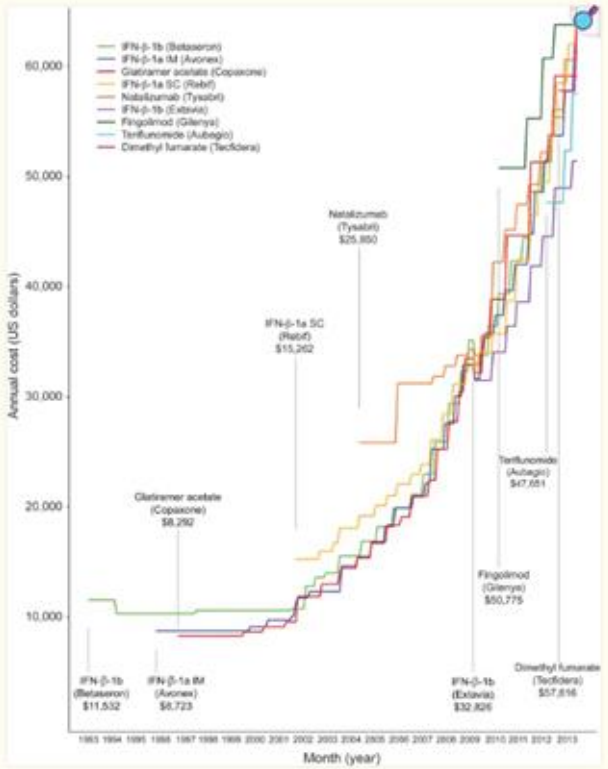
MS comes in multiple forms, including Relapsing-Remitting MS, in which myelin damage is temporary and occurs in short bursts that people refer to as "flare-ups." However, many patients accumulate damaged brain tissue, causing both cognitive and physical decline.

According to Xochitl Luna '22, an MS researcher and neuroscience PhD student at the Whitehead Institute, most current MS treatments are anti-inflammatory drugs "designed to tell the immune system to just calm down and stop attacking the body." This includes Betaseron, Tysabri, and Gilenya, each of which Senneby has been prescribed over the course of his illness. While over twenty drugs are available today to help with improving attack recovery, slowing

A lot of different material…

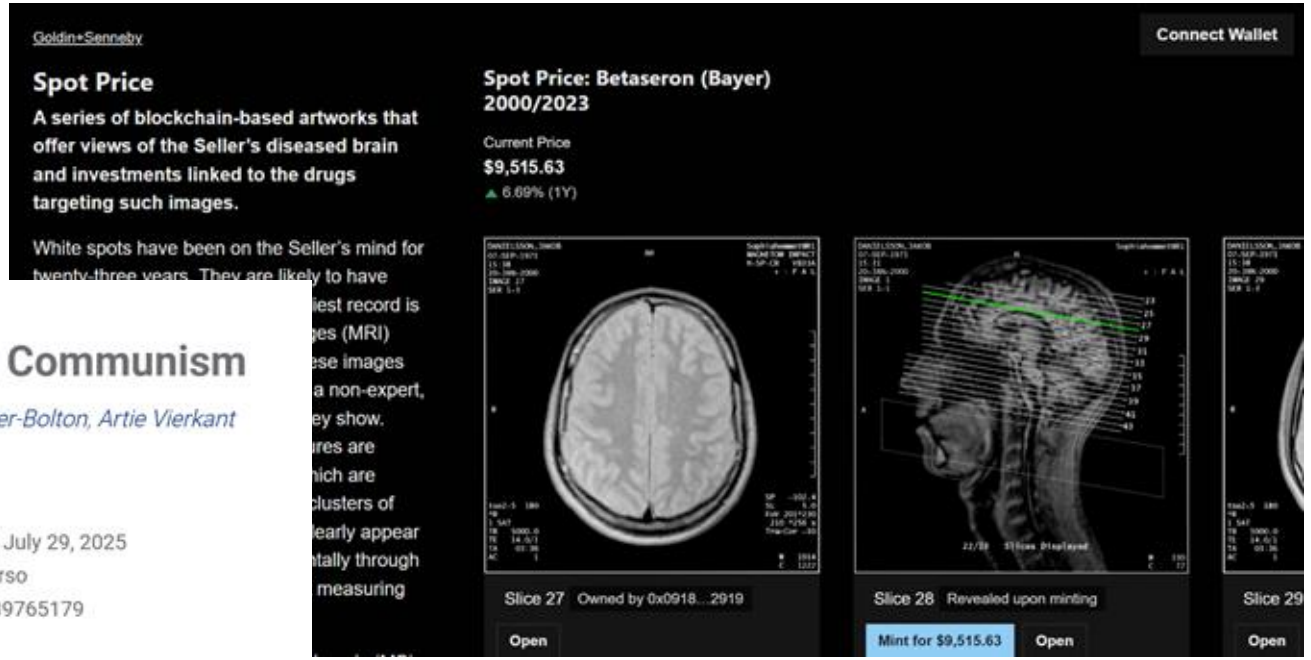
A lot to fact check…

Figure 1. Estimated annual costs of multiple sclerosis disease-modifying therapies in the United States from 1993 to 2013.



Open in a new tab

Annual costs estimated from average wholesale prices (AWP), or wholesale acquisition costs if AWP not reported, and discounted 12%. IFN = interferon.



Health Communism

Beatrice Adler-Bolton, Artie Vierkant

$19.95

Publish Date: July 29, 2025
Publisher: Verso
ISBN: 9781839765179
Pages: 240
Language: English

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Current Research Areas: history of medicine; pharmaceutical industry; clinical trials; healthcare economics; STS

Xochitl Luna

Xochitl is a PhD student in Brain and Cognitive Sciences (BCS) who joined the lab in 2023. Previously, she graduated from MIT with a Bachelors of Science in Chemistry, where she studied the effect of Alzheimer's Disease genetic variants on neuron-microglia interactions. Now, she hopes to interrogate the role of enhancers in microglia in Multiple Sclerosis. Besides her passion for all things microglia and iPS, Xochi loves dancing, singing, and teaching science.

Contact: xochitl@wi.mit.edu

Just one story

- art to keep the reader engaged
- Jakob Senneby's experiences with MS as the throughline of the piece
- focusing on the claims that I was able to contextualize

When the image is not the disease

List Visual Arts Center exhibits a magnifying glass to the metaphors of multiple sclerosis

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The picture – a Machine Resonance Imaging (MRI) scan of Senneby's brain – featured white spots characteristic of MS. It was enough for his doctor to diagnose him with the disease.

Senneby quit his job a few months later and enrolled in art school, where he partnered with classmate Simon Goldin to form Goldin+Senneby. As Senneby's condition progressed, their practice shifted to focus more on his feeling of living in "two incompatible realms: that of medicine, where bodies were measured and manipulated with incredible precision, and that of [Senneby's] own experience, where numbers refuse to add up and limbs fail to process commands."

Historically, doctors have characterized MS by the lesions it leaves on the nervous system, which show up as white spots in MRI scans. When the first MS treatment, Betaseron, was undergoing clinical trials in 1993, scientists chose to measure the drug's success by counting the lesions. The white spots became what scholars refer to as a "surrogate endpoint," said Thea Applebaum Licht, a PhD student at MIT who studies the history and economy of the U.S. pharmaceutical industry.

Patients taking Betaseron during the 1993 clinical trial developed fewer and smaller spots than patients treated with a placebo. The FDA "accepted the image as the disease, and approved the drug to treat it," Senneby said.

VERONIKA MOROZ – THE TECH

Jakob Senneby (left) and Simon Goldin (right), deliver a performative lecture on opening night of Flare-Up.

15 years later, leading MS researcher George Ebers organized a follow-up study on the original patients, but couldn't find evidence that the MRI scans predicted disability progression. Betaseron continued to be sold as an MS treatment, and is now 10 times more expensive than it was in 1993.

"Drugs are developed on a lot of endpoints that are of mixed quality, and you need to keep validating them," Licht explained. Subsequent studies have found some correlation between brain lesions and disease severity, but researchers are still debating the extent to which MRI images should influence treatment.

Though he was initially told to take Betaseron, Senneby's doctors later switched his prescription to newer drugs. With each new medication came new scans. "Increasingly, my feeling was that all the doctors could find were the spots they had out to see: the image of their own diagnosis," he said.

Making images of their own

Senneby's MS has taken away his cognitive capacity to speak freely and coherently, but creating art with Goldin has allowed him to continue sharing his ideas. *Flare-Up* is the artists' latest attempt to expose viewers to the suffering missing from clinical descriptions of MS.

Their *Swallowimage* series (2025) explores the emotional risk of starting a new treatment. The name is a direct translation of *Schluckbildchen*, the German word for tiny portraits of saints that 18th- to 20th-century religious pilgrims would swallow in hopes of curing their illnesses.

Each piece in *Swallowimage* consists of a historic oil painting of health, death, or sickness, the canvas reversed and inoculated with the fungus *Isaria sinclairii* — the source of an active ingredient in the MS drug Gilenya. Though *Isaria sinclairii* is mythologized as an elixir of eternal youth in traditional Chinese medicine, it's a deadly parasite to cicadas, eating away until it blooms out of its host's head.

This dichotomy of *Isaria sinclairii* reflects patients' lack of control over the possible outcomes of a new treatment. "It is often said that you become what you eat," the artists wrote. "But as you swallow the pill, you are unsure if you are becoming more like the fungi of eternal youth, or indeed, the cicada whose head is about to sprout."

The artists' blockchain-based artwork, *Spot Price* (2023), gives viewers an expensive look at the scans that have defined Senneby's illness. In order for it to be visible, each scan needs to be minted for $7,000 to $10,000, an amount that is "pegged to the monthly cost of certain medications I've been on," Senneby said.

"Given the inexorable rise in prices and the decisive role of the white spots in validating drugs, the spots pictured in *Spot Price* (2023) may be the Seller's most valuable asset," the caption stated.

At the exhibit's opening lecture, the artists distributed their own swallow images, which were chocolates imprinted with a QR code linking to *Spot Price*. Unlike Senneby, whose deteriorating health forces him to pay thousands of dollars for drugs that provide little long-term improvement, the audience was given a choice: investigate the QR code, or, like the religious pilgrims, swallow blindly.

"Epilogue," Goldin announced. "Eat your image, before your image eats you."

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Because the drugs work by weakening the entire immune system, "a lot of the treatments make MS patients immunosuppressed," Luna said. "The folks that I know in my life with MS, some of them will wear a mask everywhere because it's worth it to be able to have a treatment, but the risk of getting sick is just too high."

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Thank you! Any questions?

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