

# The Boston Globe

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## Sickle cell treatment sends hopes for gene editing soaring

Biotechs race to design therapies to combat a range of diseases and conditions



JONATHAN WIGGS/GLOBE STAFF

Robert Chain, a research associate in immuno-oncology, was busy at CRISPR Therapeutics in South Boston.

By Robert Weisman  
GLOBE STAFF

A new treatment for sickle cell disease, which made history last week as the first gene-editing therapy approved by US regulators, is just the opening to what many say is the next frontier for drug discovery and patients suffering from previously untreatable conditions.

Drug makers in Massachusetts and beyond are already deploying gene editing, which snips sequences of patients' DNA, to develop dozens of other treatments for cancers, heart disease, and rare genetic disorders.

The technology is quickly advancing as lo-

cal biotechs work with second- and third-generation gene-editing tools to design therapies with the promise of permanently lowering cholesterol, preventing strokes, and even vanquishing degenerative and debilitating diseases such as ALS and Huntington's that have long been death sentences.

"This technology is powerful enough to tackle the most common causes of morbidity in the world," said Samarth Kulkarni, chief executive of CRISPR Therapeutics, a Swiss biotech that does much of its gene-editing research and manufacturing at sites in Boston and Framingham. "This will change the way people think about medicine."

Unlike many medicines, which are inject-

ed or infused at regular intervals over years, gene-editing could provide "one-and-done" treatments that can last throughout patients' lives, though it's too soon to know how many will meet that bar.

Last Friday, the Food and Drug Administration approved Casgevy, a one-time treatment for sickle cell disease, which causes crippling pain and primarily afflicts people of African descent. The drug was developed by CRISPR and its partner, Boston's Vertex Pharmaceuticals, using an enzyme called CRISPR-Cas9 that works like a pair of molecular scissors to cut out a gene in patients' cells.

The drug was priced at \$2.2 million, raising questions about access. **GENES, Page A10**

## With DNA testing and more safeguards, fertility fraud less likely to happen today

By Felice J. Freyer  
and Chris Serres  
GLOBE STAFF

Could it happen today? Women seeking infertility care may be wondering if they are safe from the kind of misconduct alleged in a lawsuit filed this week, which accused a doctor of using his own sperm in artificial insemination without the woman's consent in 1980.

But times have changed, and more safeguards are in place today. Several states have passed laws that specifically prohibit such behavior. And a host of deterrents are in effect everywhere, including the inescapable fact that such misconduct has a good chance of being discovered now that so many people take home DNA tests.

That's how Sarah Depoian came to sue Dr. Merle Berger, a prominent

"This particular case illustrates how norms have changed in the field."

KATHERINE KRASCHEL  
*Northeastern University*

Boston fertility doctor who has retired. Depoian's daughter took a DNA test and soon heard from a relative of Berger's who had also done the test and wanted to know how they were related.

Adam Wolf, Depoian's lawyer, said he has represented 36 women in similar situations, each involving a different doctor.

Almost all such cases, Wolf said, occurred between 1978, when intra-uterine insemination — the practice of inserting sperm directly into the uterus — became prevalent, and 1989, when doctors realized that DNA testing was starting to become more common.

"Could that happen now? Technically it could," Wolf said. "I have not seen an instance of it occurring in the past 10 years."

Today, donor sperm comes from sperm banks, where the samples have been cleaned and frozen, or from an individual the mother has asked to donate.

Depoian's insemination happened at a time when there were no banks of frozen sperm, and doctors had to find a donor to give a fresh specimen

**INSEMINATION, Page A10**

## Who's got a beard that's long and white? Must be . . . Santa?

St. Nick lookalikes go with the seasonal flow

By Lindsay Crudele  
GLOBE CORRESPONDENT

Each year, the holiday season shows up a bit early, like a party guest who arrives before the snacks are out. I side-eye the hardware store Christmas trees, posed before the Halloween pumpkins are composted, and cringe at carols piped into the grocery store just after Election Day. The holiday season is a bit like an overhyped movie: I know I will check it out, but I'd like to wait a while.

When it does happen, it hits hard. The truth is, I have no chill around Santa Claus. When I see him at the mall, I melt. One night at Frank Pepe, a Santa

on duty came in to pick up his order, and I blushed, 7 again. My condition is an embarrassing secret I would never want published in a newspaper.

For the last few years, a mysterious figure has appeared on my running route. He's a bird-watcher with an uncanny resemblance to the jolly old man, and he sits on a granite block, binoculars poised toward the eagle's nest across the marsh. We've been nod-friends, but I've never stopped to chat. Each December, the bird-watcher dons the hat. You know the one. When that happens, I catch myself tearing up and

**SANTAS, Page A7**

## US wants Israel to scale down its attack

Biden reportedly seeking narrower focus in 3 weeks

By Adam Entous, Aaron Boxerman,  
and Thomas Fuller

NEW YORK TIMES

WASHINGTON — Biden administration officials want Israel to end its large-scale ground and air campaign in the Gaza Strip within weeks and to transition to a more targeted phase in its war against Hamas, American officials said Thursday.

Jake Sullivan, President Biden's national security adviser, met with Israeli leaders Thursday about the direction of the war. Sullivan did not specify a timetable, but four US officials said Biden wants Israel to switch to more precise tactics in about three weeks. The officials asked for anonymity to discuss the president's thinking.

American officials have made that timeline clear to their Israeli counterparts in recent days, the latest step in a gradual move by the administration to communicate that the United States' patience with widespread civilian deaths is running out.

"I want them to be focused on how to save civilian lives — not stop going after Hamas, but be more careful," Biden said Thursday after a speech on prescription drug costs at the National Institutes of Health in Bethesda, Md.

The new phase that the Americans envision would involve smaller groups of elite forces that would move in and out of population centers in Gaza, carrying out more precise missions to find

**ISRAEL, Page A4**

## Quick backing from MIT took leader off hook

Kornbluth still faces tensions over antisemitism on campus

By John Hilliard  
GLOBE STAFF

The president of the University of Pennsylvania, Liz Magill, quickly resigned under public pressure. The fate of Harvard University's leader, Claudine Gay, hung in the balance for a week until the college's governing board declared its support.

But at MIT, the board moved decisively to show its support for president Sally Kornbluth, praising her leadership and integrity at the height of a public outcry.

Acting so quickly — just two days after the three college leaders were widely criticized for equivocating during a congressional hearing on campus antisemitism — took the heat off Kornbluth while Gay continued to endure harsh scrutiny, specialists said.

The controversy unfolded as a study of contrasts at the two elite Cambridge schools.

At MIT, known for its nose-to-the-grindstone ethos, the institute's governing board issued a statement offering its "full and unreserved support" for its president. And it highlighted her "ability to unite our community" during a tense time for the campus.

At Harvard, which has been a hotbed of protests over the Israel-Hamas war, Gay not only faced an unceasing uproar over her statements

**MIT, Page A7**

**The Massachusetts House passed legislation that would require all employers to give their workers time off to vote** in state and local elections. **B1.**

**Thousands of Massachusetts children with behavioral and mental health problems are languishing on wait lists** because of a shortage of workers. **B1.**

**By passing the annual defense authorization bill, the House delivered a bipartisan rebuke** to its most conservative members. **A2.**

**Timothée Chalamet takes over the iconic role in "Wonka,"** a prequel to the 1971 classic. Critic Odie Henderson's take, **G1.**



Fifty-fifty chance

**Friday:** Much warmer. High 50-55. Low 37-42.

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Sunrise: 7:06 Sunset: 4:12  
**Weather and Comics, G8-9. Obituaries, C9.**

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JOHN TLUMACKI/GLOBE STAFF

Dan Bythewood, a tattoo artist, said he's been hailed by children a few times since his beard went white. "Maybe Santa will be my second career," he said.