



María Elena Álvarez-Buylla is the head of Mexico's main science agency.

HUNDREDS FILE SUIT TARGETING MEXICO'S DIVISIVE SCIENCE LAW

Scientists and some opposition lawmakers say the passing of the legislation violated normal procedures.

By Myriam Vidal Valero

Hundreds of scientists and about one-third of the members of Mexico's Congress have filed lawsuits declaring a recently passed science law unconstitutional. They say that the legislation, called the General Law on Humanities, Sciences, Technologies and Innovation, was passed using an irregular procedure and that it could harm scientific development in the country.

More than 200 lawmakers in opposition to the law filed their complaint with Mexico's Supreme Court of Justice of the Nation on 6 and 7 June, the last days of a 30-day period during which they could challenge the law's constitutionality. If the Supreme Court agrees that the law was passed atypically, "it will be overturned", says Brasil Acosta, a member of a unit of Mexico's Congress called the Chamber of Deputies, who helped to file the legislators' suit.

The scientists' suits – more than 30 'amparos' filed in at least 11 states by more than 300 individuals – are complementary to the legislators' suit, says Joan Ochoa, a Guanajuato-based lawyer for the non-profit legal organization *Uniendo Caminos Mexico*. *Amparos* protect individuals' constitutional

rights against acts committed by Mexican authorities. "Only one of the *amparos* needs to be accepted by the court for the law to be put on hold," says Ochoa, who filed some of the suits on behalf of the scientists.

A fast-tracked law

Mexican officials proposed updating the country's science law shortly after the current president, Andrés Manuel López Obrador, took office in 2018. But delays occurred because of the COVID-19 pandemic and disagreements

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between political parties. In April, the Chamber of Deputies agreed to hold seven open parliamentary forums at which scientists could discuss what the law should include. Deputies were then to use information gleaned from these sessions to revise and vote on a proposed version of the new law and pass it to the Senate for approval.

After only two of the seven sessions had

occurred, however, the Chamber of Deputies – controlled by the Morena party, to which López Obrador belongs – approved the proposed law and passed it along. The ruling party 'fast tracked' the process because the congressional period was about to end, and holding the remaining five parliamentary sessions would have extended consideration of the law to the next legislative period, which starts on 1 September.

On 28 April, senators from the Morena party called a recess during an active Senate session and then held an 'emergency session' in another building to vote on the science bill, as well as on 19 others. The bills were passed in the early hours of the next morning.

There wasn't a legal justification to call for an emergency meeting "because it was not urgent" that the science law be passed, Acosta says, adding that the actions are therefore unconstitutional.

Ruling-party senators contacted by *Nature* didn't respond to requests for comment.

Solving national problems

Aside from how the law was passed, scientists and legislators are concerned about how the new legislation could affect science in the country. They say it concentrates power over research in the Mexican government.

For instance, the law establishes a government council that will decide which science projects to prioritize for funding on the basis of their potential to solve national problems. That council will be led by the director of Mexico's main science agency, the National Council of Humanities, Sciences and Technologies (Conahcyt). There will be eight scientists on the council, and they will be vetted by an internal advisory body chaired by Conahcyt's head, María Elena Álvarez-Buylla.

"Decisions are going to be very centralized," says Romeo Saldaña, an ecologist at the Ibero-American University Puebla in Mexico.

Saldaña also worries that focusing on national problems will curtail the ability of scientists to do basic research. Funders will say "there is no money for what you want to do, only for this, which is a national priority", he adds.

But some scientists are positive about the legislation. "I see in the law a lot of interest from this administration to establish what are really the needs of the country," says Claudia Alvarado, a food scientist at the Center for Research and Assistance in Technology and Design of the State of Jalisco in Zapopan. "There is money and resources, and they are giving it to us, not with the goal to publish, but with the objective of having an impact on some problem in Mexico."

On 12 June, Álvarez-Buylla discussed the changes to the law during a presentation held both in person and virtually at the National Autonomous University of Mexico in Mexico

RAJ VALLEY/ALAMY

City. The aim of the meeting was to address the scientific community's doubts, share information on the law and create a dialogue, she said. "There's no need to worry," she told scientists.

The law might prioritize funding for research focused on national problems, but it also mentions support for research in all areas, Álvarez-Buylla said. "Colleagues who want to join the national agenda are more than welcome, as are colleagues who want to work in their cubicle on the proof of a theorem."

However, some members of the scientific community are sceptical about these assurances. "Mexico is a country where there is not much money for science," says Yuri Peña, a biotechnologist at the College of the

Southern Border in Campeche. López Obrador's administration, of which Álvarez-Buylla is a part, has cut funding for science across the board.

Due process

It's unclear when the courts will respond to the lawsuits. After an amparo is filed, the litigation process can take eight months or more, Ochoa says – although if a certain judge sees this issue as a priority, that could speed up the proceedings, he adds.

Similarly, the Supreme Court's consideration of the legislators' suit will depend on what else is on its docket, and whether it prioritizes the science law as a "politically relevant" issue, he says.

NEW OBESITY DRUGS PROMISE TO BE CHEAPER AND MORE EFFECTIVE

Latest hormone mimics offer advantages beyond those of the potent weight-loss jabs on the market now.

By Saima Sidik

Two new drugs for treating obesity are on course to become available in the next few years – and they offer advantages beyond those of the highly effective blockbuster drugs already on the market. The first, called orforglipron, is easier to use and to produce, and will probably be cheaper than existing treatments. The second, retatrutide, has an unprecedented level of efficacy and could raise the bar for pharmacological obesity treatments.

"They're both breakthroughs," says endocrinologist Daniel Drucker at the University of Toronto in Canada, who was not involved in the recent research on either drug.

Results from phase II clinical trials of both drugs were announced at a meeting of the American Diabetes Association last month and in the *New England Journal of Medicine* (S. Wharton *et al.* *N. Engl. J. Med.* <https://doi.org/gsdmf9> (2023); A. M. Jastreboff *et al.* *N. Engl. J. Med.* <https://doi.org/gsdst4>; 2023). Phase II trials provide data on a drug's efficacy in a small group of participants.

Acting on appetite

Orforglipron and retatrutide both mimic hormones produced by the lining of the gut in response to certain nutrients. These hormones help to slow the passage of food through the digestive tract and lower appetite by acting on

receptors in the brain – both of which reduce people's desire to eat and help them to lose weight.

In the past few years, two drugs with a similar mechanism that lead to substantial weight loss have come on the market. One, tirzepatide (marketed as Mounjaro), has been approved by US regulators only for treating diabetes. The other, semaglutide, is sold under two brand names: Ozempic, a diabetes treatment, and

Wegovy, an obesity treatment. Both tirzepatide and semaglutide have helped people with obesity to obtain the potentially life-saving benefits of weight loss, such as lowered blood sugar.

Both Wegovy and Mounjaro require weekly injections. And both belong to a group of molecules called peptides, which are expensive and labour-intensive to produce. The list prices for Wegovy and Mounjaro are more than US\$1,000 per month, and supply shortages have sometimes made the drugs hard to get.

Orforglipron, however, is a non-peptide molecule that's easy to produce and package into a pill. The drug's price has not yet been set, but it will probably be much cheaper than existing weight-management drugs, says internal-medicine physician Sean Wharton at McMaster University in Hamilton, Canada, and a co-author of the orforglipron study.

Retatrutide offers other advantages. At the highest dose used in the trial, participants lost an average of 24.2% of their body weight over 11 months of treatment. Currently approved drugs tend to yield a body-weight loss of around 15–20% over a similar time period. Retatrutide "will likely reset our expectations for what we consider an efficacious obesity drug", says neurobiologist Amber Alhadeff at the Monell Chemical Senses Center in Philadelphia, Pennsylvania, who was not involved in either study.

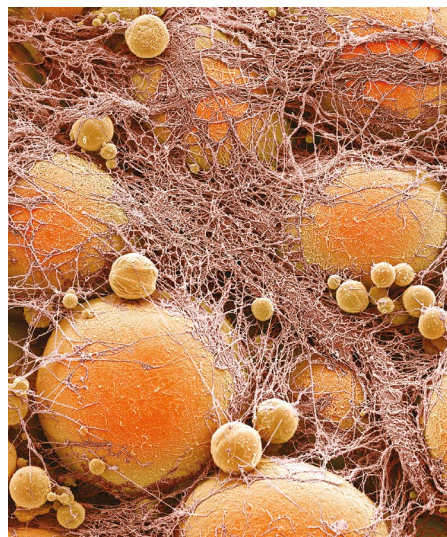
Retatrutide interacts with three receptors that determine appetite, which is probably why it's so effective. Wegovy interacts with one receptor, and Mounjaro interacts with two.

The downsides

Wegovy and Mounjaro can have unpleasant side effects, such as nausea and vomiting, and the new drugs seem poised to follow suit. But Wharton isn't too concerned – he thinks clinicians can use techniques, such as increasing the dosage of the drugs slowly, to mitigate side effects.

Tolerable side effects will be key because people who take orforglipron or retatrutide are likely to regain the lost weight if they ever stop taking the drugs. That's unavoidable because of the biology underlying obesity, Wharton says. The human brain seems to have a 'set point' for how much fat the body stores, and drugs simply mask that set point rather than changing it.

Even long-acting drugs will not address the obesity epidemic's root causes, such as the fact that many people have only limited access to healthy food and exercise facilities. But for people who need to find relief from obesity soon, the new drugs could be the answer. "Medications are not and will not be the only solution," says obesity-medicine specialist Beverly Tchang at Weill Cornell Medicine in New York. "But they are one revolutionary step forward in countering the epidemic."



Lipid-storage cells called adipocytes (orange; artificially coloured).