

POLICY

Gene triangle

Britain's fertility regulator has decided to allow, in "certain, specific cases", the birth of babies from embryos that have been modified to contain three people's DNA. On 15 December, the UK Human Fertilisation and Embryology Authority announced that clinics can start to apply for licences to conduct limited trials of the technique, which aims to prevent mothers from passing on mutations in cellular organelles called mitochondria. The move makes the United Kingdom the first country to explicitly permit the controversial therapy.

'Corrosive' Brexit

Uncertainty in the wake of Britain's vote to leave the European Union is having a "corrosive effect" on UK science that could cause

SOUND BITE

“If Trump turns off the satellites, California will launch its own damn satellite.”

California governor Jerry Brown responds to suggestions that budget cuts could threaten Earth-observing-satellite programmes, at a meeting of the American Geophysical Union in San Francisco, California, on 14 December.



MEHDI FEDOUACH/AFP/GETTY

Replica of ice-age cave opens in France

A replica of Lascaux, a cave in southwestern France that is famous for its galleries of ice-age paintings, opened its doors to the public on 15 December. The original cave has been closed to visitors since 1963, after heavy tourist traffic caused the stunning paintings, estimated to be 18,000 years old, to deteriorate.

The €57-million (US\$59-million) centre, Lascaux 4, is at the foot of the hills in which the original was discovered in 1940 and is a replica of almost all of the cave, including its dark and damp atmosphere. The first replica of the cave, which opened in 1983, featured just the two main galleries.

lasting harm to the country's economy, according to an inquiry by a committee in the House of Lords, the United Kingdom's upper house. The inquiry's report, published on 20 December, underscores the importance of freedom of movement for EU scientists and criticizes ministers for sending mixed messages on whether immigration rules for students will change. To strengthen UK science, the committee recommends finding opportunities to establish at least one new international research facility, and offering compelling research-funding and settlement packages to attract top talent from around the world.

FACILITIES

Mini accelerator

Physicists are a step closer to creating a miniature particle accelerator, it was announced on 14 December. The Advanced Wakefield Experiment, or AWAKE, based at CERN, Europe's particle-physics laboratory near Geneva, Switzerland, has yet to accelerate particles. But tests in its initial week of operation showed for the first time that pulses of protons can generate the wave of plasma needed to do just that. Harnessing the effect, which had previously been seen only in simulations, could eventually lead to smaller, cheaper particle accelerators.

Telescope setback

A judge in Hawaii has overturned the 2014 state approval of the Thirty Meter Telescope (TMT) consortium's sublease with the University of Hawaii at Hilo, which the project needs to build its US\$1.5-billion instrument on Mauna Kea. Plans to build the telescope have been mired in conflict, but the 15 December ruling is a smaller stumbling block than the state supreme court's decision a year ago to rescind the building permit for the project, on which a fresh round of hearings is under way. The sublease ruling stems in part from a legal challenge from Native Hawaiians, some of whom say that the TMT will desecrate sacred land. The

telescope has a back-up site in the Canary Islands if it cannot be built in Hawaii.

PEOPLE

Science exile

In a display of solidarity with troubled particle physicist Adlène Hicheur, scientists held an international high-energy-physics workshop on 13 December in the small town of Vienne, southeast France, where Hicheur is under house arrest. Hicheur had previously been jailed in France for alleged terrorism offences — a conviction strongly disputed by him and his colleagues — and after his release in 2012 had restarted his research career in Brazil. He was mysteriously deported from Brazil in July. Having renounced his French nationality in October, the Franco-Algerian physicist intends to fly to Algeria within two weeks. French authorities have agreed to lift the house arrest on his departure day.

Trump energy pick

US president-elect Donald Trump nominated Rick Perry to run the US Department of Energy on 14 December. Perry (pictured) governed Texas from 2000 to 2015 and sought the Republican presidential nomination in 2012. As governor, he supported fossil-fuel production, and questioned the science



underlying climate change. Critics have voiced concern over his lack of scientific or technical background. In 2013, he proposed eliminating the energy department. Despite his ties to the fossil-fuel industry, the share of energy production from renewables in Texas increased substantially during his term as governor (see page 492). Trump has also reportedly selected Montana congressman Ryan Zinke to head the Department of the Interior, which oversees federal public lands, natural resources and Native American programmes. Like Perry, Zinke has expressed doubt over human-induced climate change. He has voted in favour of coal extraction and oil and gas drilling. Both nominations will need confirmation by the Senate.

No Stamina

The Republic of Georgia has banned controversial stem-cell entrepreneur Davide Vannoni from working in the

country. In March last year, Vannoni was convicted in Italy on charges of conspiracy and fraud for administering unproven stem-cell therapies in that country, but his sentence was suspended on the condition that he halt his procedures. In October, Italian prosecutors investigated allegations that his Stamina Foundation was offering treatments again, in Tbilisi. They sent documentation about Vannoni's case to the Georgian government, which responded with the ban, according to news reports.

EVENTS

Polar adventure

The Antarctic Circumnavigation Expedition (ACE) set off from Cape Town, South Africa, on 20 December on a three-month research cruise around the frozen continent. A 55-strong international research crew on board the *Akademik Treshnikov*, a Russian research vessel chartered for the voyage, will collect a variety of marine data for studies on the impact of climate change in the Southern Ocean. Swedish philanthropist Frederik Paulsen, founder of Ferring Pharmaceuticals, is the main sponsor of the expedition, which has been organized by the newly established Swiss Polar Institute in Lausanne.

NUMBER CRUNCH

55,006

The overall number of doctorate recipients in the United States in 2015, of whom 25,403 were female.

Source: National Science Foundation

Newton first edition

A rare copy of Isaac Newton's groundbreaking work *Philosophiæ Naturalis Principia Mathematica* has become one of the most expensive printed science books in history. On 14 December, an anonymous bidder paid US\$3.7 million for a first edition of the book at an auction at Christie's in New York City — more than twice as much as the auction house had expected. First published in 1687, the work includes Newton's law of universal gravitation and his laws of motion. A copy that had been presented to King James II of England sold for \$2.5 million in 2013.

Eczema activity

On 14 December, the US Food and Drug Administration approved the first new drug to treat eczema — a chronic inflammation of the skin that causes severe itching — in more than a decade. The drug, an ointment called Eucrisa (crisaborole), inhibits the protein phosphodiesterase 4 and was developed by Anacor Pharmaceuticals of Palo Alto, California. Two days later, Swiss drug-manufacturing giant Novartis announced its intention to buy a separate company, Ziarcro in Sandwich, UK, which is developing an oral eczema treatment that targets a histamine receptor. Novartis did not disclose how much it was paying for the company.

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TREND WATCH

US drug approvals fell by more than 50% in 2016, according to a 14 December presentation by an official at the US Food and Drug Administration (FDA). The agency has approved 19 new drugs so far this year, its lowest annual tally in nearly a decade. The FDA attributed the decline to fewer submissions and the approval of five drugs ahead of schedule in 2015. The agency also rejected more drugs: in 2016, 61% of the FDA's decisions were approvals, compared with more than 95% in 2015.

STEEP DROP IN US DRUG APPROVALS

The US Food and Drug Administration approved only 19 new therapies in 2016, marking a 10-year low.

