

from the Institutional Development Award (IDeA) program, which boosts competition for grants in poorer states, but makes a requested \$28 million trim, to \$165 million, for the National Children's Study.

"We're appreciative of any increase," says Jennifer Zeitzer, director of legislative relations for the Federation of American Societies for Experimental Biology. Still, she says, "it's going to be difficult for people in the research community."

The bill must still be approved by the full Senate. The House appropriations panel was expected to introduce its version of the bill as soon as this week. <http://scim.ag/NIHboost>

Washington, D.C. 6

NRC Committee Finds That Humans Are Triggering Quakes

Fracking for natural gas and oil, formally known as hydraulic fracturing, has been responsible for only one or two earthquake-triggering episodes, a committee of the National Research Council (NRC) concluded in a report released on 15 June. But hundreds of felt quakes in 13 states have been produced by the deep injection of wastewater from fracking and other industrial activities, as well as the creation of geothermal energy sites, the enhanced recovery of oil and gas, and even the simple extraction of oil and gas. And pumping carbon dioxide captured from power plants into the ground "may have potential for inducing larger seismic events" because of the large volumes involved, the committee found.

Assessments of the risk of induced seismicity "should be undertaken before operations begin in areas with a known history of felt seismicity," the committee wrote. Such preinjection studies have generally not been done in the past, although some new state regulations are moving in that direction. <http://scim.ag/NRCfrack>

NOTED

>The United States is back at the top of the supercomputing list. IBM's Sequoia, at Lawrence Livermore National Laboratory in Livermore, California, beat out Japan's Fujitsu to regain the title of **the world's most powerful computing system, as ranked by the industry**-standard Top500 list, released 18 June at the International Supercomputing Conference in Hamburg, Germany.



Fewer Foxes, More Lyme Disease?

The increase in Lyme disease over the past 30 years in the United States has often been blamed on resurging populations of deer because they are a major host for adult ticks carrying the disease-causing bacteria. But a study published online this week in the *Proceedings of the National Academy of Sciences* puts the blame instead on the decline of red foxes, which are being displaced by coyotes. Researchers led by ecologist Taal Levi of the University of California, Santa Cruz, examined the incidence of Lyme disease in Pennsylvania, Virginia, Wisconsin, Minnesota, and New York, and found that a higher incidence of Lyme disease correlated with the scarcity of red foxes. Foxes are very effective at catching mice and other rodents that infect young ticks with Lyme-causing bacteria. "The strength of the data is impossible to ignore," comments ecologist Richard Ostfeld of the Cary Institute of Ecosystem Studies in Millbrook, New York.

NEWSMAKERS

Three Q's



Boyden

At his synthetic neurobiology lab at the Massachusetts Institute of Technology, **Edward Boyden** is exploring the circuitry of the brain. On 19 June, Boyden received the inaugural A. F. Harvey

Engineering Research Prize of £300,000 (\$470,000), awarded by the Institute of Engineering and Technology, an international professional society, for his work in the development of optogenetics, a powerful technique that enables precise control of neuronal activity with laser light.

Q: What are the latest developments in your lab?

A: In collaboration with mechanical engineers at [the Georgia Institute of Technology], we've built robots that automate recordings from inside nerve cells, which can be scaled up to record from hundreds or thousands of cells. We're also developing the ability to characterize neural network computations by simultaneously controlling and reading out brain activity.

Q: What's the future of optogenetics?

A: I'm interested in devices that can record from, and deliver information to, multiple points in the brain, with a computer that processes the information and determines exactly what needs to be restored [to correct a brain disorder]. Devices that interface with entire neural circuits at single-cell resolution would allow understanding of how the cells work together ... and how they go awry in diseases.

Q: What are the biggest challenges?

A: The most obvious challenge is how to deliver genes encoding light-sensitive proteins to specific cells in the human brain. Gene therapy trials are promising, but we need to understand its consequences fully. Another question is [whether] these genes (obtained from microbes) will elicit immune responses when introduced into the human body.

'Protein Detective' Wins Körber Prize

Matthias Mann, 52, a physicist and bioinformatician at the Max Planck Institute of Biochemistry in Martinsreid, Germany, has won the 2012 Körber European >>

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Science Prize for his groundbreaking work on the proteome, the entire complement of proteins in a living organism. The prize comes with an award of €750,000.



Mann

As a Ph.D. student at Yale University, Mann worked with analytical chemist John Fenn, who received the Nobel Prize in chemistry in 2002 for his work on developing electrospray ionization, which makes it possible to

measure proteins using mass spectroscopy methods, once the province primarily of chemists and physicists.

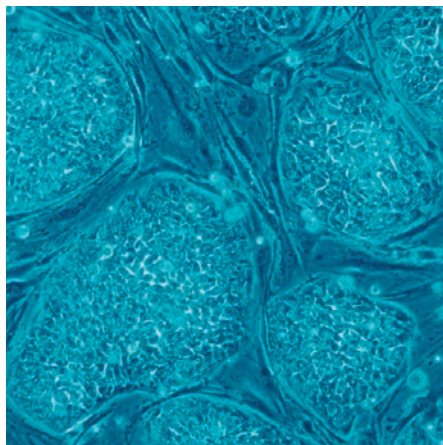
Mann refined the technique so that all the proteins in a cell could be analyzed at once; in 2010, he and his team were the first to successfully sequence the complete proteome of a living organism.

“Matthias is a splendid choice for this high award,” says geneticist Gilbert Omenn, of the University of Michigan, Ann Arbor. “He is a remarkable innovator . . . and he and his laboratory have made numerous important biological applications.”

FINDINGS

Stem Cell Hope for Vision, Brain

Bone marrow transplants have been used for decades, but research presented last week in Yokohama, Japan, at the annual meeting of the International Society for Stem Cell Research (ISSCR) confirmed that scientists



are making progress at developing more innovative stem cell therapies.

A research team from the RIKEN Center for Developmental Biology in Kobe pre-

BY THE NUMBERS

287 million tonnes The collective weight of the world’s adult human population, according to a *BMC Public Health* study. Fifteen million tonnes of that is due to overweight people.

\$100 billion Amount U.S. research universities need in new federal support over the next decade to remain the best in the world, according to a report released 14 June by the National Academies.

£20,000 Cash prize offered with the newly announced Wellcome Trust Screenwriting Prize, intended to help develop films inspired by medicine and biology.

sented animal studies indicating that stem cells created from a person’s own cells could be turned into retinal cells that treat a form of age-related macular degeneration. And StemCells Inc. of Newark, California, reported encouraging results from transplants of human neural stems into four infants with Pelizaeus-Merzbacher disease (PMD), a progressive and fatal disorder in which a genetic mutation inhibits the normal growth of myelin, a protective material that envelopes nerve fibers in the brain.

In the clinical trial conducted by researchers at the University of California, San Francisco, magnetic resonance imaging taken 18 months after the transplants indicated the formation of new myelin around axons, and clinical observations of treated infants indicated that their motor functions remained stable or enjoyed modest gains. The company is planning larger trials; an official says that if the therapy proves efficacious, it could lead to treatments for multiple sclerosis, cerebral palsy, and Alzheimer’s disease. <http://scim.ag/primestem>

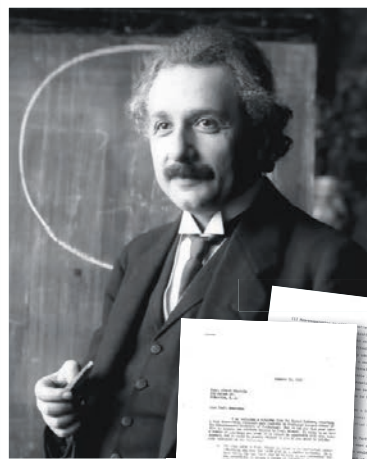
Letter Details Einstein’s Post-War Passion

A cleanup of the archives of the Jewish Telegraphic Agency in January yielded an unexpected treasure for the 95-year-old news service: hand-typed correspondence between JTA’s founder, Jacob Landau, and Albert Einstein. Among the yellowing letters was a 20 January 1947 statement from Einstein on scientists’ role in military research—a hot topic in the wake of World War II and the wartime use of atomic weapons.

“Non-cooperation in military matters should be a vital part of the moral code of basic scientists,” Einstein wrote, adding that keeping basic discoveries secret “would seriously harm science.”

Einstein had expressed similar antiwar views prior to writing that letter, but it does shed new light on the physicist’s views “on the relationship of science and state,” says Harvard University historian Peter Galison. Einstein writes, for example, that for science, “moral law is above any obligation to the state.”

The letters also illuminate Einstein’s ties to Landau, who founded the news service to cover the Jewish diaspora in 1917. Einstein’s long-standing friendship with the pressman—who named his son Albert E. Landau—helped shape the scientist’s views on the Holocaust, Israel, and other topics. To raise funds for a new Web site, JTA auctioned the letters at Sotheby’s last week, where they fetched \$34,375.



Science LIVE

Join us Thursday, 28 June, at 3 p.m. EDT for a live chat on **whether we’re training too many graduate students.** <http://scim.ag/science-live>