

Biomedical briefing

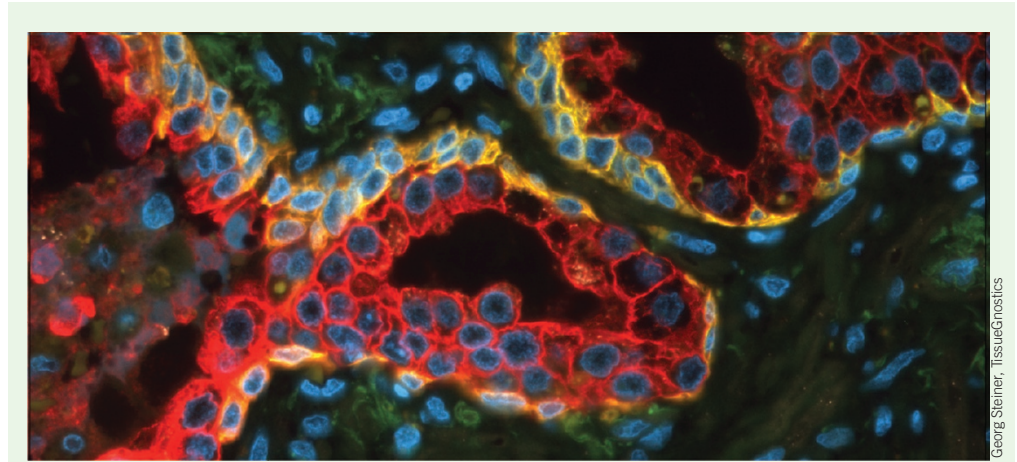
POLICY

Ebola response

The World Health Organization (WHO) established a strategy last month to combat the ongoing outbreak of Ebola virus in West Africa. After a two-day emergency meeting of health ministers involved in the Ebola response, the WHO announced plans on 3 July to establish a subregional control center in Guinea to help coordinate logistics, resource mobilization and technical support. “It’s time for concrete action to put an end to the suffering and deaths caused by Ebola virus disease and prevent its further spread,” Luis Sambo, the WHO’s regional director for Africa, said in a statement. At press time, health officials had documented more than 1,000 cases, including 632 deaths, in Sierra Leone, Liberia and Guinea since the Ebola epidemic began in February.

Pathogen precautions

Several recent incidents involving the mishandling of deadly microbes at US federal laboratories prompted the country’s Centers for Disease Control and Prevention (CDC) last month to close its anthrax and flu laboratories and to halt shipments of high-risk agents until adequate safety procedures are put in place. Separately, a group of 18 prominent scientists, calling themselves the Cambridge Working Group, issued a policy statement on 14 July calling for a “thorough reassessment of biosafety” and a curtailment of experiments that modify influenza and other pathogens to make them more transmissible between humans. The moves come after up to 75 CDC workers were accidentally exposed to live anthrax in June, the discovery of long-forgotten vials of live smallpox samples at the US National Institutes of



Georg Steiner, TissueGnostics

Automated software improves biomarker quantitation in cancer cells

For over a decade, pathologists have used automated image analysis software to diagnose cancer from histologic tissue samples. Now, researchers have extended this ‘digital pathology’ approach to reliably determine how much of a given protein is inside cancer cells, a methodological advance that should allow clinicians to tailor targeted therapies more accurately than using traditional immunohistochemistry. “As precision medicine gets on the market, we need more precise measurements,” says Lukas Kenner of the Ludwig Boltzmann Institute for Cancer Research

in Vienna, Austria, who reported the technique 11 July. Together with a Vienna company called TissueGnostics, Kenner and his colleagues demonstrated the method’s potential by measuring expression levels of the protein STAT5 (signal transducer and activator of transcription 5), an indirect target of several FDA-approved drugs, in human liver cancer biopsies and in a mouse model (*PLoS One* **9**, e100822, 2014). Shown here is an unpublished example of the new tool’s analysis of a human prostate cancer sample stained red for a biomarker called cytokeratin-18.

Health (NIH), also in June, and the recent shipment, revealed in July, of a dangerous bird flu strain from a CDC influenza lab to a poultry lab at the US Department of Agriculture.

Esprit de I-Corps

The NIH ran a workshop last month offering details about the agency’s new Innovation Corps (I-Corps) program, a training scheme that offers a crash course for scientists hoping to launch biomedical startup companies. Four branches of the NIH, including the National Cancer Institute (NCI), will accept a total of 24 teams to take part in the nine-week entrepreneurship boot camp. According to Michael Weingarten, director of

NCI’s Small Business Innovation Research Development Center in Rockville, Maryland, participants will get guidance on a wide range of topics, including regulatory strategy and patent protection. “It’s the first time we’re bringing it all together” in a multiweek program, Weingarten says. Applications for NIH’s I-Corps—which takes inspiration from an initiative of the same name run for engineers by the National Science Foundation—are due 7 August.

PEOPLE

UK science leaders

As part of a wider cabinet reshuffle announced on 15 July, the UK government tapped

economist Greg Clark to serve as the country’s universities and science minister—the top science job—and appointed biomedical venture capitalist George Freeman (pictured) to the newly created role of minister for life sciences. Both are Conservative members of



George Freeman

Parliament. Clark once acted as a shadow secretary of state for energy and climate change; in addition to taking on the science portfolio, he will continue to keep his position as minister for cities and local growth. Freeman previously served as an advisor on life sciences to outgoing science chief David Willetts, who said he will not seek parliamentary reelection.

FUNDING

Longitude Prize

After five weeks of online voting, the British public has selected antimicrobial resistance as the focus of the Longitude Prize, a £10 million (\$17 million) award offered by the National Lottery–endowed innovation nonprofit Nesta and the UK government–backed Technology Strategy Board. As announced on 25 June, competing teams will now have five years “to create a cost-effective, accurate, rapid and easy-to-use test for bacterial infections that will allow health professionals worldwide to administer the right antibiotics at the

right time.” In the public vote, the scourge of drug-resistant superbugs beat out five other pressing scientific challenges in the fields of food security, water scarcity, climate change, paralysis and dementia.

Golden BRAIN

Following in the footsteps of the US federal government’s Brain Research through Advancing Innovative Neurotechnology (BRAIN) Initiative, the State of California has begun developing its own brain-mapping program. Through the California Blueprint for Research to Advance Innovations in Neuroscience (Cal-BRAIN), approved by the state legislature on 20 June, \$2 million will be allocated next year for neurotechnology development at institutions throughout the Golden State. “Exactly what it’s going to be remains to be defined,” says Ralph Greenspan, director of the University of California–San Diego’s Center for Brain Activity Mapping, who coauthored the proposal for Cal-BRAIN. “Our hope is that it will be set up as a state-wide grants program

to encourage the formation of teams of scientists, including those from fields not currently involved in neuroscience.”

DRUGS

Inhalable insulin

Seven years after Pfizer pulled its inhalable insulin product from the market, citing poor sales blamed on a bulky delivery device, patients with diabetes once again have an inhalable alternative to insulin injections. On 27 June, the US Food and Drug Administration (FDA) granted approval to Afrezza, a



MannKind Corporation

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rapid-acting powder formulation of recombinant insulin from California’s MannKind that’s administered through the lungs via the company’s pocket-sized Technosphere device (pictured). “This development redeems a therapeutic strategy that always had merit,” says Anthony Hickey, program director in inhaled therapeutics at the Center for Aerosol and Nanomaterials Engineering at the Research Triangle Institute in North Carolina. “It is a credit to MannKind’s perseverance that this important therapy will be available to diabetic patients.”

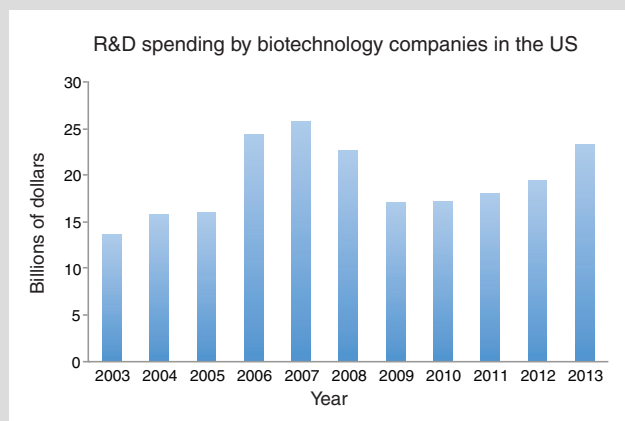
RESEARCH

Dengue vaccine

The first dengue vaccine candidate to reach large-scale efficacy testing has demonstrated moderate protection against the mosquito-borne tropical disease, according to new data published 11 July in *The Lancet* ([doi:10.1016/S0140-6736\(14\)61060-6](https://doi.org/10.1016/S0140-6736(14)61060-6), 2014). In a randomized trial of more than 10,000 children in Asia, a chimeric live-attenuated vaccine containing four dengue virus strains reduced the incidence of symptomatic infection by 56% compared to placebo. “Although higher vaccine efficacy would be ideal, any reduction in the burden of dengue disease would be a very positive outcome,” says Mark Slifka, a vaccine researcher at the Oregon Health & Science University in Beaverton. France’s Sanofi Pasteur, the company behind the phase 3 vaccine candidate, plans to announce the results of an even larger study involving 20,000 people in Latin America later this year.

R&D spending in biotech rebounds to prerecession levels

After years of slashed budgets in the wake of the global financial crisis, the temperature of biotech research and development is back on the rise in the US. On 24 June, the London-based financial services firm Ernst & Young published its annual biotechnology industry report, which showed that, after five years of shrinking or stagnant R&D spending, investment in drugs derived from biological materials was the highest it has been in the US since the industry reached a record high in 2007. Two-thirds of the increase in R&D expenditures came from five big spenders: Gilead Sciences, Biogen Idec, Amgen, Celgene and Regeneron Pharmaceuticals. However, R&D budgets went up in companies of all sizes and translated into 10% more biotech jobs for scientists. “The biotechnology industry, particularly in the US, is in the midst of a remarkable resurgence,” report author Glen Giovannetti said in a press release. Data from Europe painted a different picture, however, revealing a 4% decrease in R&D spending between 2012 and 2013.



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