a "gut-vascular barrier" that prevents intestinal microbes from accessing the liver and the bloodstream in mice (see the Perspective by Bouziat and Jabri). Studies with human samples and in mice revealed that the cell biology of the gut-vascular barrier shares similarities with the blood-brain barrier of the central nervous system. Pathogenic bacteria such as *Salmonella typhimurium* could penetrate the gut-vascular barrier in mice, gaining access to the liver and bloodstream, in a manner dependent on the *Salmonella* pathogenicity island 2–type III secretion system. — KLM

Science, this issue p. 830; see also p. 742

HUMAN EVOLUTION

Ancient African helps to explain the present

Tracing the migrations of anatomically modern humans has been complicated by human movements both out of and into Africa, especially in relatively recent history. Gallego Llorente *et al*. sequenced an Ethiopian individual, "Mota," who lived approximately 4500 years ago, predating one such wave of individuals into Africa from Eurasia. The genetic information from Mota suggests that present-day Sardinians were the likely source of the Eurasian backflow. Furthermore, 4 to 7% of most African genomes, including Yoruba and Mbuti Pygmies, originated from this Eurasian gene flow. — LMZ

Science, this issue p. 820

GPCR SIGNALING

Receptor methylation controls behavior

D2 dopamine receptors are targeted by antipsychotic agents to regulate behavior. Likhite *et al*. found putative arginine methylation motifs in some human G protein–coupled receptors (GPCRs), including the D2 dopamine receptor, and in homologs in the worm *Caenorhabditis elegans*. Methylation of the D2 dopamine receptor by the arginine methyltransferase PRMT5 enhanced D2 receptor signaling in cultured cells. *C. elegans* lacking *prmt-5* had behavioral problems similar to those in worms deficient in the D2-like receptor DOP-3. Thus, methylation of GPCRs may be important for clinically relevant targets such as the D2 receptor. — JFF

Sci. Signal. **8**, ra115 (2015).

NEUROTECHNOLOGY

Tireless typing with the brain

It's already a technological feat that the brain can be hooked up to a computer to allow paralyzed individuals to type. But these so-called brain-computer interface (BCI) technologies can be tiring and burdensome for users, requiring frequent breaks and recalibration while mentally typing short texts. Jarosiewicz *et al.* combined three calibration methods—retrospective target interference, velocity bias correction, and adaptive tracking of neural features—in the optimal configuration for seamless typing and stable neural control. The combination allowed four individuals with tetraplegia to compose longer texts at their own pace, with no need to pause for recalibration. — MLF

Sci. Transl. Med. **7**, 313ra179 (2015).

CLIMATE CHANGE

Double jeopardy

In the best of worlds, exploited fish stocks are monitored so that harvest quotas protect the reproductive ability of the population. Climate change is likely to complicate this process substantially. Pershing *et al*. found that cod stocks declined continuously during intense warming in the North Atlantic. Fisheries quotas, even though they were responsibly set and followed by fishers, decreased the reproductive rate. Thus, managing fisheries in a warming world is going to be increasingly problematic. — SNV

Science, this issue p. 809

IN OTHER JOURNALS

Edited by **Sacha Vignieri** *and* **Jesse Smith**

Intestinal worms, aided by a microbiome-rich gut, reduce allergies

IMMUNOLOGY

Worming your way out of allergies

Accumulating evidence suggests that infection with intestinal parasitic worms can protect against allergy. Zaiss et al. investigated how worms reduce allergic reactions, using mice chronically infected with the parasitic worm *Heligmosomoides polygyrus*. They found that worms could reduce the incidence of allergy in mice harboring an intestinal microbiota but not in mice treated with oral antibiotics. The intestinal microbiota of mice infected with *H. polygyrus* produced larger amounts of short-chain fatty acids (SCFAs) than did uninfected mice. Moreover, mice had to express the protein receptor for SCFA in order for worms to protect them from developing allergies. Worm-infected pigs and people also had elevated amounts of SCFAs, suggesting that these metabolites may play a similar role in other organisms. — KLM

Immunity 10.1016/j.immuni.2015.09.012 (2015).

PHOTO: DR JANICE MURRAY, UNIVERSITY OF EDINBURGH/WELLCOME IMAGES

NEUROSCIENCE

Birds who can't carry a tune

Huntington's disease (HD) presents with a progressive decline of cognitive and motor functions, including speech impairments such as stuttering. Liu *et al.* have created the first transgenic songbirds by injecting zebra finch embryos with a lentivirus carrying human wild-type (WT) or mutant huntingtin. Young transgenic birds had difficulties in copying song elements from WT tutors when compared to WT youngsters, and their song was highly repetitive (stuttering). They also lost song complexity over time as adults. In these birds, the brain regions associated with song showed neuronal loss and accumulation of huntingtin protein similar to that observed in HD. Transgenic songbirds will be useful models for vocal disorders, because their vocal learning process is similar to that of humans. — LMS

Nat. Neurosci. 10.1038/nn.4133 (2015).

NEUROSCIENCE

Cannabinoids provide the runner's reward

The "runner's high"—beneficial effects of prolonged exercise that reduce anxiety and pain perception—in mice appears to depend on the production of endogenous cannabinoids rather than endorphins. Mice allowed to do their normal running on a wheel (about 5 km per day) had increased circulating concentrations of β-endorphin (an opioid) and anandamide (an endocannabinoid). Fuss *et al.* found that the depletion of cannabinoid receptor 1 in neurons of the forebrain reduced the beneficial effects of running on anxiety-like behavior and tolerance to a painful stimulus. — LBR

Proc. Natl. Acad. Sci. U.S.A. 10.1073/pnas.1514996112 (2015).

CANCER BIOLOGY

The perils of stress reduction

In today's health-conscious world, it is not unusual for a food item to achieve "superfood" status simply because it contains high levels of "cancer-fighting" antioxidants. This view may be simplistic, because cancer develops and progresses in multiple steps that potentially respond differently to antioxidants. Two new studies converge on the theme that, in the setting of metastasis, antioxidants help the cancer cell and hurt the host. Piskounova *et al.* show that melanoma cells that successfully metastasized in mice were those that had undergone certain metabolic changes that allowed them to withstand oxidative stress. Le Gal *et al.* show that the administration of antioxidants to mice that were predisposed to melanoma had no effect on primary tumor development, but enhanced lymph node metastases. — PAK

Nature 10.1038/nature15726 (2015); *Science Transl. Med.* **7**, 308re8 (2015).

SOLAR CELLS

Getting around solar cell loss

The overall performance of a solar cell depends on many parameters, but harnessing as much light as possible and converting it into electricity are fundamental. Losses in that conversion process, however, are inevitable, either from electrical losses in the material or the connecting circuitry, or "shadow loss" from the contact circuitry itself as it blocks out the sun. Schumann *et al.* show that the principle of optical cloaking could be used to reduce shadow loss. They designed a cloak that is placed over the shadowing contact circuits, effectively rendering the contacts invisible. With more light reaching the cell, it should be able to squeeze out a little more performance. — ISO

Optica **2**, 850 (2015).

INDUCED SEISMICITY

Loading up concern for a triggered quake

Earthquakes of magnitude 4.0, 4.3, and 4.5 have hit the oil and gas hub of Cushing, Oklahoma, over the past 2 years. By considering the two smaller earthquakes, McNamara *et al.* suggest that a much larger earthquake could occur directly below the Cushing oil facility. Earthquakes can redistribute stress, and in this case it appears that this has occurred on the Wilzetta-Whitetail fault just south of Cushing. The most recent, larger earthquake adds to the concern that a more damaging quake is in the region's future. — BG

Geophys. Res. Lett. 10.1002/2015GL064669 (2015).

NANOMATERIALS

From nanoparticle to supercage

Copper (II) hydroxide [$Cu(OH)_2$] can serve as mimic for peroxidase enzymes, provided that internal spaces can be created for substrate molecules. Cai *et al*. show that hollow nanoribbon cages form by adding a copper-ammonia complex to a mixture of amorphous $Cu(OH)_2$ nanoparticles and polyvinylpyrrolidone. Copper ions from the nanoparticle surface reform into arrays of nanoribbons held together by hydrogen bonding to create a box-shaped cage with edge lengths of ~200 nm. These cages showed high activity for the reaction of peroxide with organic substrates such as 3,3′,5,5′-tetramethylbenzidine. — PDS

J. Am. Chem. Soc. 10.1021/jacs.5b09337 (2015).

PHOTO: FLPA/GIANPIERO FERRARI/CORBIS