potency as the tumor acquires new mutations that allow it to bypass the drug’s lethal effects. To stay ahead of the tumor, oncologists need a noninvasive way to collect tumor cells from patients over the course of their treatment. Analyzing the mutations in these samples may help them choose the right drugs as the tumors change. In a small study of breast cancer patients, Yu et al. show that rare tumor cells circulating in the blood can be captured in viable form and used for this purpose. — PAK

Physiology

Interfering with the signal to relax

In people with high blood pressure, tissue perfusion is often reduced. In response to specific stimuli, endothelial cells that line arteries instruct the surrounding smooth muscle cells to relax, increasing blood flow into the tissue. Endothelial cells extend small processes called myoendothelial projections (MEPs) to communicate with smooth muscle cells. Sonkusare et al. found that the calcium-conducting ion channel TRPV4 and the scaffold protein AKAP150 concentrated at MEPs and visualized calcium signals at these sites. In a mouse model of hypertension, AKAP was not concentrated in MEPs, and the endothelial cells failed to tell the smooth muscle cells to relax, reducing tissue perfusion. — NRG

Science, this issue p. 190; see also p. 138

HIV latency

For HIV: Location, location, location

HIV-infected cells linger even in the face of therapy, and this persistence, termed the latent reservoir, is a major hurdle for curing HIV. HIV integrates itself into the DNA of its host cells. Could that affect the latent reservoir? To find out, Maldarelli et al. drew blood from five HIV patients on antiretroviral therapy and analyzed sites where HIV had inserted itself into the DNA of its host cells. Could that affect the latent reservoir? To find out, Maldarelli et al. drew blood from five HIV patients on antiretroviral therapy and analyzed sites where HIV had inserted itself into the DNA of its host cells. Could that affect the latent reservoir? To find out, Maldarelli et al. drew blood from five HIV patients on antiretroviral therapy and analyzed sites where HIV had inserted itself into the DNA of its host cells. Could that affect the latent reservoir? To find out, Maldarelli et al. drew blood from five HIV patients on antiretroviral therapy and analyzed sites where HIV had inserted itself into the DNA of its host cells. Could that affect the latent reservoir? To find out, Maldarelli et al. drew blood from five HIV patients on antiretroviral therapy and analyzed sites where HIV had inserted itself into the DNA of its host cells. Could that affect the latent reservoir? To find out, Maldarelli et al. drew blood from five HIV patients on antiretroviral therapy and analyzed sites where HIV had inserted itself into the DNA of its host cells. Could that affect the latent reservoir? To find out, Maldarelli et al. drew blood from five HIV patients on antiretroviral therapy and analyzed sites where HIV had inserted itself into the DNA of its host cells. Could that affect the latent reservoir? To find out, Maldarelli et al. drew blood from five HIV patients on antiretroviral therapy and analyzed sites where HIV had inserted itself into the DNA of its host cells. Could that affect the latent reservoir? To find out, Maldarelli et al. drew blood from five HIV patients on antiretroviral therapy and analyzed sites where HIV had inserted itself into the DNA of its host cells. Could that affect the latent reservoir? To find out, Maldarelli et al. drew blood from five HIV patients on antiretroviral therapy and analyzed sites where HIV had inserted itself into the DNA of its host cells. Could that affect the latent reservoir? To find out, Maldarelli et al. drew blood from five HIV patients on antiretroviral therapy and analyzed sites where HIV had inserted itself into the DNA of its host cells. Could that affect the latent reservoir? To find out, Maldarelli et al. drew blood from five HIV patients on antiretroviral therapy and analyzed sites where HIV had inserted itself into the DNA of its host cells.

Science, this issue p. 190; see also p. 138

Neuroscience

Hearing and imagination shape what we see

Hearing sounds helps our visual system to predict incoming information and may give us a survival advantage. Vetter et al. simulated this energy exchange. Challenging common assumptions about our space weather environment, they conclude that the ionosphere plays a passive role when coupled to the magnetosphere in driving the behavior of the magnetotail. — MMM

Science, this issue p. 179; see also p. 143

Superconductivity

Optically probed superconductor

The exotic superconductor UPt$_3$ has two superconducting phases that appear at different temperatures, but their nature remains unclear. Schemm et al. shone circularly polarized light on a crystal of UPt$_3$ and studied its reflection (see the Perspective by van der Marel and Sawatzky). In the low-temperature phase, the pairs of electrons that make the material superconducting have a handedness to them. The finding narrows down the possible descriptions of the electron-pair wave function. — JS

Science, this issue p. 200; see also p. 143

Marine microbiology

A virus that enslaves ocean algae

The algal blooms that flourish near the ocean surface feed ecosystems and remove carbon from the atmosphere. But algal blooms can get sick. Rosenwasser et al. studied metabolism and gene transcription in the coccolithophore Emiliania huxleyi and a virus that attacks it. They found that the virus hijacked the algae’s metabolic pathway and used it to build more virus particles. The virus carries information for its own lipid biosynthetic pathway. No shrinking violet, this physically large virus shut down and supplemented the parallel metabolic pathway in its algal host, forcing the algae to synthesize lipids that the virus needed. The host, deprived of its own lipids, faded into oblivion, sinking into the ocean and taking its resident carbon with it. — PJH

Plant Cell 10.1105/tpc.114.125641 (2014).

In Other Journals

Edited by Kristen Mueller and Jesse Smith

IN OTHER JOURNALS

Satellite image of Emiliania huxleyi blooms in the Barents Sea

Harnessing sound to predict incoming information and shape what we see.
in the primary visual cortex, a brain area previously believed to process nothing but input from the eyes. And when the people imagined the specific sound categories in the complete absence of sight and sound, their primary visual cortices also showed activity. These results highlight the interconnectedness of the brain’s sensory systems. — PRS

**PHYSICS**

Making larger numbers count more

Some measurements make better use of a larger number of particles than others. To make very precise measurements, physicists often increase the number of particles they use as probes—the more particles, the more precise the measurement. Sewell et al. sent light pulses through a cloud of $^{87}\text{Rb}$ atoms to measure the spin alignment of the atomic cloud. They found that the precision of the measurement grew more quickly as the number of photons was increased than it does when more conventional methods are employed. The key to this improvement was making an indirect measurement in which the output was a nonlinear function of the number of photons used. — JS

*Phys. Rev. X* **4**, 021045 (2014).

**PALEONTOLOGY**

In the footsteps of duckbilled dinos

Thousands of fossilized footprints left on a 180-m-long stretch of flood plain in Alaska’s Denali National Park and Preserve offer clues to the lives of hadrosaurs, commonly called duck-billed dinosaurs. The impressions, made between 69 million and 72 million years ago, cluster within four size ranges that represent specific age groups in a multigenerational herd, report Fiorillo et al. About 84% of the tracks were made by adult and near-adult hadrosaurs, 13% by juvenile geese—a rarity that suggests the species experienced a rapid growth spurt. The presence of juveniles also hints that the creatures spent their lives in the Arctic; the young would not have been able to migrate to and from warmer climates during wintertime. — SP

*Geology* **46**, 87–89 (2014).
Hearing and imagination shape what we see
Peter Stern

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