consistent value beyond the order of the authors. To quantify their utility and perceived value, Sauermann and Haeussler used data from more than 12,000 author contribution statements and surveyed 6000 corresponding authors. Author order correlated strongly with the breadth and type of author contribution, and most researchers, especially those at junior levels, saw value in the statements. However, author order was still perceived as a better indicator of contribution importance and was still favored when evaluating others. —AC

Sci. Adv. 10.1126/sciadv.1700404 (2017).

OPTICS

Scattered light, it is all the same

Materials can vary from transparent to opaque depending on the density of scatters within the medium. As light propagates through a material, intuition might suggest that the more scatters there are, the shorter the path along which the light can propagate. Savo *et al*. confirm a recent theoretical proposal that predicts that this is not the case. They shone light through a series of samples of varying scatterer density and found that the average path length that the light traveled was independent of the sample microstructure. This finding should also be applicable to acoustics and matter waves. —ISO

Science, this issue p. 765

CANCER

De-stressing cancer with β-blockers

Common wisdom holds that stress is not good for cancer patients. However, stress can be difficult to avoid, considering that both the diagnosis of cancer and the associated treatments are quite challenging for the mind and body. Nilsson *et al.* investigated the potential effects of stress hormones during treatment of non–small cell lung cancer. Stress hormones activate β2-adrenergic receptors on cancer cells, triggering a signaling cascade that promotes tumor resistance to EGFR (epidermal growth factor receptor) inhibitors, a key therapy for this disease. Conversely, β-blockers, a common class of drugs used in humans, blocked this mechanism of resistance and may become a useful adjunct to lung cancer therapy regimens. —YN

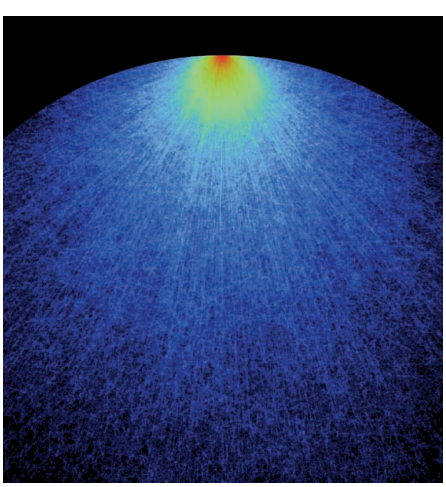
Sci. Transl. Med. **9**, eaao4307 (2017).

COMPUTER SCIENCE

Fly brain inspires computing algorithm

Flies use an algorithmic neuronal strategy to sense and categorize odors. Dasgupta *et al*. applied insights from the fly system to come up with a solution to a computer science problem. On the basis of the algorithm that flies use to tag an odor and categorize similar ones, the authors generated a new solution to the nearest-neighbor search problem that underlies tasks such as searching for similar images on the web. —LBR

Science, this issue p. 793

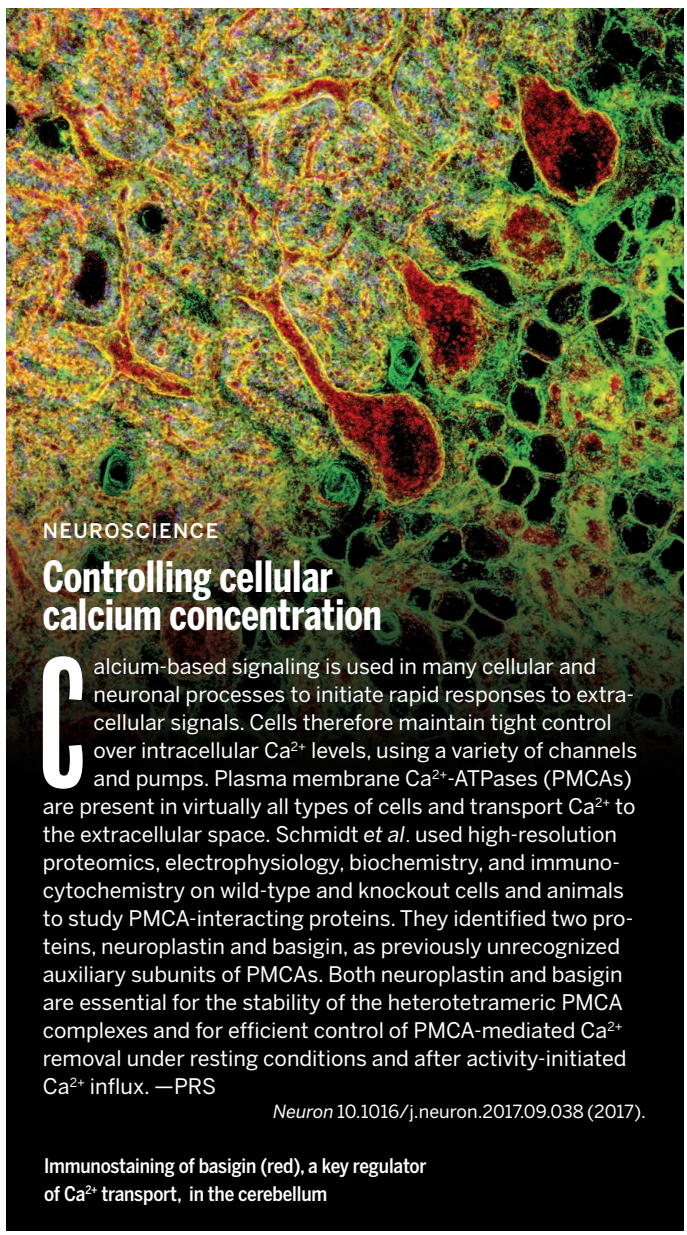


The distance that light waves travel is independent of scatterer density.

CREDITS: (LEFT TO RIGHT) SAVO *ET AL.*; N. SCHMIDT *ET AL.*, *NEURON* 10.1016/J.NEURON.2017.09.038 (2017)

IN OTHER JOURNALS

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



NEUROSCIENCE

Controlling cellular calcium concentration

Calcium-based signaling is used in many cellular and neuronal processes to initiate rapid responses to extracellular signals. Cells therefore maintain tight control over intracellular Ca^{2+} levels, using a variety of channels and pumps. Plasma membrane Ca^{2+}-ATPases (PMCAs) are present in virtually all types of cells and transport Ca^{2+} to the extracellular space. Schmidt *et al*. used high-resolution proteomics, electrophysiology, biochemistry, and immunocytochemistry on wild-type and knockout cells and animals to study PMCA-interacting proteins. They identified two proteins, neuroplastin and basigin, as previously unrecognized auxiliary subunits of PMCAs. Both neuroplastin and basigin are essential for the stability of the heterotetrameric PMCA complexes and for efficient control of PMCA-mediated Ca^{2+} removal under resting conditions and after activity-initiated Ca^{2+} influx. —PRS

Neuron 10.1016/j.neuron.2017.09.038 (2017).

Immunostaining of basigin (red), a key regulator of Ca^{2+} transport, in the cerebellum

CLINICAL TRIALS

A drug that fights both heart attack and cancer

Most drugs for heart disease work by lowering cholesterol. Yet even people with normal cholesterol levels can have heart attacks, suggesting that cholesterol is only one contributing factor. A new study reveals a key role for the pro-inflammatory molecule interleukin-1β (IL-1β) in cardiovascular disease. Ridker *et al*. report a clinical trial of more than 10,000 people who had previously suffered a heart attack. They find that the drug canakinumab lowered the incidence of stroke, recurrent heart attack, or cardiovascular death by around 15%. Canakinumab works by specifically targeting IL-1β–driven inflammation without affecting cholesterol. In the same trial, the drug was also associated with improved survival of patients with lung cancer. However, the trial was not without a downside, and

MACHINE LEARNING

Jail or bail? Machines versus judges

Predictions based on machine learning could outperform judges when deciding which defendants to jail before trial and which to release on bail. Kleinberg *et al.* exploited data on more than 758,000 defendants who were arrested in New York City between 2008 and 2013. Compared with carefully devised counterfactual scenarios based on actual judges' decisions, the machine predictions based on defendants' histories could reduce crime by up to 25% with no increase in jailing, or reduce jailing up to 42% with no increase in crime. All categories of crime, including violent crimes, could be reduced, and, critically, so could racial disparities in jailing rates. —BW

Quart. J. Econ. 10.1093/qje/qjx032 (2017).

Decisions about whether to grant bail could be better made by a machine than by a human.

individuals taking canakinumab had significantly higher risk of death from infections. —PNK

N. Engl. J. Med. 10.1056/NEJMoa1707914 (2017); *Lancet* 10.1016/S0140-6736(17)32247-X (2017).

CANCER

Modeling human tumors—an imperfect art

Thousands of mice are cured of cancer each year by rationally designed drugs. Only a small percentage of these drugs prove to be effective in cancer patients, largely because mouse tumors do not accurately mimic human tumors. To circumvent this problem, many researchers now use patient-derived xenograft (PDX) models, where human tumor fragments are implanted into mice and propagated by serial transplantation. A genomics study by Ben-David *et al*. raises concerns about the predictive power of PDX models. They examined copy number alterations in 1110 PDXs from 24 cancer types and found that the PDXs display a different pattern of genomic evolution from that of in-patient tumors. Preliminary analyses revealed that these genomic differences translate into differences in therapeutic response. —PAK

Nat. Genet. 10.1038/ng.3967 (2017).

WORKFORCE

Not all STEM teachers work in a classroom

There are many ways to develop the STEM (science, technology, engineering, and mathematics) workforce. The CalTeach program integrates evidence, best practices of pedagogy, internship, and reflection to provide opportunities for students to explore STEM teaching. Whang-Sayson *et al.* investigated the impact of the CalTeach program on students who ultimately chose not to become teachers. This "nonteaching" population was surveyed regarding their attitudes and beliefs about education, including their appreciation of teachers, being informed about education issues in their community, and likelihood of participating in STEM outreach programs. Results were positive, indicating that, when structured as service-learning experiences with classroom exposure, teacher recruitment programs can positively affect the attitudes of those students who do not choose teaching careers, ultimately positioning them to become advocates for STEM education. —MMc

J. Coll. Sci. Teach. **47**, 24 (2017).

NEURODEVELOPMENT

Astrocytes regulating synaptogenesis

Brain circuitry develops as neurons connect at synapses. Farhy-Tselnicker *et al*., studying retinal ganglion cells, explored the signaling pathways that ensure that such synapses are timely and meaningful. In the developing mouse visual system, astrocytes are in place and expressing glypican as the synapses begin to form. Glypican, tethered by RPTP receptors on a presynaptic neuronal surface, causes that neuron to release pentraxin, which stabilizes clusters of neurotransmitter receptors on the postsynaptic surface. Mice with disruptions in this pathway were deficient in synapse formation. Thus, astrocytes tell the presynaptic neuron just when to reach out to its postsynaptic partner. —PJH

Neuron **96**, 428–445 (2017).

BIOMATERIALS

Healing powers of dressing well

Simple dressings, such as bandages, are used to protect against wound infection but can also be enhanced to actively promote wound healing. Critical factors are the permeation of oxygen and maintaining the right level of moisture. On the flip side, high concentrations of hydrogen peroxide can delay healing by preventing the formation of connective tissue. Hu *et al.* show that hematite nanoparticles, which have shown enzymatic-like activity for the conversion of peroxide into water and oxygen, can be added to poly(vinyl alcohol) membranes made from electrospun fibers. The membranes, cross-linked to retain the particles, were particularly effective at reducing toxic levels of peroxide, allowing fibroblasts to grow unhindered. —MSL

ACS Appl. Mater. Interfaces 10.1021/acsami.7b12212 (2017).

PHOTO: TIM HARMAN/ISTOCK.COM