

and civic information. Bakshy *et al.* examined the news that millions of Facebook users' peers shared, what information these users were presented with, and what they ultimately consumed (see the Perspective by Lazer). Friends shared substantially less cross-cutting news from sources aligned with an opposing ideology. People encountered roughly 15% less cross-cutting content in news feeds due to algorithmic ranking and clicked through to 70% less of this cross-cutting content. Within the domain of political news encountered in social media, selective exposure appears to drive attention. — BJ

Science, this issue p. 1130;
see also p. 1090

ECOPHYSIOLOGY

Double trouble

It is well known that climate change will warm ocean waters, but dissolved oxygen levels also decrease as water warms. Deutsch *et al.* combined data on metabolism, temperature, and demographics to determine the impact of marine deoxygenation on a variety of fish and crustacean species (see the Perspective by Kleyvas). Predicted climate and oxygen conditions can be expected to contract the distribution of marine fish poleward, as equatorward waters become too low in oxygen to support their energy needs. Furthermore, even the more-poleward waters will have reduced oxygen levels. — SNV

Science, this issue p. 1132;
see also p. 1086

CELL BIOLOGY

Giving an old organelle the old heave-ho

Centrioles are ancient cellular organelles that build centrosomes, the major microtubule-organizing centers in animal cells. Duplication of centrioles is tightly controlled to ensure that each dividing cell has precisely two centrosomes. Human cancer cells often have extra centrosomes, which has

been hypothesized to confer a proliferative advantage. Wong *et al.* developed small molecules (centrinones) that allowed them to reversibly "delete" centrioles from cells (see the Perspective by Stearns). Surprisingly, cancer cells continued to divide in the absence of centrosomes, whereas normal cells stopped dividing. — PAK

Science, this issue p. 1155;
see also p. 1091

DINOSAUR DENTITION

Was triceratops in need of a good dentist?

Reptiles and mammalian herbivores tend to differ in the way their teeth align. Ericksson *et al.* combined nanomechanics and paleontology to study the dental structure of herbivorous dinosaurs. Triceratops and duck-billed dinosaur teeth evolved for efficient chewing of plant matter, resulting in a dental complexity and tooth wear patterns similar to those seen in mammals. — BJP

Sci. Adv. 10.1126/
sciadv.1500055 (2015).

PREECLAMPSIA

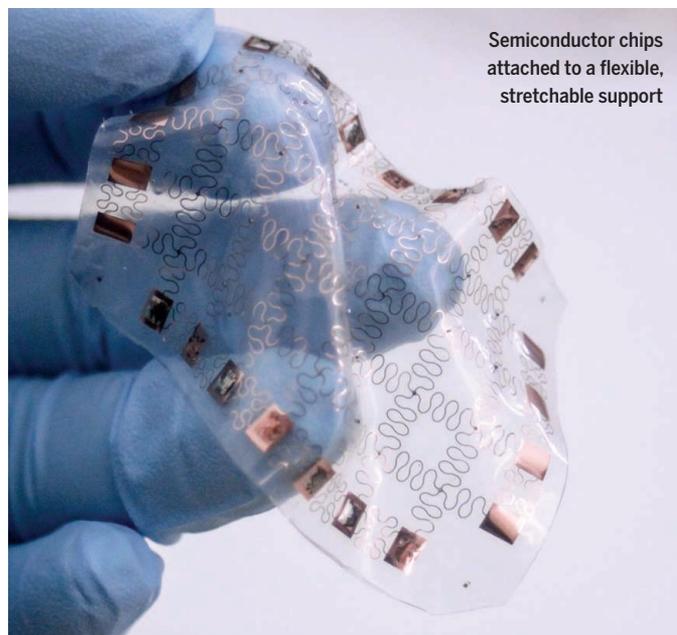
Drugs play a PPAR against preeclampsia

Preeclampsia is a life-threatening complication of pregnancy, with symptoms including high blood pressure and protein in the urine. The underlying causes of preeclampsia are not yet understood. The only effective treatment for preeclampsia is preterm delivery, which poses risks for the child. Holobotovskyy *et al.* show that a vascular protein called RGS5 plays an important role in the regulation of blood pressure during pregnancy. The absence of this protein caused a preeclampsia-like syndrome in mouse models. The mice were treated effectively with drugs called PPAR agonists, some of which are already approved for use in humans with diabetes. — YN

Sci. Transl. Med. 7, 290ra88 (2015).

IN OTHER JOURNALS

Edited by **Kristen Mueller**
and **Jesse Smith**



Semiconductor chips attached to a flexible, stretchable support

MATERIALS SCIENCE

Faster ways to flexible electronics

Stretchable electronics that combine both inorganic and organic parts require processing methods compatible with both types of materials. Writing semiconductors directly onto flexible substrates is possible only at low temperatures. If one fabricates the semiconductors first, precise alignment steps are needed, including deposition of the interconnects. Park *et al.* developed a process of directed self-assembly where light-emitting diodes (LEDs) can be fluidically deposited onto a stretchable substrate, so that they bond to regions that are isolated from deformation. The bottom substrate contained regions of solder that directed the LED assembly. A top conductive layer was designed for rapid attachment without critical alignment. Thus, flexible solid-state lighting could be made in a continuous roll-to-roll process. — MSL

Adv. Mat. 10.1002/adma.201500839 (2015).

AGING

In search of an anti-aging drug

As organisms age, they accumulate cells that can no longer proliferate. Such cells—termed "senescent"—persist and appear to promote aging by producing and secreting a variety of proteins. Zhu *et al.* tested whether drugs that inhibit cellular signaling pathways that

make senescent cells resistant to stress and cell death could deplete senescent cells in mice. A combination of two drugs that inhibit such pathways selectively killed senescent cells *in vitro*, improved heart and vascular function in aging mice, and improved symptoms in a mouse model of accelerated aging. Although pinpointing the relevant targets of these drugs is difficult, the studies indicate that

EVOLUTION

Maintaining a massive mitochondrial genome

Even within the same species, flowering plants exhibit extreme differences in genome size, composition, and organization of their mitochondrial genomes. The coding sequence, however, is a different story. Wu *et al.* sequenced the mitochondrial genome of the plant *Silene noctiflora* and found that the genome consisted of 54 genes mapping to 59 circular chromosomes of varying size, many of which lacked genes. When compared with an individual from another population, both mitochondrial genomes contained the same number and organization of genes. However, variation was observed in total chromosome number (59 versus 63), suggesting that noncoding sequence had both been lost and gained between the populations but that selection maintains genetic information in the mitochondria. — LMZ

Proc. Natl. Acad. Sci. U.S.A. 10.1073/pnas.1421397112 (2015).



Silene noctiflora plants have an unusually large mitochondrial genome

selectively targeting senescent cells with small molecules may be feasible. — LBR

Aging Cell 10.1111/ace.12344 (2015).

TRANSLATION

Special proteins for stressed cells

Stress, in the form of high temperatures, causes cells to shut down the translation of most messenger RNAs (mRNAs). At the same time, stress activates the synthesis of a small number of proteins needed for cell survival and recovery, but how? To find out, Zhang *et al.* exposed human tissue culture cells to heat stress and found that they produced an alternative form of the protein MRPL18, which is normally part of mitochondrial ribosomes. When stressed, cells express this alternative form of MRPL18 and incorporate it into cytosolic ribosomes, large protein complexes required for translation. These modified ribosomes can engage and efficiently translate mRNAs needed for stress survival. — GR

Nat. Struct. Mol. Biol. 22, 404 (2015).

MICROBIOTA

A new normal for the microbiota

Many surfaces of the human body, including the genital tract, harbor bacteria collectively referred to as the microbiota. Previous studies suggested that a healthy vaginal microbiota is lactobacillus-dominant and has low bacterial diversity. Anahtar *et al.* now challenge this. Studying young healthy women in South Africa, they identified four clusters of vaginal microbiomes. Only 37% of the women fell into lactobacillus-dominant clusters. The rest had more diverse microbiomes dominated by other genera. One diverse cluster associated strongly with genital inflammation. Because genital inflammation can place women at higher risk for acquiring sexually transmitted infections (STIs), such as HIV, these results suggest that

the vaginal microbiome may influence rates of STI acquisition. — KLM

Immunity 42, 965 (2015).

GREEN CHEMISTRY

Savvy solvent swaps to make artemisinin

Solvents greatly influence the course of chemical reactions. More indirectly, they constrain the accessible temperature and pressure conditions and frequently constitute the bulk of waste left over when reactions are finished. Amara *et al.* explored the advantages of using environmentally friendly solvents in the photochemical oxidation process used to make the antimalarial drug artemisinin. In particular, they developed one protocol using liquefied carbon dioxide and another using mixtures of water and either ethanol or tetrahydrofuran. The latter protocol operated at room temperature, and the solvents could be recycled after directly delivering crystallized product. — JSY

Nat. Chem. 7, 10.1038/NCHEM.2261 (2015).

EDUCATION

Review sessions: From passive to active

Most science lectures begin with a 5- to 10-min review of what was covered previously, but is this time well spent? Using trained observers, Maxwell *et al.* showed that students lose focus during review sessions, ultimately leading to more time being lost as students attempt to reengage when new material is presented. To alleviate this, a “two-stage” review session, where students work on problems relating to the review material first alone and then in groups, was introduced. Results show that the active review sessions increased student engagement, allowed instructors to immediately know with what content students were or were not struggling, and allowed students to participate in active learning. — MM

J. Coll. Sci. Teach. 44, 48 (2015).