

seismometer network, well logs, satellite observations, teleseismic waveform analysis, and stress modeling leads to the assessment that the earthquake was probably or almost certainly anthropogenically induced. The possibility remains that the earthquake occurred coincidentally at the EGS site location, but the aftershock distribution and other lines of evidence are concerning for future development of this geothermal resource. —BG

Science, this issue p. 1003, p. 1007

POLITICAL SCIENCE

Curtailed conversations

Most articles written about U.S. politics in the past few years have mentioned the increasing polarization of the electorate. But is this real, or does it merely reflect the increasing polarization of the media? Chen and Rohla estimate that in 2016, Thanksgiving dinners in which the hosts and guests lived in oppositely voting precincts were up to 50 minutes shorter than same-party-precinct dinners. That is, family members, adjured to avoid talking about contentious subjects, may have simply talked less. —AMS and GJC

Science, this issue p. 1020

ORGANIC CHEMISTRY

Arenes get a light boost onto copper

Insertion of palladium into an aryl halide bond is the first step in numerous variants of cross-coupling chemistry used to make carbon-carbon bonds. Copper is an appealing alternative catalyst for such reactions because of its abundance and downstream reactivity profile. However, this preliminary step, termed oxidative addition, is often prohibitively slow for the cheaper metal. Le *et al.* report a photocatalytic way around this problem. A photoredox catalyst paired with a silane can activate aryl bromides to react with copper, likely via aryl radicals. The copper in this case then

catalyzes trifluoromethylation of the arenes. —JSY

Science, this issue p. 1010

NEUROPROSTHETICS

A leg up for neuroprosthetics

Amputation severs bone, nerves, and muscles needed for limb movement, limiting an amputee's ability to sense and control a prosthesis. Clites *et al.* tested autologous muscle-nerve interfaces made at the time of below-knee amputation in a human subject. In comparison with traditional amputations, the subject who received myoneural interfaces in his residuum (which were connected via synthetic electrodes to his powered prosthesis) had better control during stair walking. This person noted little delay between intention and movement of his prosthesis and expressed a strong sense that the prosthesis was part of him. —CC

Sci. Transl. Med. **10**, eaap8373 (2018).

IMMUNE REGULATION

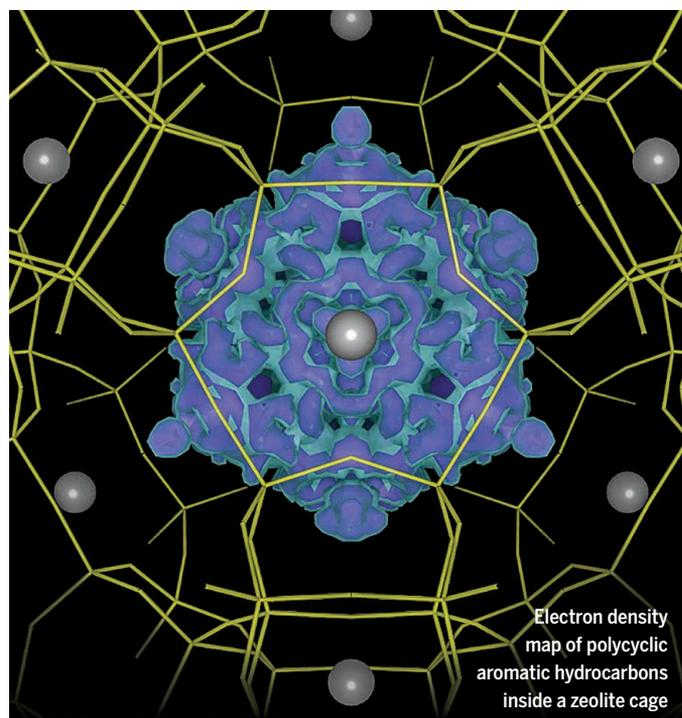
Unexpected basophil activation

Basophils are granulocytes that exist at a relatively rare frequency in the blood but are critical mediators of allergic and inflammatory responses. Regulatory T cells (T_{regs}) suppress the functions of different immune cells. Sharma *et al.* examined how T_{regs} regulate basophil functions. Unexpectedly, resting human basophils were activated and not suppressed in the presence of T_{regs} . The activated basophils expressed activation markers—CD69, CD203c, and CD13—and released interleukin-4 (IL-4), IL-8, and IL-13. T_{reg} -induced activation of basophils involved IL-3 and STAT5 but was not contact-dependent. These counterintuitive results showing activation mediated by T_{regs} provide insight into how basophils are regulated. —CNF

Sci. Immunol. **3**, eaan0829 (2018).

IN OTHER JOURNALS

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



Electron density map of polycyclic aromatic hydrocarbons inside a zeolite cage

ORGANIC SYNTHESIS

Acetylene in, PAHs out

Polycyclic aromatic hydrocarbons (PAHs) are attractive for optoelectronics applications, but their synthesis can be challenging. Solution routes tend to have low yields, and high-temperature vacuum pyrolysis (~1000°C) generates numerous carbonaceous side products. Ko *et al.* synthesized PAHs by polymerizing acetylene in Ca^{2+} ion-exchanged Linde type-A zeolites at ~400°C. The Ca^{2+} ions appear to lower the barrier for carbon-carbon bond formation. The PAHs remained trapped in the α -cages of the zeolite but were recovered after dissolving the zeolite with acid. The product mixture exhibited white fluorescence in N-methylpyrrolidone solution. Column chromatography separation isolated violet, blue, green, and orange emitters, with coronene being the main component of the blue emitter. —PDS

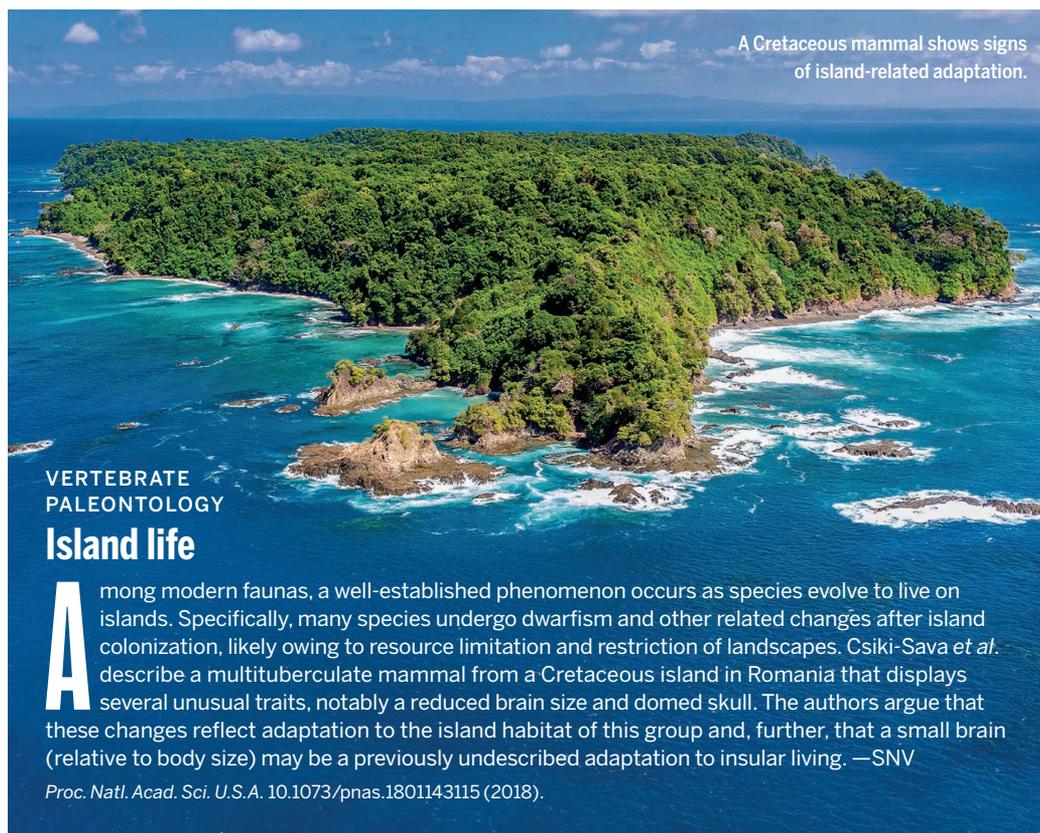
J. Am. Chem. Soc. **10.1021/jacs.8b00900** (2018).

NEURODEGENERATION

Keeping stress granules in check

Stress granules are membraneless organelles composed of RNAs and proteins that can accumulate in the presence of potentially pathogenic proteins. These include proteins linked to neurodegenerative disorders such as C9-ALS/FTD (amyotrophic lateral sclerosis and

frontotemporal dementia linked to C9ORF72). The pathomechanisms of these same disorders can involve disruption of nucleocytoplasmic transport. Zhang *et al.* found that a variety of components of the nuclear import machinery were sequestered in stress granules, which reduced nucleocytoplasmic transport. Inhibiting stress granule assembly suppressed these transport defects in cells,



A Cretaceous mammal shows signs of island-related adaptation.

VERTEBRATE PALEONTOLOGY

Island life

Among modern faunas, a well-established phenomenon occurs as species evolve to live on islands. Specifically, many species undergo dwarfism and other related changes after island colonization, likely owing to resource limitation and restriction of landscapes. Csiki-Sava *et al.* describe a multituberculate mammal from a Cretaceous island in Romania that displays several unusual traits, notably a reduced brain size and domed skull. The authors argue that these changes reflect adaptation to the island habitat of this group and, further, that a small brain (relative to body size) may be a previously undescribed adaptation to insular living. —SNV

Proc. Natl. Acad. Sci. U.S.A. 10.1073/pnas.1801143115 (2018).

and it also interfered with the neurodegeneration process in patient-derived iPS (induced pluripotent stem cell–derived) motor neurons and in a fly C9-ALS disease model system. —SMH

Cell **173**, 958 (2018).

HOST DEFENSE

Bacteria restricted via C3-mediated autophagy

The complement system has several important host-defense functions. Complement component C3, for example, can enhance phagocytosis, contribute to the bactericidal membrane attack complex, and initiate adaptive immune responses against invading microorganisms. Sorbara *et al.* uncovered another mechanism by which C3 can control pathogens. They observed interactions between the autophagy protein ATG16L1 and C3. In opsonized intracellular bacteria such as *Listeria*, this resulted in increased targeting to the autophagy system (xenophagy)

and, in turn, greater autophagy-dependent growth restriction. Certain intracellular bacteria, such as *Shigella* and *Salmonella*, were able to escape C3-mediated targeting via the omptin proteases IcsP and PgtE, which cleave complement components including C3. Mouse models reveal that C3-mediated autophagy-dependent restriction may be important in protecting host mucosal tissues during the early stages of *Listeria* infection. —STS

Cell Host Microbe **23**, 644 (2018).

POLYMER COLLOIDS

Structured in a flash

Block copolymers will assemble into a range of complex structures driven both by thermodynamics, as defined by the chemical makeup of the blocks, and by the kinetics of the chain motion. When formed into sheets, these structures can range from those with regular periodicity to those with complex, tortuous, random interconnected phases. Grundy *et al.* developed a scalable

process in which a feed stream containing polymers in a solvent contacts a counterstream based on a poor solvent for the polymers, which causes the polymers to precipitate out. Depending on the choice of polymers, one can get anything from simple Janus particles or layered ones to far more complicated, internally structured particles made by kinetic trapping of nonequilibrium phases. —MSL

ACS Nano 10.1021/acsnano.8b01260 (2018).

EDUCATION

A (dis)course in postdoc identities

Adapting postdoctoral training to include the development of skills that are translatable to careers outside of the laboratory is critical for diversifying the STEM (science, technology, engineering, and mathematics) workforce. We do not know much about the scientific identities of postdoctoral researchers (postdocs), which

could ultimately limit their understanding of additional STEM career opportunities. Price *et al.* interviewed 30 postdocs to better understand how their scientific identities influenced their career goals. Using discourse analysis, the research team categorized two primary scientific identities among the postdocs: (i) bench scientists, who implement the scientific visions of others, and (ii) principal investigators, who formulate their own scientific visions. A further understanding of how these identities develop is essential for implementing better professional development programs for postdocs as they embark on scientific careers. —MMC

CBE Life Sci. Educ. 10.1187/cbe.17-08-0177 (2018).

NEUROSCIENCE

Overcoming working memory limitations

The capacity of our working memory is limited. We normally do not notice these limitations because we use a repertoire of behavioral strategies to overcome them. To investigate how these high-level strategies interact with working memory, Chiang and Wallis trained rhesus macaques to perform a search task and recorded from neurons in their lateral prefrontal cortex. Individual neurons encoded the location of the current search target, as well as the location of other targets several steps earlier or later in the search sequence. Both upcoming targets and previously visited targets were encoded well above chance. However, lateral prefrontal cortical neurons were more likely to encode upcoming targets. Macaques spontaneously used behavioral strategies that helped them solve the task; this improved their performance while simultaneously reducing the neuronal load required. —PRS

Proc. Natl. Acad. Sci. U.S.A. **115**, 5010 (2018).