

oriented toward the center of the mitotic spindle. — SMH

*Science*, this issue p. 799

## GALAXY EVOLUTION

### In a cluster of protogalaxies far, far away

Astronomers constantly scour the sky for astronomical objects that can provide insight and constrain their models and simulations of galaxy evolution. Hennawi *et al.* surveyed the ancient sky at an epoch when the universe was half its age for nebulae: large clouds of ionized hydrogen. They stumbled across a system containing four active galactic nuclei, or quasars; objects that are thought to be the progenitors of galaxies. Finding a nebula with a rare quadruple quasar system embedded within it allows detailed spectroscopic and motional studies that may help to refine current models of galaxy and galaxy cluster formation. — ISO

*Science*, this issue p. 779

## ARCHAEOLOGY

### Cultural prehistory in southern Europe

The Protoaurignacian culture appeared in the southern European archeological record around 42,000 years ago and was characterized by artefacts including personal ornaments and bladelets. Archaeologists have debated whether it was ancestral *Homo sapiens* or Neandertals who made these tools and ornaments. Benazzi *et al.* analyzed dental remains from

two Protoaurignacian sites in Italy and confirm that they were *H. sapiens*. The arrival of this culture may have led to the demise of Neandertals in these areas (see the Perspective by Conard *et al.*). — AMS

*Science*, this issue p. 793; see also p. 754

## CANCER IMMUNOTHERAPY

### Giving antitumor T cells a boost

Mutations allow tumors to divide, escape death, and resist treatment. But mutations can also cause tumors to express mutant proteins, which could potentially be exploited to drive antitumor T cell responses. Carreno *et al.* report the results of a small phase I trial seeking to do just this (see the Perspective by Delamarre *et al.*). They vaccinated three patients with advanced melanoma with personalized dendritic cell-based vaccines designed to activate T cells specific for mutations in the patients' cancer. T cells specific for mutant peptides did indeed expand. A next step will be to determine whether this promising strategy improves patient outcomes. — KLM

*Science*, this issue p. 803; see also p. 760

## NEURODEGENERATION

### Making aggregation less aggravating

The accumulation of  $\alpha$ -synuclein aggregates occurs in certain neurodegenerative disorders, including Parkinson's disease. Daniele *et al.* found that  $\alpha$ -synuclein aggregates activated the receptor complex TLR1/2 on primary mouse microglia, leading to the production of proinflammatory cytokines. TLR1/2 antagonists, including a drug approved for treating hypertension, prevented the activation of microglia and cytokine secretion in response to aggregated  $\alpha$ -synuclein. Thus, repurposing of drugs that also inhibit TLR1/2 may be beneficial for patients with synucleinopathies. — LKF

*Sci. Signal.* **8**, ra45 (2015).

## IN OTHER JOURNALS

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



Larger birds, such as this white-plumaged honeyeater, decline in Australian woodlands surrounded by maturing pine plantations

## CONSERVATION BIOLOGY

### Shaped by your surroundings

**H**umans are fragmenting natural habitats into relatively pristine patches surrounded by a larger altered landscape patchwork, or matrix. The nature of this matrix can influence which species in the remaining intact habitat will persist. Mortelliti and Lindenmayer report on a large, long-term experiment that measured the impact of landscape change on 64 species of birds found within fragmented native *Eucalyptus* woodlands in Australia. They found that though overall species richness did not change, emerging pine plantations altered communities, favoring smaller birds that move easily through dense vegetation but reducing the presence of larger species. These results suggest that matrix vegetation types can shape selection in such a way that species and communities within native landscape patches are permanently changed. — SNV

*Conserv. Biol.* 10.1111/cobi.12523 (2015).

## EDUCATION

### A stopgap laboratory experience

As science education moves toward lab-based courses, what happens to students without access to a lab? One option is peer-led team learning (PLTL), a cooperative-learning strategy that encourages students to

actively engage in learning. Snyder *et al.* hypothesized that a PLTL model would lead to increased achievement for students not enrolled in an optional lab course. Non-lab course PLTL students participated in active problem-solving, resulting in this group averaging a letter-grade higher than their nonlab peers without PLTL. This difference

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