

patterns in their charge density. Experiments using nuclear magnetic resonance and resonant x-ray scattering have both detected this so-called charge density wave (CDW) in yttrium-based cuprates. However, the nature of the CDW appeared to be different in the two types of measurement. Gerber *et al.* used pulsed magnetic fields of up to 28 T, combined with scattering, to bridge the gap (see the Perspective by Julien). As the magnetic field increased, a two-dimensional CDW gave way to a three-dimensional one. — JSt

Science, this issue p. 949; see also p. 914

BIOLOGICAL MATERIALS

A set of strong eyes

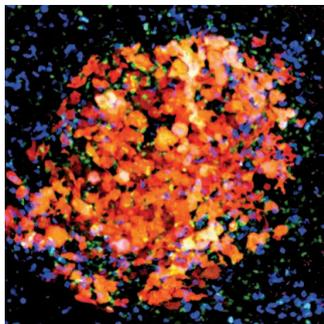
Although many biological tissues serve more than one purpose, rarely are they optimized to do multiple tasks well. When you try to optimize for one functionality, it comes at the expense of another. Li *et al.* investigated the biomineralized armor of the small mollusc chiton *Acanthopleura granulata*. The armor appears to be optimized for both mechanical strength and for image capture by hundreds of integral aragonite-based lenses. — MSL

Science, this issue p. 952

CANCER IMMUNOLOGY

Monocytes block tumor access to the lung

Metastatic cancer is especially hard to treat. In order to find potential new therapeutic targets, scientists are trying to understand the cellular events



Tumor cells (red) in mouse lungs recruit patrolling monocytes (green)

that promote or prevent metastasis. Hanna *et al.* now report a role for patrolling monocytes in blocking tumor metastasis to the lungs in mice. Tumors in mice engineered to lack patrolling monocytes showed increased metastasis to the lung but not to other tissues. Patrolling monocytes resided in the microvasculature of the lung, where they engulfed tumor material, which may explain how these cells prevent tumors from colonizing the lung. — KLM

Science, this issue p. 985

SLEEP RESEARCH

Neurons that regulate sleep stages

Just what sleep is for remains a bit of a mystery. During sleep, we switch several times between so-called rapid eye movement (REM) and non-REM sleep. Hayashi *et al.* used sophisticated developmental cell fate mapping to look at the neurons involved in the two types of sleep in mice (see the Perspective by Vyazovinskiy). They identified a genetically marked population of neurons that promote non-REM sleep at the expense of REM sleep. — PRS

Science, this issue p. 957; see also p. 909

PLANT BIOTECHNOLOGY

Would an electrical rose still smell as sweet?

Can electricity and plants be mixed? Stavrinidou *et al.* built key electronic components using conducting polymers inside roses. They based their approach on the similarity between roots, stems, leaves, and vascular circuitry in plants; and contacts, interconnections, devices, and wires in electronic circuits. This technology may lead to new ways of monitoring and regulating plant physiology, of harvesting energy from photosynthesis, and of achieving genetic modification for plant optimization. Thus, the term “power plant” may soon have a new meaning! — ZHK

Sci. Adv. 10.1126/sciadv.01136 (2015).

IN OTHER JOURNALS

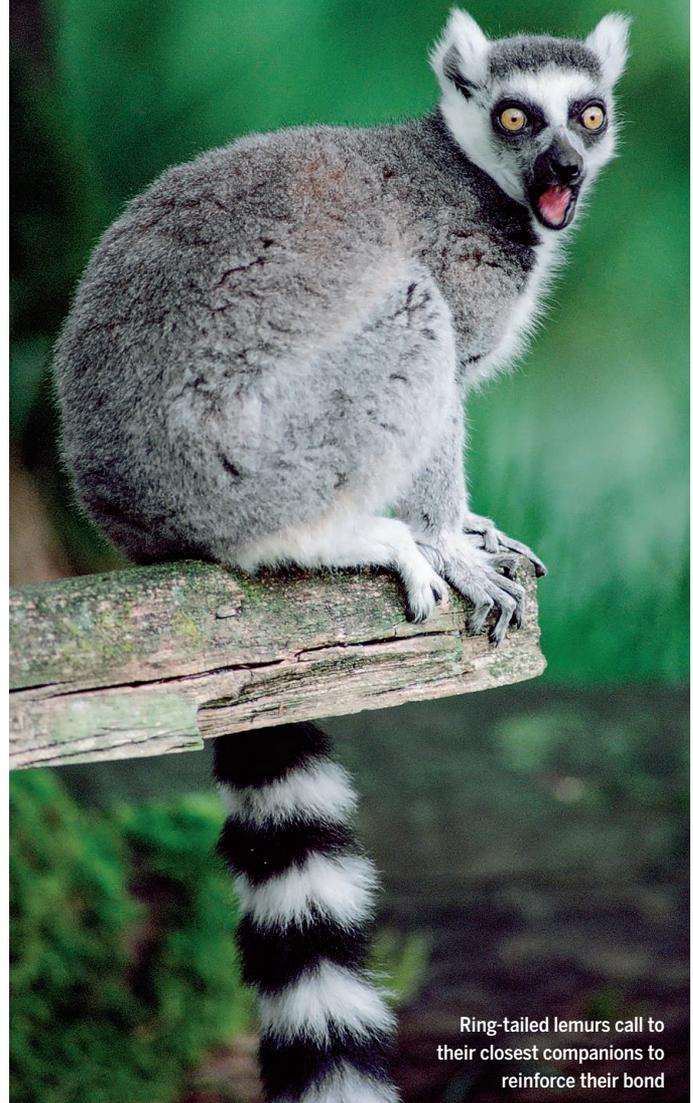
Edited by Sacha Vignieri and Jesse Smith

ANIMAL BEHAVIOR

Just called to say “I love you”

Grooming among social species is thought to build and maintain social bonds. Vocal communication can similarly bond groups and has been thought to increase the number of individuals that can bond, because it is easier to call than to cleanse. Kulahci *et al.* looked at patterns of grooming and contact calling in ring-tailed lemurs and found just the opposite, however. Specifically, the animals that responded to each other’s specific contact calls were those with the tightest bond, as measured by the amount of time spent grooming. Thus, their calls and responses seem to act as “grooming at a distance,” by reinforcing the tighter bonds between just a few animals, rather than expanding the number of animals that are able to bond. — SNV

Anim. Behav. 10.1016/j.anbehav.2015.09.016 (2015).



Ring-tailed lemurs call to their closest companions to reinforce their bond