NEUROSCIENCE
Brain circuits that modulate sociability
Understanding the neural mechanisms that mediate social reward has important societal and clinical implications. Hung et al. found that release of the neuropeptide oxytocin in the ventral tegmental area of the brain increased prosocial behaviors in mice (see the Perspective by Preston). Optogenetic manipulation of oxytocin release influenced sociability in a context-dependent manner. Oxytocin increased activity in dopamine cells that project to the nucleus accumbens, another key node of reward circuitry in the brain. —PRS

Science, this issue p. 1406; see also p. 1358

THROMBOSIS
Rip 'n' roll
In critically ill patients, ischemia can result in thrombosis in unrelated organs, partially owing to neutrophil recruitment. Yuan et al. combined intravital microscopy of thrombosis after gut ischemia-reperfusion injury with samples from patients with acute respiratory distress syndrome. Rolling neutrophils grabbed and ripped fragments of phosphatidylserine-expressing dying platelets, forming macroaggregates. These macroaggregates induced thrombosis that could not be targeted by conventional therapies such as aspirin. Encouragingly, however, the necrotic factor cyclophilin D had beneficial effects. —LP


QUANTUM SIMULATION
Imaging a microscopic power struggle
Strongly interacting fermions in a two-dimensional lattice form a checkerboard pattern, with spins of opposite directions occupying neighboring sites of the lattice. When an external magnetic field is applied, the situation becomes more complicated—should the spins align with the field, or try to preserve the checkerboard order? Brown et al. studied this problem using \(^6\)Li atoms in an optical lattice with unequal numbers of two spin components; the imbalance between the two played the role of an effective magnetic field. When the field applied, the checkerboard pattern correlations of the spin component perpendicular to the field became stronger than those of the spin component parallel to the field, indicating that the system was approaching the so-called canted antiferromagnetic state. —JS

Science, this issue p. 1385

GROUP BEHAVIOR
Gesundheit!
What drives group actions in social species has long been of interest. After all, even among humans, who can actively negotiate, group actions can be challenging. In some cases, such as fish schooling, the driver can be a majority of movement in a certain direction. Often, however, there is an initiator, or a quorum decision among participants is reached. African wild dogs are a highly social and cooperative species with a strong dominance hierarchy. Walker et al. characterized prehunting rallies in this species and found that individual dogs vote with sneezes. Specifically, when more dogs sneeze, the pack is more likely to head out on a hunting trip. Dominant individuals required fewer sneezes to initiate a trip, but even they needed sneeze support. Thus, each dog has a voice in the decision. —SNV


NEUROSCIENCE
Intermittent brain stimulation
Electrical stimulation of the brain to improve its function has been much debated. In an experimental test of working memory, Liu et al. showed that intermittent stimulation of the nucleus basalis in the forebrain of young adult Rhesus macaques improved their memory by up to five times. In contrast,
cell death pathway. Based on an understanding that caspase-3, a key protein in apoptotic cell death, is activated by releasing tension in a linker sequence, they inserted a domain into the linker that expands when it is illuminated. With optimized placement of this LOV2 domain, they built a light-activated caspase-3. “Caspase-LOV.” Neural degeneration can be monitored in flies engineered to express Caspase-LOV in retinal, sensory, and motor neurons. The tool has potential in applications that require specific temporal and spatial ablation of cells. —VV Proc. Natl. Acad. Sci. U.S.A. 10.1073/pnas.1705064114 (2017).

CELL ABレーション
Lighting the way to cell death
Early insights into how the brain controls behavior came from surgical ablation of neural tissue. More recent optogenetic techniques allow higher precision but induce other cellular damage. Smart et al. used light to activate a natural cell death pathway. Based on an understanding that caspase-3, a key protein in apoptotic cell death, is activated by releasing

PLANT BIOLOGY
Apples surviving in a thirsty landscape
Apple production in the semiarid Loess Plateau in China is susceptible to water deficiencies. Sun et al. have engineered an avenue for drought resistance into apple trees. Overexpression of the apple (Malus domestica) gene MdATG18a (encoding autophagy-related protein 18a), which is normally up-regulated in response to drought, allowed transgenic plants to better survive a dry spell. The amount of cellular damage, as measured by, for example, membrane integrity and accumulation of reactive oxygen species, was reduced. MdATG18a overexpression also caused increased accumulation of autophagosomes. The authors suggest that the improved intracellular physiology left by hypervigilant autophagy systems allowed the cells to survive suboptimal conditions. —PPH Plant Biotechnol. J. 10.1111/pbi.12794 (2017).

GLASS TRANSITION
Getting to the source of the slowdown
Measuring the response of a viscous liquid approaching the glass transition provides vital information about this important process, especially across a wide range of time scales. Hecksher et al. consider the mechanical response of silicone oil across an impressive 13 decades by combining seven experimental methods. This molecular glass former follows scaling laws derived in the 1980s called mode-coupling theory. The strategy is generally applicable to a variety of substrates and should provide deep insight into the enigmatic glass transition. —BG Proc. Natl. Acad. Sci. U.S.A. 10.1073/pnas.1707251114 (2017).

OPTICAL IMAGING
Taking tabletop tomography to extremes
The practice of slicing through a sample at various depths with extreme ultraviolet (XUV) light to build up a three-dimensional picture of it is usually confined to synchrotron facilities. Intense infrared laser pulses impinging onto a gas cell of noble atoms generates high harmonics and provides access to the short wavelengths of XUV light with a tabletop source. Fuchs et al. show that filtering and focusing the high harmonics can narrow the range of wavelengths to produce a coherent XUV source. They demonstrate extreme coherent tomography by building up a three-dimensional image of a structured semiconductor sample with a depth resolution of 24 nanometers, providing an example of a tabletop laser source for highly spatially and temporally resolved coherent imaging applications. —ISO Optica 4, 903 (2017).