



The brains of monkeys integrate face and body information to interpret social situations

majority-configuration siblings. But their brains were not simply flipped. Within the epithalamus, neuronal axons projected in unusual patterns. The results suggest that asymmetries in how the brain processes rewards and aversions may favor neuronal circuits to organize in one way over another. — PJH

*J. Neurosci.* **35**, 15847 (2015).

## EDUCATION

### Peer + peer = increased learning

In math education, the definition of “cooperative learning” is greater than the sum of these two words. Reinholz describes peer-assisted reflection (PAR) in an introductory calculus class, where students work together to attempt to solve a problem, reflect on their work, conference with a peer, and revise and submit a final solution. PAR emphasizes problem-solving processes, including explanation and justification, similar to an inquiry-based science class. The PAR model stresses peer interaction, with students analyzing their peers’ work in order to develop analytic skills that they can then apply to their own learning. Student success through PAR was significant and comparable to similar active learning interventions in STEM (science, technology, engineering, and mathematics) courses.

Most importantly, PAR resulted in students being less likely to drop introductory calculus. — MM  
*Int. J. Res. Undergrad. Math. Ed.* 10.1007/s40753-015-0005-y (2015).

## BIOMATERIALS

### Biogenic tools for single-cell surgery

Miniaturization has created a world of new medical tools, from pill-cams that can be swallowed and used to photograph the digestive tract, to tiny robots used for minimally invasive surgery. Srivastava *et al.* pursued this to the level of operating on single cells through the creation of microdaggers. They started with microneedles extracted from plants that are composed of porous calcium oxalate and calcium carbonate. Coating the microneedles with a layer of iron and titanium allowed their manipulation by means of a magnetic field. The tip of the microdagger could drill into a cell, and the porous nature of the needles should make it possible to preload them to deliver drugs to individual cells. — MSL

*Adv. Mat.* 10.1002/adma.201504327 (2015).

## ORGANIC CHEMISTRY

### An asymmetric route to amino alcohols

Amines and alcohols are among the most common and versatile functional groups in organic chemistry. The nitroso variant of the Diels-Alder reaction is a convenient means of introducing both to the same molecule. Both ends of the N=O group form a bridge between the outer carbons in a C=C–C=C diene motif, after which the lingering N–O bond can be severed. Maji and Yamamoto present a highly selective asymmetric variant of this reaction, catalyzed by a copper complex bearing a chiral diphosphine ligand. The reaction couples a range of cyclic dienes with nitroso pyrimidines and pyridazines. — JSY

*J. Am. Chem. Soc.* 10.1021/jacs.5b11273 (2015).

the mitochondrial membrane to constrict. Ji *et al.* studied Drp1 dynamics in live cells. Contrary to current models, fission sites did not directly recruit Drp1 from the cytoplasm. Instead, mitochondria progressively added Drp1 molecules to form oligomers. Most mature Drp1 oligomers did not mediate fission. When the authors experimentally induced mitochondrial fission, actin and Drp1 accumulated sequentially at specific mitochondrial fission sites. Thus, the assembly of fission-productive Drp1 oligomers involves recruitment, maturation, and actin-dependent conversion. — SMH

*eLife* 10.7554/eLife.11553 (2015).

## NEURODEVELOPMENT

### Asymmetrical circuits reduce anxiety

Although fish are overall bilaterally symmetrical, the devil is in the details. For instance, in zebrafish, a part

of the forebrain called the epithalamus exhibits asymmetry. However, this orientation is reversed in the brains of a small percentage of zebrafish. Facchin *et al.* asked whether this matters to the fish. They found that fish with brains of the minority configuration showed signs of increased anxiety when compared to their



Brain asymmetry regulates anxiety in zebrafish