RESEARCH HIGHLIGHTS

Selections from the scientific literature

NEUROSCIENCE

Faulty link in schizophrenia

The impaired learning and reasoning skills seen in people with schizophrenia may be caused by defective connectivity between two brain regions.

Joshua Gordon and Christoph Kellendonk at Columbia University in New York and their colleagues used mice to mimic the abnormal brain activation seen in people with schizophrenia when they perform cognitive tasks.

The researchers genetically engineered mice so that a synthetic compound would reversibly inhibit neurons in the mediodorsal thalamus. They found that even a slight reduction in activity of this brain region altered connectivity with the prefrontal cortex and caused poor cognition.

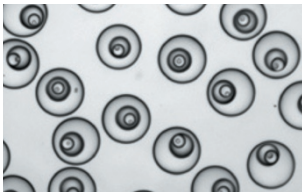
This implicates the altered brain patterns in humans with the disease as a contributor to rather than a consequence of cognitive deficits, the authors say.

Neuron 77, **1151–1162 (2013)**

EMULSION CHEMISTRY

Russian-doll-style droplets

Complex emulsions, such as spheres of oil and water nested inside each other, can be assembled in one step using a simple device, report Chang-Soo Lee at Chungnam National University in Daejeon, South Korea, and his colleagues.



CHANG-SOO LEE

The authors dispersed a water-based solution into a tiny chamber that opened into an oil-filled microchannel. This microfluidic device caused the droplets to form double, triple and even quadruple (**pictured**) emulsions, depending on the concentration of the solvent. By adding detergent, the researchers could create even more conformations.

These emulsions could be used to make functional materials, such as multichambered drug capsules, the authors say.

Adv. Mater. **http://dx.doi.org/10.1002/adma.201204657 (2013)**

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ANIMAL COMMUNICATION

Bees of bigger hives forage better

Larger honeybee colonies benefit from their greater capacity to gather information.

Matina Donaldson-Matasci at the University of Arizona in Tucson and her team prevented honeybees (*Apis mellifera*) from communicating through their waggle dance (pictured), and monitored what happened in different-sized colonies. Bees in large colonies in which normal communication occurred were the most efficient food-finders, sending new foragers to known resources up to four hours earlier than smaller colonies or large colonies in which waggle dances did not convey information.

This work provides some of the first experimental evidence that communication is particularly beneficial to large groups of social insects, the authors say.

Anim. Behav. 85, **585–592 (2013)**

ANIMAL BEHAVIOUR

Chemically camouflaged fish

In the dark and quiet of freshwater ponds, a fish may use a cloak of chemicals to prowl for prey.

William Resetarits at Texas Tech University in Lubbock and Christopher Binckley at Arcadia University in Glenside, Pennsylvania, set up mock ponds and recorded how several species of predatory fish affected whether aquatic beetles moved in, or frogs laid eggs. The authors placed the fish in screened chambers that concealed them visually, but not chemically, and measured colonization of the ponds by more than a dozen prey species. The prey avoided ponds that contained fish such as bluegill (*Lepomis macrochirus*) and the bluespotted sunfish (*Enneacanthus gloriosus*), but ponds containing pirate perch (*Aphredoderus sayanus*) — a particularly rapacious beetle muncher — were almost as popular as ponds without fish, suggesting that this fish masks its scent.

Although chemical deception has been reported for specific predator–prey pairs, this perch may be the first example of generalized chemical camouflage, the authors say.

Am. Nat. **http://dx.doi.org/10.1086/670016 (2013)**