

colleagues removed the need for switched magnetic fields. Instead, they manipulated the nuclei of resonant radiofrequency fields twisted in opposing directions and a static magnetic field. The technique could make MRI cheaper, accessible and quieter. *NMR Biomed.* <http://doi.org/nqf> (2013)

## LANGUAGE

## Babies hear a primate's call

Babies listen to lemur vocalizations in the same way that they listen to human speech.

A baby's language skills develop rapidly during the first year, and previous research has shown that by three months, hearing human speech while viewing objects helps infants to group objects into categories. Alissa Ferry at the International School for Advanced Studies in Trieste, Italy, and her colleagues examined how recordings of calls from a lemur (*Eulemur macaco flavifrons*; pictured) influenced how infants performed when they were asked to discriminate between images of dinosaurs and fish.

The team found that lemur calls helped three- to four-month-old infants to categorize objects but did not help six-month-olds. The study suggests that the link between language and the capacity to categorize objects is initially broad enough to include calls from non-human primates, but quickly becomes tuned to human language. *Proc. Natl Acad. Sci. USA* <http://doi.org/nqx> (2013)



TERRY QUINN

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## SYNTHETIC BIOLOGY

## Forcing fluorine into molecules

Researchers have discovered a pathway for introducing fluorine atoms into naturally occurring molecules.

Fluorine is present in up to 30% of pharmaceuticals and can expand the usefulness of natural products by, for example, increasing the time they take to break down in the body. But until now, chemists have been using a single method — the fluoroacetate pathway — to insert fluorine into organic molecules.

Michelle Chang of the University of California, Berkeley, and her colleagues have found a different way to insert atoms of the element into a useful group of molecules called polyketides. Their method enlists a soil bacterium (*Streptomyces cattleya*) for the first steps. The bacterium binds fluorine to carbon, making building blocks such as fluoroacetate monomers that can then be inserted into polyketides in the place of acetate.

The team demonstrated the method in the laboratory and in living cells, in which they were able to control where the fluorine atoms ended up in the polyketide molecules. *Science* 341, 1089–1094 (2013)

## PHYSICS

## A startling value for gravitation

The quest to pin down the fundamental constants of nature usually results in increased precision over time, but knowledge of the Newtonian constant of gravitation ( $G$ ), known among physicists as Big  $G$ , has not improved much in recent years because different measurement methods continue to disagree.

Now, Terry Quinn and his colleagues at the International

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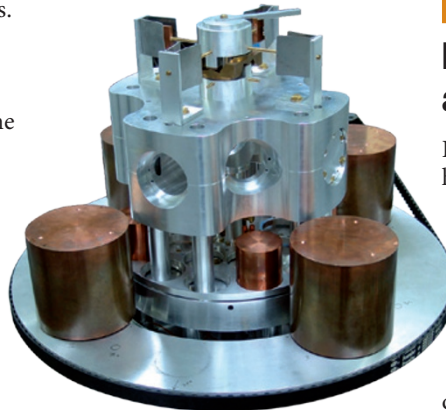
## CELL BIOLOGY

## Nuclear receptor linked to fitness

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Would-be dopers may have a new target: the Rev-erb- $\alpha$  protein. Known to regulate sugar and fat metabolism, the nuclear receptor has now been linked to the production and function of mitochondria — the cell's metabolic powerhouses.

A team led by Bart Staels and H el ene Duez, jointly at the Lille II University of Health and Law and the Pasteur Institute in Lille, France, showed that mouse muscle cells lacking Rev-erb- $\alpha$  contain dysfunctional mitochondria, and that mice lacking the gene encoding it, *Nr1d1*, could not run as fast as normal mice. The reverse occurred when the protein was overexpressed or when a synthetic agonist was given, suggesting that Rev-erb- $\alpha$  could be targeted by drugs to improve exercise capacity by boosting mitochondrial number and function in muscle cells. *Nature Med.* 19, 1039–1046 (2013)



Bureau of Weights and Measures in Paris have added to the uncertainty by finding a value for  $G$  of  $6.67545 \times 10^{-11} \text{ m}^3 \text{ kg}^{-1} \text{ s}^{-2}$ . This is significantly larger than several other measurements from the past decade, but is in agreement with a 2001 result by the same group using a similar but independent experimental set-up.

The researchers used a torsion balance (pictured), in which a thin metal strip changes orientation in response to test masses. The authors say that they do not know why their apparatus gives a different result from other approaches. *Phys. Rev. Lett.* 111, 101102 (2013)

## PRIMATE COGNITION

## Monkeys raise the alarm on predators

For the first time, researchers have shown that non-human primates emit calls in specific sequences to convey the type and location of the threat.

Non-human primates are known to produce calls that signal different kinds of danger. Richard W. Byrne at the University of St Andrews, UK, and his colleagues conducted an experiment on five groups of titi monkeys (*Callicebus nigrifrons*) living in a reserve to find out whether monkey vocalization encoded predator type (raptor or snake), elevation (tree or ground) or both.

A raptor in the air elicited only calls of type A; a raptor on the ground, calls of type A, followed by B. Conversely, a predator on the ground elicited pure B calls, but a ground predator in the trees brought forth B calls, followed by A. *Biol. Lett.* 9, 20130535 (2013)

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