

RESEARCH HIGHLIGHTS

Famine's shadow

Proc. Natl Acad. Sci. USA doi:10.1073/pnas.0806560105 (2008)
If a starving woman becomes pregnant, her child's DNA can still bear traces of her hunger more than six decades later.

Lambert Lumey of Columbia University in New York, Bastiaan Heijmans of Leiden University Medical Center in the Netherlands and their colleagues studied the methyl groups attached to a gene called *IFG2*. They measured methylation at five points along *IFG2* in people prenatally exposed to the 1944–45 Dutch famine — when a Nazi embargo led to food rationing in the west of Holland of fewer than 700 calories a day.

Compared with same-sex siblings conceived when the same mothers had more flesh on their bones, those affected early in fetal development have less methylation on *IFG2* today, implying that their cells express it more readily.



US NATIONAL ARCHIVES

PHYSICS**Big little things**

Phys. Rev. Lett. **101**, 171805 (2008)

The top quark is roughly 40 times as massive as the second heaviest quark, the bottom. But why?

Hsin-Chia Cheng and his colleagues at the University of California, Davis, propose that top quarks may have a 'superpartner' with a spin of 1 rather than spin 0 as is usually predicted by supersymmetry theory. Spin-1 particles tend to mediate forces; the photon, for example, is a spin-1 particle and is responsible for electromagnetism. The new particle, the researchers propose, would mediate a force determining the interaction of the top quark with the Higgs boson, which putatively gives things mass.

If such a particle were to exist, it should be detectable with the Large Hadron Collider, when that is back in action.

PARASITOLOGY**The bacterial racketeer**

Science **322**, 702 (2008)

Wolbachia are well known bacteria because they often kill developing males of all manner of creatures, from nematodes to crustaceans. Karyn Johnson and her colleagues from the University of Queensland in Brisbane, Australia, now report that *Wolbachia* offer fruitflies some protection against diverse and deadly RNA viruses.

They compared the survival of two strains of fruitfly infected with *Drosophila C* virus with that of the same species infected with both this virus and *Wolbachia pipientis*. The bacterium seemed to delay virus-induced mortality by the same amount of time that it

delayed the accumulation of virus particles in the flies, implying a causal link. Johnson's team then tested two other viruses in the same way, and also found that *Wolbachia* delayed mortality.

ZOOLOGY**Green growth**

J. Exp. Zool. doi:10.1002/jez.497 (2008)

The size of a flatfish, and of its appetite, is influenced by the colour of its environment. Akiyoshi Takahashi of Kitasato University in Iwate, Japan, and his colleagues have discovered that the barfin flounder (*Verasper moseri*), a promising species for aquaculture, grows longer and heavier if kept under green light than under blue or unfiltered light. Red light seems to stunt its growth.

The team kept adult fish of the same approximate starting size for 14 weeks, giving them as many pellets as they were willing to eat twice a day. The different wavelengths of light the fish experienced may have modified the release of melanin-concentrating hormone, an appetite

stimulant, in the brain, prompting the fish to eat more, the authors say. Like many fish, this species keeps growing throughout its life.

NANOTECHNOLOGY**Future pixels**

Adv. Mater. doi:10.1002/adma.200801167 (2008)

Tiny marbles, black on one side and coloured on the other, can be made by 'curing' suspensions of silica particles with an ultraviolet lamp, according to Seung-Man Yang and his colleagues at the Korea Advanced Institute of Science and Technology in Daejeon. When an electric field is applied, the marbles line up so that the black sides all face upwards, which suggests they may prove useful pigments for flexible electronic displays.

The researchers suspended a flow of carbon-black particles mixed with silica and a transparent or coloured silica flow in a resin that polymerizes under ultraviolet light. They then passed the mixture through a tiny see-through tube. The light solidified the silica and resin as balls with differently coloured regions (pictured left), each about 200 micrometres in diameter.

**MOLECULAR BIOLOGY****Ubiquitous no more**

Cell **135**, 462–474 (2008)

One of two processes thought to be catalysed by RNA and common to all life forms does not actually need its RNA.

The RNase P catalyst, normally made of RNA and protein, chops superfluous subunits off immature versions of tRNA

S.-H. KIM