primary site by remodelling their environment. Michael Olson of the Beatson Institute for Cancer Research in Glasgow, UK, and his colleagues have identified two proteins, LIMK1 and LIMK2, that are active in cells on a tumour's leading edge and seem to pave the way.

The LIMK proteins regulate actin, a key protein in the cellular skeleton. The researchers found that if these proteins were inhibited in cultured breast and skin cancer cells, the cells were still motile on a two-dimensional surface, but became less invasive in three-dimensional assays. Two processes normally associated with remodelling — degradation of nearby proteins and deformation of the matrix surrounding the cancer cells — were also impaired, suggesting that the cells failed to reshape their environment and forge a way out.

J. Cell Biol. **doi:10.1083/jcb.201002041 (2010)**

INFECTIOUS DISEASE

Battling bacterial blood infection

The tissue damage seen in sepsis — which is triggered most often by a microbial infection and can cause organ failure and death — is caused by a component of red blood cells. Help is at hand, however, as the blood also contains a protein that combats these effects.

Bacterial infection causes red blood cells to rupture, releasing the oxygen-transporting molecule haemoglobin. As this oxidizes, it releases free haeme, which can trigger programmed cell death. Miguel Soares at the Gulbenkian Institute of Science in Oeiras, Portugal, and his team found that mice lacking a protein that breaks down haeme had higher levels of haeme in their blood and an increased susceptibility to sepsis. In addition, administering extra haeme to normal mice pushed low-grade infections to become septic. But giving the animals a protein called haemopexin neutralized haeme's toxic effects.

Sci. Transl. Med. 2, **51ra71 (2010)**

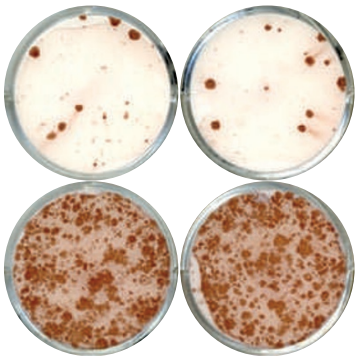
STEM CELLS

Reprogramming cells with RNA

Careful reprogramming yields specialized cells able to develop into any tissue type. Such cells, known as induced pluripotent stem (iPS) cells, have been made by using viruses to insert four key genes into their genome, but this carries the risk of turning the cells cancerous. A new method not only does away with genes, it also seems to be more efficient.

Derrick Rossi at Harvard Medical School in Boston, Massachusetts, and his colleagues chemically modified RNAs transcribed from the four genes — *KLF4*, *c-MYC*, *OCT4* and *SOX2* — and introduced these into human fibroblast cells. This method (pictured bottom, in Petri dishes) proved more efficient at generating iPS cells than the virus method (pictured top). Furthermore, treating the iPS cells with an additional RNA transcript turned them into muscle cells.

Cell Stem Cell **doi:10.1016/j.stem.2010.08.012 (2010)**



ELSEVIER

ECOLOGY

Not-so-extinct animals

Of all the mammalian species thought to have become extinct since the year 1500, about one-third have at some stage been rediscovered.

Diana Fisher and Simon Blomberg at the University of Queensland in Brisbane, Australia, examined the scientific literature and compared past and present Red Lists of threatened species compiled by the International Union for Conservation of Nature. The authors' analysis revealed that animal species that have suffered habitat loss are more likely to be rediscovered than those that have become extinct owing to over-hunting, or introduced predators or disease.

Furthermore, iconic species such as the Tasmanian tiger (*Thylacinus cynocephalus*) are searched for more frequently — and with less success — than less-iconic animals, such as the Australian lesser stick-nest rat (*Leporillus apicalis*), which may still exist.

Proc. R. Soc. B **doi:10.1098/rspb.2010.1579 (2010)**

For a longer story on this research, see go.nature.com/bwheEM

CELL BIOLOGY

Thriving with genomic errors

Organisms with the wrong number of chromosomes often die or have growth abnormalities, yet most cancers have the same error and thrive. To figure out how cancer cells overcome this growth disadvantage, Angelika Amon at the Massachusetts Institute of Technology in Cambridge and her colleagues analysed the genomes of 14 yeast strains with extra chromosomes and higher growth rates. The researchers teased out a mutation in a gene coding for an enzyme known as Ubp6. This enzyme normally works to remove a molecule called ubiquitin from proteins, preventing the proteins from being degraded in the cell.

The researchers found that some strains with the Ubp6 mutation proliferated faster than similar ones without the mutation. These strains also had protein compositions that were closer to those of normal yeast cells than were those of strains without the mutation, suggesting that the Ubp6 mutants degrade the excess proteins generated by their extra chromosomes.

Cell 143, **71–83 (2010)**

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ENVIRONMENTAL SCIENCE

Where greenhouse gases start

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Household consumption is responsible for 72% of global greenhouse-gas emissions, according to work by Edgar Hertwich and Glen Peters at the Norwegian University of Science and Technology in Trondheim. Another 10% is a result of government consumption, with the remainder due to activities such as building construction.

The authors analysed emissions using a model of goods and services consumption and trade across 73 nations. The analysis suggests that food, including agricultural production, is the largest component of consumption, accounting for 20% of all emissions worldwide. Residential energy consumption and building maintenance comes in second at 19%, with private household transportation contributing 17%.

Environ. Sci. Technol. 43, **6414–6420 (2009)**

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