

RESEARCH HIGHLIGHTS

Getting thinner faster

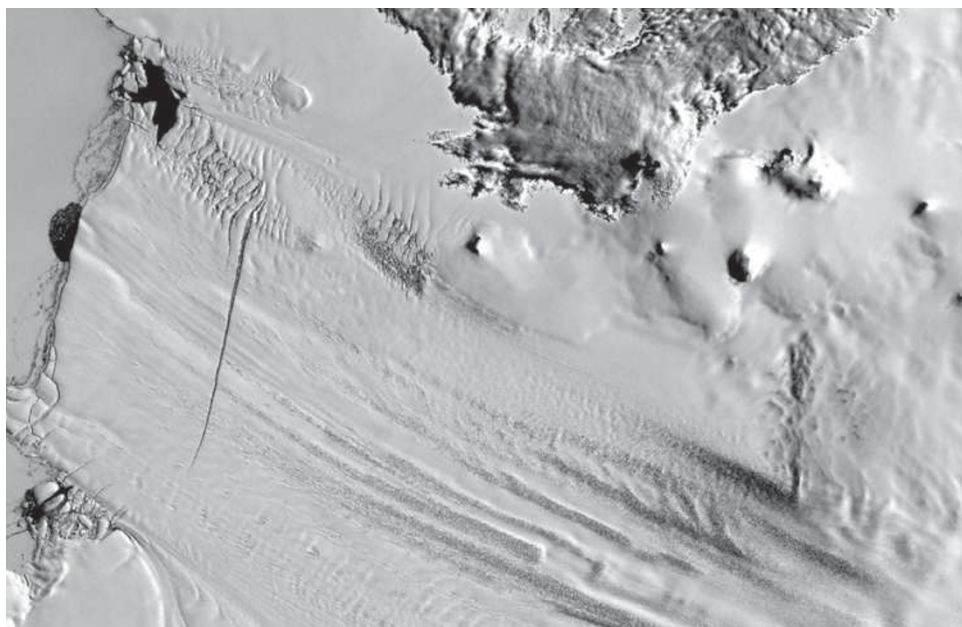
Geophys. Res. Lett. **36**, L17501

doi:10.1029/2009LL039126 (2009)

The rate of thinning of the Pine Island Glacier (pictured) — the largest stream of fast-moving ice on the West Antarctic Ice Sheet — quadrupled from 1995 to 2006. If the current rate of acceleration continues, the main trunk of the glacier could be afloat within 100 years.

Using satellite radar altimetry to examine the ice thickness, Duncan Wingham of University College London and his colleagues found that the thinning process has rapidly propagated inland since 1995, with the frozen tributaries that flow into the central trunk of the ice stream now losing mass as well.

Scientists think that the imbalance has been triggered by warm waters at the glacier's ocean terminus.



NASA

IMMUNOLOGY

Natural born killers

Nature Immunology doi:10.1038/ni.1787 (2009)

A master gene turns blood stem cells into the 'natural killer' immune cells that fight viral infections and help stave off cancer.

When Hugh Brady at Imperial College London and his colleagues created knockout mice lacking the gene for a particular gene-regulatory protein, E4bp4, the mice made the other immune system cells — B cells and T cells — but no killer cells. Adding back the gene for E4bp4 to blood stem cells from E4bp4-deficient mice enabled these cells to produce natural killer cells again.

The mouse strain lacking E4bp4 will help in investigating the role of natural killer cells in disease prevention and in finding drugs that boost their production, the authors say.

SYSTEMS BIOLOGY

Metabolic map

Science **325**, 1544–1549 (2009)

Researchers have reconstructed the metabolic pathways of the heat-loving bacterium *Thermotoga maritima*, which is found in underwater volcanic vents. The work reveals a network of 478 proteins that contain only 182 basic shapes or 'folds'.

Adam Godzik of the Burnham Institute for Medical Research in La Jolla, California, and his colleagues combined structural-genomics and systems-biology approaches to show that most of these folds are found in proteins that are encoded by the most

essential core genes, indicating that the folds perform specific chemical functions that are needed for proper metabolism.

EVOLUTION

Armed and dangerous

Proc. R. Soc. Lond. B doi:10.1098/rspb.2009.1256 (2009)

What good is a horn on a female yak (pictured, below)? Naturalists have long known that competition for mates drove the evolution of horns among male ungulates, but the presence of prongs on some females has defied coherent explanation ever since Charles Darwin puzzled over them.

Now, Theodore Stankowich of the University of Massachusetts and Tim Caro of

the University of California at Davis propose that, in the case of large animals living in open territory, the 'weaponry' on female bovids arose mainly for defence against predators. In smaller bovids, they say, female horns evolved for territorial battles among females of the same species. These two hypotheses agree with a phylogenetic reconstruction, and explain the presence or absence of horns in 80 of the 82 bovid species compared.

BEHAVIOURAL SCIENCE

Jelly shots and jackpots

Proc. Natl Acad. Sci. USA doi:10.1073/pnas.0906629106 (2009)

Rats fed tasty 'jelly shots' containing alcohol during adolescence became bigger risk-takers than teetotaler rats when presented with a lever game designed by Ilene Bernstein and her colleagues at the University of Washington in Seattle. When the adult rats were faced with a choice between pressing a lever for a guaranteed two sugar pills or a lever that could give them either nothing or four sugar pills, the individuals exposed to alcohol in adolescence tended to gamble more often. This effect on behaviour could still be seen three months after the alcohol was discontinued.

The researchers believe that their results indicate that the risk-taking behaviour is caused by the alcohol. Previous studies were not able to rule out the possibility that alcohol use and risk-taking behaviour are both caused by the same underlying propensity.



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