thanks to more robust methods than those used in past studies.

Bruce Spiegelman and Steven Gygi of Harvard Medical School in Boston, Massachusetts, and their colleagues reported in 2012 that exercise boosted levels of the hormone irisin in the blood of mice and humans. But other researchers branded the finding a myth, saying that the human gene for irisin cannot produce a protein and that the tests used to detect the hormone were flawed. The team has now repeated the experiment with the more precise technique of tandem mass spectrometry, which confirmed the original findings.

The technique is expensive and slow, but could be used to validate higher-throughput tests for irisin as they are developed, the authors say.

Cell Metab. **http://doi.org/6s9 (2015)**

NEUROSCIENCE

Visual brain area active during sleep

Human brain regions involved in visual awareness are active during certain periods of sleep, as if the people were awake and seeing images.

Yuval Nir at Tel Aviv University, Israel, and his colleagues monitored brain activity in people with epilepsy who had probes implanted as part of their surgical treatment. The researchers gathered data from the brain region involved in visual awareness as the people slept, viewed familiar images on a computer screen or lay awake in a dark room. They found that brain-activity patterns during rapid eye movement (REM) sleep were similar to those that occurred during image viewing — but not to the brain patterns recorded when participants moved their open eyes while lying in darkness.

The eye movements in REM sleep could be directly linked to dreaming rather than just being an indication of a generally aroused brain, the authors say.

Nature Commun. 6, **7884 (2015)**

IMMUNOLOGY

How malaria raises cancer risk

The malaria parasite damages DNA in mouse white blood cells, increasing the chances of them becoming cancerous. This could explain why Burkitt's lymphoma, a cancer of mature B cells, is common in areas where malaria is endemic.

Davide Robbiani and Michel Nussenzweig at the Rockefeller University in New York and their colleagues infected mice with a malaria parasite (*Plasmodium chabaudi*). This caused certain B cells in the spleen to proliferate rapidly and to express high, sustained levels of an enzyme called AID, which breaks DNA.

Malaria alone did not cause cancer in the mice. However, in animals lacking the p53 tumour suppressor gene, malaria promoted a type of lymphoma marked by chromosomal rearrangements similar to those in human Burkitt's lymphoma.

Cell 162, **727–737 (2015)**

CARDIOVASCULAR BIOLOGY

Good cholesterol gets even better

The molecule that removes cholesterol from arteries could have another protective effect in heart disease: curbing inflammation.

High-density lipoprotein (HDL; known as the 'good cholesterol') transports fat from blood-vessel walls to the liver for excretion. But it also carries the fatty signalling molecule S1P, which activates the anti-inflammatory receptor $S1P_1$. Timothy Hla of Cornell University in New York and his colleagues tested the effect of HDL-bound S1P on cells that line human blood vessels and found that it dampened inflammation. In mice engineered to develop heart disease, those missing the S1P gene had more arterial plaques than did those with the gene.

The researchers think that this further explains the ability of HDL to stave off cardiovascular disease.

Science Signal. 8, **ra79 (2015)**

SOCIAL SELECTION

Popular topics on social media

Trials register sees null results rise

The launch of the clinicaltrials.gov registry in 2000 seems to have had a striking impact on reported trial results, according to a *PLoS ONE* study that many researchers have been talking about online in the past week. A 1997 US law mandated the creation of the registry, requiring researchers from 2000 onwards to record their trial methods and outcome measures before collecting data. The study found that in a sample of 55 large trials testing heart-disease treatments, 57% of those published before 2000 reported positive effects from the treatments. But that figure plunged to just 8% in studies that were conducted after 2000. Study author Veronica Irvin, a health scientist at Oregon State University in Corvallis, says this suggests that registering clinical studies is leading to more rigorous research. Writing on his NeuroLogica Blog, neurologist Steven Novella of Yale University in New Haven, Connecticut, called the study "encouraging" but also "a bit frightening" because it casts doubt on previous positive results (go.nature.com/tybzvd).

PLoS ONE 10, **e0132382 (2015)**

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CLIMATE CHANGE

Beef farming brings on warming

The most climate-friendly methods of beef production may not be enough to reduce the environmental effects of raising cattle.

Raymond Pierrehumbert at the University of Oxford, UK, and Gidon Eshel at Bard College in Annandale-on-Hudson in New York modelled the warming effects of five different ways of producing beef, including intensive feedlot systems (**pictured**) and pasture-based methods. Their analysis was based on the known amounts of greenhouse gases produced by each method.

They found that certain forms of pastured beef production have a smaller climate footprint than feedlot systems. However, because the global population and its appetite for beef will only grow, the footprint of these methods is still sizeable enough that even the most efficient systems will probably not help climate warming to stay below 2 °C.

Environ. Res. Lett. 10, **085002 (2015)**

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