

RESEARCH HIGHLIGHTS

Selections from the scientific literature

CANCER THERAPEUTICS

Targeted drug fights melanoma

A drug that targets a specific mutant protein in skin cancer improved survival in a clinical trial of 675 patients with advanced melanoma.

The drug vemurafenib inhibits a mutated form of the cell-growth-promoting protein BRAF. Mutations in this protein are found in around half of all melanomas. Paul Chapman of the Memorial Sloan-Kettering Cancer Center in New York and his colleagues found that in their phase III trial of patients with metastatic melanoma and the BRAF mutation, almost half of those treated with vemurafenib responded to the drug. By contrast, the response rate in patients receiving an older chemotherapy called dacarbazine was only 5%.

Six months after treatment, 84% of those who received vemurafenib were still alive, compared with 64% of those who received dacarbazine. *N. Engl. J. Med.* doi:10.1056/NEJMoa1103782 (2011)

PHOTONICS

Rainbow from a single LED

Inorganic light-emitting diodes (LEDs) are bright, stable and efficient, but usually emit only one colour. Gyu-Chul Yi at Seoul National University and his team have created LEDs that can be tuned continuously from red to blue (pictured) for potential use in the display screens of mobile devices.

Their LED consists of

nanorods of the semiconductor gallium nitride, each coated with layers of indium gallium nitride. These layers form 'quantum wells' that restrict the movement of electrons, altering the electrons' energy levels and, ultimately, determining the wavelength of the LED's emitted light. The thickness of the layers varies naturally as they are deposited on the rods' multi-faceted tips. By altering an applied voltage, the researchers force electric current to travel through layers

of different thickness, thus changing the colour of light that the LED emits.

Adv. Mater. doi:10.1002/adma.201100806 (2011)

NEUROGENETICS

Extended hunt for autism genes

Boys are four times more likely than girls to have autism, and two studies hint at why: girls with the disorder tend to have many more genetic mutations

than boys, suggesting that girls undergo greater genomic change before showing autistic behaviour.

Groups led by Michael Wigler at Cold Spring Harbor Laboratory in New York and Matthew State at Yale University in New Haven, Connecticut, conducted the most comprehensive search yet for spontaneous duplications or deletions of stretches of DNA that may be associated with autism spectrum disorders. In analysing the genomes of more than 1,000 people — some with autism, some unaffected family members — the teams found at least 130 sites in the genome where spontaneous duplications or deletions might



A. REKAS/ALAMY

ANIMAL BEHAVIOUR

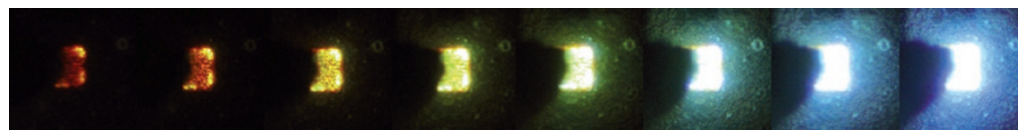
Fitter fish lead the pack

Schooling fish take up different positions in the group according to their aerobic abilities.

Shaun Killen at the University of Glasgow, UK, and his colleagues noted the positions of individual juvenile mullet (*Liza aurata*; pictured) of similar size as the fish schooled in a swim tunnel in the lab, and measured certain animals' metabolic rates and swimming abilities. When schools were swimming at

high speed, fish less able to supply oxygen to their muscles ended up at the back, where they could reduce their workload. By contrast, fish with higher aerobic capacity that were better able to withstand drag forces took up positions at the front. Having fitter fish in the lead could allow schools to maximize their swimming speed.

Proc. R. Soc. B doi:10.1098/rspb.2011.1006 (2011)



WILEY-VCH