MITSUHIKO IMAMORI / MINDEN PICTURES

Dragonfly eyes see the world in ultra-multicolour

THEIR massive globular eyes should have been a clue. It turns out dragonflies have souped-up colour vision that's better than anything ever seen in the animal world.

We humans have what's known as tri-chromatic vision, which means we see colours as a combination of red, blue and green. This is thanks to three different types of light-sensitive proteins in our eyes, called opsins. We are not alone: di-, tri- and tetra-chromatic vision is de rigueur in the animal world, from mammals to birds and insects.

Enter the dragonfly. A study of 12 dragonfly species has found that each one has no fewer than 11, and some a whopping 30, different visual opsins (*PNAS*, DOI: 10.1073/pnas.1424670112).

Ryo Futahashi of the National Institute of Advanced Industrial Science and Technology in Tsukuba, Japan, also found dragonflies use different opsins at different ages. For instance, the larvae of some species that hatch in sand tend to lack blue opsins. "This is probably because blue light does not reach them easily," he says.

Do all those extra opsins mean dragonflies see the rainbow differently to us? Probably. Other studies have found that dragonflies can see ultraviolet, on top of blue, green and red. And it is thought that they can recognise polarised light coming off reflective surfaces like water. "It's likely that they have better colour discrimination than humans," says Futahashi.

Hormone stops rats from getting drunk

CHEERS! If you want to counteract the effects of getting drunk, a shot of the "cuddle chemical" oxytocin might be the answer.

Oxytocin plays a role in sexual behaviour and social bonding. While investigating the chemical's known effect on alcohol cravings, Michael Bowen from the University of Sydney, Australia, noticed something strange – rats given a dose of it didn't seem to get drunk.

"Those that had the oxytocin were up and moving about as if they hadn't had any alcohol at all, whereas the ones that didn't have oxytocin were quite heavily sedated," Bowen says.

The chemical appears to counteract alcohol by binding to GABA receptors in the brain, the same ones on which alcohol exerts its intoxicating effects (*PNAS*, DOI: 10.1073/pnas.1416900112). Bowen hopes his findings will lead to a drug that doesn't just prevent drunkenness, but also helps alcoholics cope with withdrawal.

However, the effects in rats weren't limitless. While oxytocin prevented drunkenness in those that had been given the equivalent of a bottle and a half of wine, its effects did not extend as far as the rat-sized equivalent of a whole bottle of vodka.

Buckyballs play a different sport

FORGET football, buckyballs are bouncing around the volleyball court these days. Volleyballene is the first buckyball to be spiked with scandium atoms.

Discovered in 1985, the original buckyball was a hollow, stable sphere of 60 carbon atoms. It takes high temperatures and pressures without complaint and helped earn its creators a Nobel prize in chemistry in 1996.

Volleyballene has 60 carbon atoms moulded into pentagons, plus 20 scandium atoms locked in octagons, an arrangement that resembles the panels of a volleyball (arXiv.org/abs/1502.03507).

Jing Wang at Hebei Normal University in China and colleagues tested fUnivĦ! Ify DOI: 10.1038/NCLIMATE2531).

The models also suggest there is a 15 per cent chance the hiatus will continue for five more years.