

Animal research news archive April – June 2015

29/06/15

Rats may dream of where they plan to go tomorrow, suggests new research from University College London. The rats were shown a food treat that they could see but not get to, and then were encouraged to sleep in a cosy nest while their brain activity was monitored. The neurons representing the route to the food in their brains fired as they sleep, suggesting that they were dreaming about running down the path to the treat. "It's like looking at a holiday brochure for Greece the day before you go – that night you might dream about the pictures," says Hugo Spiers of University College London. <http://www.newscientist.com/article/dn27788-rats-dream-about-the-places-they-wish-to-go.html#.VZEJKPIVikp>

Does a bigger brain automatically equal greater intelligence? In guppies, females with larger brains appear to be better survivors and have greater cognitive abilities than counterparts with smaller brains. Researchers from UCL, Stockholm University and Helsinki University have identified one single gene that directly influenced brain size, much to their surprise. Judith Mank from UCL Biosciences, said, "We were surprised to see that only a single gene was up-regulated in the large-brained guppies. Given the complexity of the brain, we expected that the genetics would be very intricate, but this suggests that changes in brain size are underpinned by relatively simple genetic mechanisms." <http://www.theguardian.com/science/occams-corner/2015/jun/26/building-bigger-brains>

Blood pressure drugs that also create plasticity in the brain could be used to treat addiction, according to new studies in rats. Researchers from the University of Texas found that isradipine, a drug which is currently on the market for the treatment of high blood pressure, erased all memory of addiction-triggering cues in rats previously addicted to cocaine and alcohol. <http://www.sciencealert.com/blood-pressure-drug-erases-memories-of-addiction>

26/05/15

Wind turbines with owl wings could silently make extra energy. Wind farms inspired by the stealthy flight of owls could generate more energy without annoying those who live nearby. Researchers looked at two features that make owl wings silent. Evenly spaced bristles along the width of the wings break up sound waves as an owl flies, preventing them from building up and producing noise. At the same time, a canopy of downy feathers reduces air pressure on the wings' surface, providing a dampening effect. Artificial fins for wind turbines that replicate the owl's evenly spaced bristles, also disrupt surface pressure on the aerofoil, reducing thus the sound waves they produce.

<http://www.newscientist.com/article/dn27718-wind-turbines-with-owl-wings-could-silently-make-extra-energy.html#.VYqPjvVhBc>

Scientists are creating 'low carbon cows' to try and reduce greenhouse gases generated by herds. Cows produce a lot of methane and carbon dioxide because of the way they process food. About 1/10 of the 570million tonnes of carbon dioxide produced by Britain every year comes from farming, with 28m tonnes attributable to cattle and livestock. Scientists have created three herds of 'eco cows' as part of an experiment to reduce the amount of greenhouses gases generated by the production of beef. They will be closely monitoring every aspect of the cows' environment - particularly what they eat - to try and reduce the amount of harmful gases they produce by up to 50 per cent. They hope to show beef can be produced with less

damage to the environment and a carbon footprint smaller than growing cucumber.

<http://www.dailymail.co.uk/sciencetech/article-3133317/Scientists-creating-eco-cows-try-reduce-greenhouse-gases-generated-herds.html>

25/06/15

Genetically modified piglets to resist African swine fever could be the first commercially viable GM in the UK. The piglets are indistinguishable from other Large White variety pigs – except one letter of their genetic code has been flipped to make their immune system slightly closer to a warthog's. The insertion of a warthog's gene protects the pigs against the tick-borne disease, which is currently sweeping through Eastern Europe and could affect British farms in the future. The breakthrough is the development of new "ultra-precise" gene editing tools that introduce changes in a way that is indistinguishable from naturally occurring mutations. The new techniques also overcome three major objections to GM in the past: the use of viruses to "carry" genetic changes into the pigs' cells, the need to use antibiotic resistance genes in the modification process, which has been seen as an environmental threat, and the need for cloning.

<http://www.theguardian.com/science/2015/jun/23/could-these-piglets-become-britains-first-commercially-viable-gm-animals>

Study in mice shows wine could help you lose weight. Resveratrol, found in grapes, berries and red wine could help turn your excess white fat into active 'brown' fat which reduces weight gain by burning up calories. Other polyphenol chemicals in fruit may have the same effect. Scientists gave mice amounts of resveratrol equivalent to humans consuming 12 ounces of fruit per day. They found that despite a high fat diet, the mice gained 40% less weight than animals not fed the compound.

<http://www.telegraph.co.uk/news/health/news/11689799/Revealed-How-to-lose-weight-drink-plenty-of-red-wine.html>

23/06/15

Transparent zebra fish allow researchers to track motor neurone disease in 'real time' as the disease develops. Dr Nicholas Cole, from the Macquarie University's Motor Neuron Disease Research Centre in Australia, inject zebra fish embryos with human genes that cause MND, along with several fluorescent jellyfish proteins that cause a yellow glow in dying neurons affected by the disease.

"A fish goes from one cell to the whole animal within two days," Dr Cole says, "and we can watch individual nerves as they anchor into muscle fibres. We can see the nerves grow."

<http://www.smh.com.au/.../transparent-fish-give-hope-for-moto...>

22/06/15

Rearing and eating Guinea pig may explain the high rates of deadly parasitic infections in parts of Peru, according to new research. Guinea pigs can act as a reservoir for a single-celled parasite called *Trypanosoma cruzi*, which causes an often fatal disease in humans called Chagas. While it is very difficult for most humans to catch Chagas disease, rates of infection in some Andean populations can be as high as 40%, caused by the consumption of infected Guinea pigs.

Scientists examined the insects that spread *T. cruzi*, and found that more than 80% of the insects taken from two guinea pig pens there were infected, whereas only about 6% of insects sampled away from the rodent enclosures were. Unfortunately, the bugs that live close to guinea pigs also live close to people, increasing the chance that *T. cruzi* will find its way into human hosts and keep the Chagas rate high.

<http://news.sciencemag.org/.../guinea-pig-feasts-may-explain.../>

19/06/15

Humans are not the only ones with a sense of self awareness. In a study, researchers argue that any animal which can stimulate environments and conceive the future must have some form of self-awareness. Inspired by work involving sending rats through mazes conducted in the 1950s, they looked at the neuroscience behind a rat's deliberation of 'choice points' - if animals are capable of simulating their future actions then they must be able to distinguish between their imagined actions and those that are actually experienced.

<http://www.independent.co.uk/news/science/humans-are-not-the-only-animals-with-selfawareness-new-study-claims-10325129.html>

18/06/15

New anti-malaria treatment, tested in mice, provides hope in battle against drug resistance and would only cost 1\$. Malaria kills over half a million people a year. Treatments already exist to help recover from the disease but drug resistant strains of the parasite are rapidly emerging, urging for the development of a new solution. Studies in mice showed a new compound could rapidly kill the parasite and for the first time prevent the transmission of malaria – a key step to stop the spread of the disease. The human version of the therapy, developed by the pharmaceutical company Merck, is expected to enter clinical trials within a year.

<http://www.theguardian.com/.../new-anti-malarial-treatment-ba...>

Male nightingales sing complex songs to show females they will be good fathers. They use their songs to advertise their value, the better the singer, the more support it is likely to offer its young family by feeding and defending them from predators. The beauty of the song comes from its complexity but females are on the lookout especially for the effort the singer puts in the performance. Indeed, complicated choral arrangements are much harder to sing, and requires a bird to be in good physical health. The females is looking for the valuable information encoded in the song – the age, his ability to learn, where the male was raised, the strength of his immune system and how motivated he is to raising a family. The male can improve its attractiveness by bringing order to his songs – performing them in a lengthy loop, repeating the sequences over and over in the same order.

<http://www.independent.co.uk/.../male-nightingales-sing-compl...>

16/06/15

Could the markets help out endangered species? A new study suggests that if supermarkets increased the cost of products including palm oil, then the resulting fall in demand could help prevent the habitat destruction which is damaging the populations of endangered species like the sumatran tiger and orangutans.

Professor Ian Bateman of the University of East Anglia,said:

“International governments have failed to stem the environmental damage caused by palm oil plantations. We wanted to find a new way of halting biodiversity loss that actually becomes profitable for private companies,”

<http://www.independent.co.uk/.../raising-palm-oil-prices-coul...>

Researchers at the University of Arizona College of Pharmacy and UA Cancer Center have found that cinnamaldehyde (a compound found in cinnamon) can protect mice against colorectal cancer.

Georg Wondrak said:

"Given cinnamon's important status as the third most consumed spice in the world, there's relatively little research on its potential health benefits. If we can ascertain the positive effects of cinnamon, we would like to leverage this opportunity to potentially improve the health of people around the globe."

<http://www.alnmag.com/.../component-cinnamon-prevents-colorec...>

15/06/15

Juvenile camels, aged less than four, may be a 'key source' of Mers. A study looking at Mers infections in dromedary camels found that 90% of animal became infected by age two and virus shedding was more common in calves than adults. Initial studies had shown that camels living in the Middle East had antibodies that recognised Mers virus protein, suggesting past infection, but none contained the virus. How the virus spreads to humans is still unknown. Changes in animal husbandry, like delaying the age calves are taken from their mothers may reduce the occurrence of human Mers infections.

<http://www.bbc.co.uk/news/science-environment-33096263>

The US Fish and Wildlife service has announced that it will now classify all captive chimpanzees as endangered under the Endangered Species Act. This includes the approximately 700 chimps currently held for research purposes in the US. Organisations wishing to work with captive chimpanzees would have to apply for a permit and demonstrate that their work is ultimately for benefit the species. "This decision will help us ensure that the world we pass along to our children and grandchildren will be filled with chimpanzees," said USFWS Director Dan Ashe at the press conference. "We believe this action will ensure that activities affecting all chimpanzees will contribute to the survival of chimpanzees in the wild." <http://news.sciencemag.org/people-events/2015/06/research-chimps-be-listed-endangered>

This year National Blood Week has been promoting a very different kind of donation, from dogs. As dogs have surgery and other complex forms of medical treatment, just like humans, they need transfusions of blood from other doggy donors. According to the charity Pet Blood Bank UK around 5,000 units of blood are sent to UK vets annually. "It is not a painful procedure which is confirmed by lots of our repeat donors - many of whom have donated for a few years - bounding through the session doors to see us with their tails wagging," says Pet Blood Bank veterinary supervisor Jenny Walton. She adds that if at any time a dog shows signs of stress the donation stops. <http://www.bbc.co.uk/news/magazine-33108612>

New genome-editing technologies has dramatically sped up the process of creating genetically engineering mice. However, the same strain of mouse can have very different characteristics when shared between facilities, caused by differences in breeding conditions, animal husbandry and quality control. In a comment piece for Nature Kent Lloyd and colleagues from the Mutant Mouse Resource and Research Center, USA, express concern that the explosion of new mouse models could create a surge of waste and results that can't be reproduced. They argue that researchers should place their mouse lines in central repositories to "ensure the quality and welfare of distributed animals and supply expertise to guide reliable studies. This means that researchers learn more from the animal experiments they conduct."

<http://www.nature.com/news/reproducibility-use-mouse-biobanks-or-lose-them-1.17707>

12/06/15

The first organ chips are coming to the market, speeding up drug testing and reducing the use of animals in research. The small device, about the size of a smartphone, contains miniature organs made from human cells. The first commercial organ-on-a-chip mimics how a liver responds to a new drug that could help cure hepatitis B. Chips replicating the heart, kidney, intestine, muscle, fat, bone and skin are being developed. The more realistic data promised by organs-on-a-chip could accelerate drug development and allow researchers to carry out experiments too risky for human volunteers. Moreover, by linking different chips together, researchers can study how reactions in one organ affect another.

<http://www.economist.com/news/science-and-technology/21654013-first-organ-chips-are-coming-market-and-regulators-permitting-will-speed>

Mysterious new disease posing 'emergent global threat for humans' is carried by mosquitoes, shows study in mice. First described in 1990 and identified in 2008, the *Rickettsia felis* bacteria, also known as cat-flea typhus,

cause symptoms similar to many bacterial infections, such as fever. A study in which mosquitoes were fed on Rickettsia felis-infected mice found that the insects were able to transmit the disease. Even when it was thought that Rickettsia felis was only transmitted by fleas and ticks, the disease was considered by the Centres for Disease Control and Prevention as “representing a high potential risk for public health”, it has been described on nearly every continent, except for Antarctica.

<http://www.independent.co.uk/news/science/mysterious-new-disease-posing-emergent-global-threat-for-humans-is-carried-by-mosquitoes-10312219.html>

Juvenile camels, aged less than four, may be a ‘key source’ of Mers. A study looking at Mers infections in dromedary camels found that 90% of animal became infected by age two and virus shedding was more common in calves than adults. Initial studies had shown that camels living in the Middle East had antibodies that recognised Mers virus protein, suggesting past infection, but none contained the virus. How the virus spreads to humans is still unknown. Changes in animal husbandry, like delaying the age calves are taken from their mothers may reduce the occurrence of human Mers infections.

<http://www.bbc.co.uk/news/science-environment-33096263>

Chimps can vary their smiles like humans. A new study shows that chimpanzees have the same types of smiles as humans when laughing. This suggests that chimpanzee communication is more similar to humans than previously known. The smile types have most likely evolved from positive expressions of ancestral apes.

“Humans have the flexibility to show their smile with and without talking or laughing. This ability to flexibly use our facial expressions allows us to communicate in more explicit and versatile ways, but until now we didn’t know chimps could also flexibly produce facial expressions free from their vocalizations.” Explains Lead researcher, Dr Marina Davila-Ross, is from the University’s Centre for Comparative and Evolutionary Psychology.

<http://www.alphagalileo.org/ViewItem.aspx?ItemId=153583&CultureCode=en>

11/06/15

Animal Research News

Heartburn drug could increase heart attack risk. Proton pump inhibitors (PPI) are one of the commonly prescribed drugs – around 8 million prescriptions in the UK each year plus over the counter sales - but it increases by 16-21% the risk of heart attacks. However, the study could not definitively prove the drugs were causing the heart attacks; it could be that the patients taking the drugs are simply sicker and more likely to get a heart attack. PPI drugs work by blocking the actions of cells called proton pumps, which produce stomach acid and animal studies and cell cultures showed that PPIs led to a drop in the level of nitric oxide, causing vessels to narrow and inflame.

<http://www.theguardian.com/society/2015/jun/09/heartburn-drugs-could-increase-heart-attack-risk-scientists>

Scientists find mutation that protects against ‘mad cow’ disease after studying cannibal group. The researchers discovered the mutation after studying the genes of the Fore people of Papua New Guinea who until recently had practised a form of cannibalism where a related disease, kuru, was transmitted by eating the brain tissue of the dead. The mutation that confers long- term resistance to kuru occurs in the gene for a prion protein. When researchers made the same change in the prion gene of laboratory mice they found that they became 100 per cent resistant to kuru and all forms of Creutzfeldt-Jakob disease (CJD), including variant CJD – the human form of bovine spongiform encephalopathy (BSE). Work is now on-going to understand the molecular basis of this effect which are expected to provide key insights into how misshapen proteins develop in the brain and cause the common forms of dementia, thereby guiding us to new treatments in the years ahead.

“We were expecting the mice to show some resistance to disease,” said Emmanuel Asante, who led the work at the MRC Prion Unit in the Institute of Neurology at University College London. “However, we were surprised that the mice were completely protected from all human prion strains. The result could not have been clearer or more dramatic.”

<http://www.independent.co.uk/news/science/scientists-find-mutation-that-protects-against-mad-cow-disease-after-studying-cannibal-group-10311282.html>

Polar bear caught eating dolphins and freezing the leftovers. This is the first ever observations of polar bears eating white-beaked dolphins that had ventured too far north. The bears probably killed the dolphins using a similar technique they use for seals. The bears were also seen storing the uneaten dolphin flesh under the snow in natural freezers they would dig.

<http://www.newscientist.com/article/dn27697-polar-bear-caught-eating-dolphins-and-freezing-the-leftovers.html>

10/6/15

New video on the role of animals in research produced by the Foundation for Biomedical Research:

https://www.youtube.com/watch?v=iA_FfVuTfoM

Scientists have found wild chimpanzees drinking fermented palm sap in Guinea, West Africa. The animals were using a leafy tool to sponge the alcohol, which is up to 6.9% strength. It opens up questions of whether our enjoyment of a drink is rooted in the activities of our evolutionary ancestors.

<http://www.independent.co.uk/environment/nature/chimpanzees-found-routinely-drinking-alcohol-in-wild-10309101.html>

05/03/15

Study in mice shows that the brain is directly connected to the immune system by vessels previously thought not to exist. The vessels were detected after scientists developed a method to mount a mouse’s meninges – the membranes covering the brain – on a single slide so that they could be examined as a whole. The brain’s lymphatic vessels were so close to the blood vessels they had gone unseen until now. The unexpected presence of the lymphatic vessels raises a tremendous number of questions that now need answers, both about the workings of the brain and the diseases that plague it. It could have a huge impact on the study and treatment of neurological diseases ranging from autism to Alzheimer’s disease to multiple sclerosis.

Kevin Lee, who chairs the Department of Neuroscience, described the discovery : “The first time these guys showed me the basic result, I just said one sentence: ‘They’ll have to change the textbooks.’ There has never been a lymphatic system for the central nervous system, and it was very clear from that first singular observation – and they’ve done many studies since then to bolster the finding – that it will fundamentally change the way people look at the central nervous system’s relationship with the immune system.”

<http://news.virginia.edu/content/researchers-find-textbook-altering-link-between-brain-immune-system>

Receptors on a cat’s tongue respond in a unique way to bitter tastes, making them picky eaters. Cats are very fussy about what they eat, and researchers might have discovered why. By comparing receptors on their tongues to those on human tongues, they found that cats are extremely sensitive to a bitter compound called denatonium but less sensitive to aloe plants and saccharin. The ability to detect bitter chemicals may have evolved because of its utility in avoiding toxic compounds often found in plants.

<http://www.dailymail.co.uk/sciencetech/article-3107516/So-S-cat-picky-eater-Receptors-tongues-respond-unique-way-bitter-tastes.html>

Goldfish and other exotic fish species are threatening the frog populations in ponds. Exotic species of fish have been blamed for a disease, ranaviriosis, which causes systemic haemorrhaging and severe skin ulcers in amphibians and can result in loss of limbs. It is responsible for the death of thousands of wild frogs. Non-native fish may amplify viral levels in the environment or cause wild frogs to produce a particular stress hormone that reduces their immune function and hence their ability to fight the disease. The study also found that the use of garden chemicals is associated with increased severity of ranaviriosis and highlights how common garden habits and certain pond characteristics are linked to the severity of the wild-frog disease.

<http://www.telegraph.co.uk/news/earth/wildlife/11650188/Frogs-under-threat-from-goldfish-in-garden-ponds.html>

Handstands and cartwheels turn dwarf mongooses into tough guys. By doing handstands to raise their rears as high as possible, dwarf mongooses can smear their anal scent glands on vegetation up high, broadcasting their amazing aptitudes. The smaller males even use a cartwheeling flip to deposit their scent a little higher. Height is very important to dwarf mongoose, as they pay much more attention to higher scent marks than those lower down. These marks are used to gauge the body size of competitors. Finding out information about big animals is more important than finding out information about small animals, for both males and females.

http://www.newscientist.com/article/dn27660-handstands-and-cartwheels-turn-dwarf-mongooses-into-tough-guys.html#.VXFvP_IVhBc

Animal Rights News:

A lot of coverage on the European Commission rejecting the petition by the Stop Vivisection Initiative which would have seen the EU Directive on animal research repealed. After hearing all the arguments the EU concluded that animal research remained important in medical and veterinary research.

<http://www.bbc.co.uk/news/world-europe-33015460>

<http://news.sciencemag.org/europe/2015/06/european-union-rejects-plea-end-animal-research>

<http://www.iflscience.com/plants-and-animals/european-commission-opposes-petition-end-animal-research>

04/06/15

For the first time, scientists have managed to grow a functional rat forelimb in a lab from living cells. Many amputees receive artificial replacements, but don't function as well as real limbs. Bionic replacement limbs work well but look unnatural. Hand transplants have also been successful, but the recipient needs lifelong immunosuppressive drugs to prevent their body rejecting the hand. This biolimb offers hope that one day amputees may receive fully functional, biological replacement limbs. It gets round many of these obstacles as it only contains cells from the recipient so would avoid the need for immunosuppression and should also look and behave naturally.

<http://www.newscientist.com/article/mg22630243.300-worlds-first-biolimb-rat-forelimb-grown-in-the-lab.html?page=1#.VXAg0fIVhBc>

A dog's bark can reveal its emotions and feelings but also its age and gender. Thanks to a computer program, scientists can tell if a dog is feeling scared, happy or lonely. Dogs aren't just trying to attract attention, or scaring off intruders when they bark. The computer program could also be used to help dog shelter staff identify levels of aggression, fear or distress, or help vets diagnose canines in the future. The algorithm could

also help develop emotional sounds for robots based on dog barks that can be recognised by humans – believable social sounds.

<http://www.dailymail.co.uk/news/article-3103904/Dogs-bark-reveal-scared-lonely-used-tell-gender-age.html>

Treating and vaccinating dogs against rabies, could help the disease from spreading. Think of rabies and an image of a snarling dog, frothing at the mouth, probably comes to mind. But it is often not that straightforward, symptoms of the disease could be much more subtle. Rabies can also only cause dogs to be weak and lose co-ordination, so they don't necessarily appear like a threat but are just as deadly as more aggressive animals. A post-exposure vaccine exists but is not easy to come by in poor countries, and once rabies symptoms start to show, a person is almost certain to die. Clearly, dog vaccination campaigns are the most effective ways of reducing rabies in both dogs and humans, making them a vital tool in eradicating the disease.

<http://www.bbc.co.uk/news/health-32887567>

03/06/15

Toxoplasma Gondii, a single-celled parasite that lives in the gut of cats and infects 1/3 of the human population, may be negatively affecting school children's performance. The parasite, which is spread through contact with cat faeces, hides in brain cells and muscles, often without any other symptoms. A study by the University of Iowa suggests it may be affecting cognitive abilities in children, but that vitamin E supplements could reverse the effect.

<http://www.telegraph.co.uk/news/science/science-news/11644581/Cats-make-children-stupid-study-suggests.html> .

Australia's getting concerned about a fish out of water. The climbing perch (Anabas testudineus) uses its spines to drag itself over land. It has both lungs and gills allowing it to breath on land. They use their flexible gill covers to choke their prey.

<http://www.mirror.co.uk/news/technology-science/science/watch-terrifying-breathing-fish-crawl-5807221>

Parthenogenesis, or 'virgin births' have often been observed in captive animals, but now scientists have found the first example of virgin-born animals living in the wild. Scientists from Stony Brook University discovered the phenomenon during population surveys of the critically endangered smalltooth sawfish in Florida estuaries.

<http://www.bbc.co.uk/news/science-environment-3295803301/06/15>

Firing tiny radioactive beads can dramatically hinder a tumour's growth, according to a new study in 530 patients with liver tumours. The study found that the treatment halted the growth of liver tumours for almost eight months longer than chemotherapy alone. The findings were presented at the annual meeting of the American Society of Clinical Oncology (ASCO) in Chicago by Associate Professor Peter Gibbs of The Royal Melbourne Hospital in Australia. Preclinical work on this technique, known as "selective internal radiation therapy (SIRT)" has been conducted in rats and mice. <http://www.independent.co.uk/news/science/cancer-research-shows-tiny-radiocative-beads-could-stunt-tumor-growth-10287419.html>

Lost memories in mice have been restored, shedding new light on the mechanics of amnesia. The study suggests that during amnesia memories do remain intact, rather than being erased, but are unable to be recollected. The study used blue light to stimulate 'memory engrams', neurons in the brain that are activated as memories are formed. "The majority of researchers have favored the storage theory, but we have shown in this paper that this majority theory is probably wrong," researcher Susumu Tonegawa of the Massachusetts Institute of Technology said. "Amnesia is a problem of retrieval impairment," the Nobel Prize-winning scientist said. <http://news.yahoo.com/scientists-restore-lost-memory-mice-shedding-light-amnesia-033653018.html>

Scientists are turning to drones in order to monitor wild populations of whales off the coast of the US. Hexacopters kitted out with high-resolution cameras allow researchers to assess everything from whale behaviour to body condition. "By studying the body condition of females, we hope to connect the dots between conditions in the Arctic one year and calf production the next," explained marine mammal biologist Dr John Durban. "Ultimately, we're trying to understand how environmental conditions affect the reproductive success of the population." <http://www.bbc.co.uk/news/science-environment-32935898>

27/05/15

Studies in mice have suggested that telomeres, the caps at the end of each of our DNA strands, may provide a useful target for anti-cancer drugs. Since cancer cells require intact telomeres to replicate, researchers have tried blocking the growth of the protective covers at the ends of the telomeres (called shelterin). Studies in mice with an aggressive lung cancer showed that tumour growth could be prevented by using chemicals which block shelterin growth.

<http://www.alnmag.com/news/2015/05/telomere-drug-target-slows-tumor-growth-mice>

Fish are proving themselves smarter than many scientists have given them credit for. In 1998 Bshary observed a grouper fish and a giant moray eel cooperating to hunt. Bshary created artificial reefs and found many of the behaviours he spotted in the wild could be repeated in laboratory conditions.

<http://www.nature.com/news/animal-behaviour-inside-the-cunning-caring-and-greedy-minds-of-fish-1.17614>

The South East Asian region of Greater Mekong was discovery central for new species in 2014, with 139 new species discovered there, 90 plants and 49 animals. Many of these newly discovered species are already under threat from habitat destruction and the illegal wildlife trade.

<http://www.theguardian.com/environment/2015/may/27/thorny-frog-and-dementor-wasp-among-new-species-discovered-in-mekong>

26/05/15

A man paralysed for over a decade by a gunshot wound has been able to control a robotic arm via an implant in his brain. Previous trials have placed implants in the motor cortex of the brain, producing movements that were delayed and jerky rather than fluid. This study placed the implant in a "higher" brain region: the posterior parietal cortex, a region of the brain that gives rise to the intention to move rather than the details of movement. Richard Andersen, who led the trial at California Institute of Technology, said: "When you move your arm, you really don't think about which muscles to activate and the details of the movement - such as lift the arm, extend the arm, grasp the cup, close the hand around the cup, and so on. Instead, you think about the goal of the movement, for example, 'I want to pick up that cup of water.'"

<http://www.theguardian.com/science/2015/may/21/brain-implant-controls-robotic-arm-with-the-power-of-thought>

The *Guardian* have produced an excellent editorial to accompany their coverage of this news story. Extensive preliminary research using primates has paved the way for studies of neural implants, and the article argues that abandoning this research would be "craven and foolish". The piece specifically refers to the scientists Niko Logothetis, who announced that he will discontinue the primate elements of his work at the Max Planck Institute in Germany following a prolonged campaign by animal rights activists.

<http://www.theguardian.com/commentisfree/2015/may/25/guardian-view-on-vital-medical-research-on-primates>

And finally, popular since its publication with irreverent grad students, the 1995 paper "Homosexual Necrophilia in the Mallard Duck" has become the unlikely recipient of an operatic makeover. "It was a beautifully written paper, it has been crying out to be set to music," said Dan Gillingwater, the composer, of his

motivation. "It's high art; I've got a clarinet quintet playing, and it sounds a bit like Handel." He was particularly proud of the two contemporary dancers he has "portraying the act itself." Male mallard ducks have a courtship strategy that could "charitably be described as persistent", pursuing the female until she is so exhausted that she gives up. Occasionally other males may be targeted, and in the events described in the paper, the target male was deceased. <http://www.thetimes.co.uk/tto/science/article4449951.ece>

22/05/15

Whales can be told apart by their voices. Scientists have identified a particular type of call that the whales make that allowed them to single out individual whales. Biologists want to try to identify and monitor whales in the wild acoustically, but it is difficult to put in practice.

<http://www.bbc.co.uk/news/science-environment-32793370>

Experimental Ebola treatment boosts survival in mice. Researchers have found a potential drug that successfully treated up to 90% of mice exposed to the Ebola virus. The FDA has yet to approve any therapeutic drugs or vaccines against the Ebola virus which has infected since dec 2013 more than 25,000 people and killed more than 10,000.

<http://medicalxpress.com/news/2015-05-experimental-ebola-treatment-boosts-survival.html>

Bigger brains help female fish outwit predators and live longer. Bigger brains meant smarter guppies which meant they were more likely to outwit predators and live longer. However, this didn't seem to work for males, whose bright colours may have countered any benefit of higher intelligence. The researchers did find that large-brained males were faster swimmers and better at learning and remembering the location of females. Size is a critical trait underlying cognitive ability but it is not the only trait, and there is enormous variation in brain size of vertebrates – both relatively and absolutely. Given that brains are energetically costly this means there is an optimal brain size that balances these costs and benefits.

<http://www.newscientist.com/article/dn27567-bigger-brains-help-female-fish-outwit-predators-and-live-longer.html#.VV2sYflVhBc>

The Times features a piece highlighting the attempts of animal rights extremists to be elected to the RSPCA's Council. it focuses mainly on John Bryant, who took the organisation in a more radical direction in the 70s and chaired Animal Aid, and Dan Lyons, who holds radical views but can do a better job of sounding reasonable. There are Council 25 seats in all, so any influence they have would be diluted, however the election of someone with hardline views was described as a "significant step backwards" by the Countryside Alliance.

<http://www.thetimes.co.uk/tto/news/politics/article4446624.ece>

21/05/15

Young blood helps repair fractured bones of ageing mice. Once again the blood of young individuals seems to have a miraculous effect on older mice. (<http://www.animalresearch.info/en/medical-advances/diseases-research/ageing/>) Over the past years, researchers have reversed muscle atrophy, memory loss, heart degradation, cognitive decline and now bow degradation by pumping the blood of young mice into older animals. Fractured bones of old mice fixed themselves much faster if they received the blood from young mice and reversely, the young mice that received old blood had a slight decrease in the ability to repair the fractured bones.

<http://www.newscientist.com/article/dn27562-young-blood-helps-repair-fractured-bones-of-ageing-mice.html>

Use of Paracetamol should be limited in pregnancy. Study in mice warns that pregnant women should be careful when taking paracetamol as long term use could affect the reproductive health of their sons. Painkillers interrupted the production of testosterone when given for 7 days – a hormone key to the development of male reproductive organs.

<http://www.bbc.co.uk/news/health-32808969>

Octopuses can see with their skin. Octopus skin contains light-sensitive pigments also found in the eyes, making it responsive to light. Octopuses are thought to rely mainly on vision to bring about changes in colour and patterning of their skin to camouflage – despite apparently being colour blind. However, this study suggests that the skin cells responsible for the colour changes, called chromatophores, could also respond independently to light of different wave length. The chromatophores react differently to white, red and blue light.

<http://www.theguardian.com/science/neurophilosophy/2015/may/20/octopus-skin-contains-light-sensors>

20/05/15

In a poll of 1,024 American adults, 32% of respondents suggested that animals should have the same rights as people to be “free from harm and exploitation”. This is similar to the 33% who said they were “Very concerned” about the use of animals in research (a higher proportion than animals in the zoo, the circus, or used for livestock). The level who believe animals should have these rights is 7% higher than when the question was asked in 2008.

<http://www.theguardian.com/world/2015/may/19/americans-animals-human-rights-poll>

<http://www.gallup.com/poll/183275/say-animals-rights-people.aspx>

Researchers from Imperial College London showed that an injection of stem cells into a mouse with heart damage showed improved heart function, despite most of the donor cells not remaining in the heart. Researchers will now be interested to find out if humans have similar heart stem cells that act in a similar way.

<http://www.nhs.uk/news/2015/05May/Pages/Stem-cells-could-provide-a-treatment%20for-a-broken-heart.aspx>

It seems little goes in favour of the giant panda. They appear to have minimal interest in reproducing at a practical rate, they are losing habitat in some areas, and now it is discovered that they are poorly equipped to digest bamboo - which makes up most of their diet.

<http://www.theguardian.com/science/2015/may/19/hard-to-bear-pandas-poorly-adapted-for-digesting-bamboo-scientists-find>

18/05/15

The large opah has become the first known 'warm-blooded' fish, capable of regulating its own body temperature by trapping heat in its fatty fins. Fish like tuna are capable of heating specific parts of their body, but this is the first time that whole-body endothermy has been observed in a fish. "Before this discovery I was under the impression this was a slow-moving fish, like most other fish in cold environments," said Dr Wegner, from the Southwest Fisheries Science Center run by the National Oceanic and Atmospheric Administration

(NOAA) in the US. "But because it can warm its body, it turns out to be a very active predator that chases down agile prey like squid and can migrate long distances." <http://www.bbc.co.uk/news/science-environment-32742620>

Dwarf goats have object permanence - the ability to tell that a hidden object still exists - the first time that this has been shown in an ungulate. Human children typically develop this ability between 8 and 12 months of age, and similar studies have shown that some primates, cats and dogs also reach different levels of object permanence. Goats watched as researchers hid a piece of pasta underneath a cup, and were tested to see whether they could find it again. 6 out of 9 passed the test. Goats found it more difficult to track the pasta when the cups were the same. The researchers commented that keeping track of that relatively tricky trajectory implies a higher stage of object permanence development than no other nonprimate mammal is known to have. <http://news.sciencemag.org/brain-behavior/2015/05/cute-overload-dwarf-goats-track-hidden-objects>

A new species of 'hutia', a cat-sized rodent, has been identified in the West Indies and named after a naturalist who made extensive surveys of the hutia populations in the region. His name was James Bond... <http://www.newscientist.com/article/dn27542-meet-the-catsized-rodent-named-after-james-bond.html#.VVnKeflVhBd>

The announcement that the BUAV will be taking legal action against the Home Office over their investigation of the allegations against Imperial College has been covered by a couple of publications over the weekend, including *Times Higher Education*. <http://www.timeshighereducation.co.uk/news/home-office-taken-to-court-over-imperial-animal-research-investigation/2020251.article>

15 May 2015

Scientists from the Salk Institute for Biological Sciences in California have identified a protein in the brains of young mice that can change the function of sensory neurons by switching genes on or off. Previously this protein was only thought to be active before birth. This discovery could lead to new ways of treating conditions like schizophrenia, that are caused by unusual 'brain wiring'. <http://www.newscientist.com/article/dn27528-rewiring-of-senses-in-a-mouse-brain-revealed-in-glorious-colour.html#.VWV5PIVhBd>

A potential new vaccine for Chagas disease has been successfully tested in mice. Chagas disease, caused by the *T. cruzi* parasite and spread by the triatomine or 'kissing bugs', affects between 11-18 million people in the world and kills 50,000 people a year due to intestinal and cardiac complications. "Prior to this study, we systematically screened the *T. cruzi* genome database and identified three proteins with strong potential for vaccine development. The proteins become antigens once the body mounts an immune response that creates antibodies. We found that vaccinating mice with these antigens just prior to infecting them with *T. cruzi* kept the parasite levels down and staved off the signs of Chagas disease seen in the unvaccinated mice," explained lead researcher Shivali Gupta. <http://bionews-tx.com/news/2015/05/13/utmb-creates-vaccine-chagas-disease>

A cluster of cells inside the fruit fly brain can track the animals' orientation like a compass. Mammals have similar direction cells in their brains, but this is the first time they have been observed in flies. The flies walked on top of spherical treadmill while researchers studied their brain activity using a microscope. They saw activity sweep around a ring of cells to match the direction the animal was headed. "The fly is using a sense of its own motion to pick up which direction it's pointed," said senior author Dr Vivek Jayaraman, from the Howard Hughes Medical Institute's Janelia Research Campus. <http://www.bbc.co.uk/news/science-environment-32713726>

14/05/15

Less than a week after the election, the Conservative party have already announced plans to overturn the 2004 ban on fox hunting, and people are outraged – far more actually than regarding the welfare cuts. Similarly, a million strong petition has compelled the European parliament to consider a ban on all animal research. This would have devastating consequences for thousands, even millions of sick people, given how integral animal experimentation is to successful medical research.

This prioritising of animals over our own species is a uniquely human feature. It comes down to empathy and how we are predisposed to often assume guilt or compliance in our fellow humans, but animals are always innocent as they simply lack the ability to do anything to deserve suffering at the hands of man.

<http://www.theguardian.com/science/brain-flapping/2015/may/14/fox-hunting-vivisection-animals-rights-psychology>

Males with shorter penises have fewer offspring...in bugs. Size really does matter when it comes to seed bug reproduction. These creatures have a bizarre, coiled penis that is 70 per cent their body length and scientists have found that reducing it affects their chance of having children. Bugs with their penis cut off by only 5% had significantly fewer offspring and a 30% reduction meant their mating time was down to half.

<http://www.theguardian.com/science/animal-magic/2015/may/13/unkindest-cut-insect-penis-gets-chop>

Walnuts can slow the growth of bowel cancer by reducing blood supply to tumours shows study in mice. Mice fed walnuts had 10 times more omega-3 in their bowel tumours which reduces inflammation and cuts blood supply. This slows the growth of tumours, the amount of omega-3 was correlated with smaller tumours. Walnuts change the expression of micro-nucleic acids, which affect how genes adapt to environment that can slow down growth of cancer. Research has shown that 30-50 % of bowel cancer in men, and 20 per cent in women can be prevented by changing to a healthier diet and lifestyle.

<http://www.dailymail.co.uk/health/article-3079949/A-daily-handful-WALNUTS-slow-growth-bowel-cancer-reducing-blood-supply-tumours.html>

A compound found in fish that protects animals from the sun's UV rays, could one day be used as a sunscreen pill. Some animals don't need to squeeze sunscreen out of a tube because they produce their own and excrete it through their skin. The gene that provides the capacity to produce the compound, gadusol, may have been inherited from a similar gene found in algae, however, mammals do not have it. Gadusol provides UV-B protection, but may also plays a role as an antioxidant, in stress response, embryonic development and other functions. Researchers have found a way to naturally make gadusol in large quantities using yeast. They hope it may be possible to develop gadusol as an ingredient for many types of sunscreens.

<http://www.dailymail.co.uk/sciencetech/article-3079945/Could-one-day-sunscreen-PILL-Compound-fish-one-day-used-supplement-humans.html>

12 May 2015

Jo Johnson MP (Boris' brother) has been named new Universities and Science Minister. CaSE's Acting Director has welcomed the appointment, while the Telegraph has noted that Jo's father said Jo knows nothing about science.

<http://www.bbc.co.uk/news/science-environment-32698484>

Catherina Becker, Director of the Centre for Neuro-regeneration at the University of Edinburgh, has written an article about the importance of ongoing animal research – referencing her own research on zebrafish into spinal cord repair. Prof Becker expresses concerns that the new European Citizens Initiative to repeat the EU 2010/63 directive on animal research would be a bad move.

<http://www.newscientist.com/article/mg22630202.600-can-we-do-without-animal-research-not-yet.html#.VVHa3JMj-Go>

A new species of beetle has been discovered in South Africa with no known direct relatives on the continent. *Capelatus prykei* is a species of diving beetle - around 1cm in length.

<http://www.nytimes.com/2015/05/12/science/beetle-found-no-sign-of-relatives.html>

Also on the ECI initiative:

MEP's debate on animal research ban worries scientists -

<http://www.theguardian.com/science/2015/may/09/animal-research-vivisection-ban-eu-parliament-debate>

11 May 15

Scientists from Switzerland and Germany have successfully restored vision to blind mice, by stimulating their retinal cells with a light-sensing protein. In hereditary blindness, a condition that affects millions of people worldwide, the light-sensing cells of the eye are lost leaving behind only retinal cells that cannot detect light. Introducing a light-sensing protein to these remaining cells effectively turned them into replacement photoreceptors, allowing the mice to see under daylight conditions, react to visual stimuli and learn visually triggered behaviours. "The new therapy can potentially restore sight in patients suffering from any kind of photoreceptor degeneration," lead author Sonja Kleinlogel explains. "However, it will take at least another two or three years before the new light antenna can be tested in the clinical setting." Furthermore, the novel principle opens a whole palette of new possibilities to potentially treat conditions such as pain, depression and epilepsy. <http://www.sciencedaily.com/releases/2015/05/150507153952.htm>

Traffic noise makes it difficult for fish to have sex, according to a new study of blacktail shiners from the Chattahoochee River in the USA. Male blacktail shiners use noise to attract a mate, emitting bursts of sound that are similar to a cat's purr. After mating they protect their eggs by making a series of popping sounds designed to ward off other males. These sounds have evolved to be heard over the natural noises of the river, but can be completely masked by human-made noise from cars and boats. <http://news.sciencemag.org/biology/2015/05/traffic-noise-blocks-fish-sex>

07 May 15

Researchers have found that the gene which gives naked mole-rats' their natural resistance to cancer is unique among mammals. Naked mole rats are unusual in many ways with extreme longevity and lack of normal signs of ageing. Part of the reason they live long is that they have a natural resistance to cancer. Their resistance to cancer has been linked to the production of a specific substance and a mutation in the gene that produces it. Researchers have sequenced the gene and compared it to other that of other mammals and found that it is unique.

<http://www.sciencedaily.com/releases/2015/05/150506084638.htm>

Scientists have identified a new link between diabetes and Alzheimer's, providing further evidence that a disease that robs people of their memory may be affected by elevated blood sugar levels. The study shows that elevated glucose levels in the blood of mice can rapidly increase levels of amyloid beta plaques – key components of Alzheimer's.

<http://www.neuroscientistnews.com/research-news/new-link-found-between-diabetes-and-alzheimer-s>

Dolphins hang out with friends in 'gangs': Marine mammals have complex social networks like humans. Dolphins avoid individuals they don't like and hang out with their friend in specific areas. What is surprising is that the geography and physical dimensions of the habitat influenced the spatial and temporal dynamics of

dolphin association patterns.

<http://www.dailymail.co.uk/sciencetech/article-3070182/Dolphins-hang-friends-gangs-Marine-mammals-complex-social-networks-like-humans-study-reveals.html>

Scientists have identified species of penis worm, a group of marine invertebrates named for their penis-like shape. During the Cambrian period, 500 million years ago, they were among the most common organism on the planet. Dental imprints and the analysis of mouth parts revealed that the group was more diverse as previously thought and allowed the identification of new species.

<http://news.sciencemag.org/paleontology/2015/05/scientists-identify-new-species-penis-worm>

06 May 15

Understanding Animal Research was created by a merger of the Research Defence Society and the Campaign for Medical Progress. This book is a collection of essays from the late Jack Botting, a past science writer for RDS, collated by his wife. The collection of essays are collated into a free, online, book for all.

<http://www.openbookpublishers.com/reader/327#page/1/mode/2up>

Sign your name in solidarity with Nikos Logothetis, who felt pressured enough by animal rights activists to stop his internationally acclaimed primate work. As animal rights activism has calmed in the UK, it is flaring up in a number of countries in Europe including Germany and Italy. <http://www.cin.uni-tuebingen.de/sign-open-letter.php>

Kay Davies writes for Nature on why the EU should reject the ECI "Stop Vivisection" Petition, which aims to repeal the EU directive which protects animals in research. She discusses how technology is offering ways of improving animal research - not least by making it less invasive - but that animal research remains important to scientific progress.

<http://www.nature.com/news/keep-the-directive-that-protects-research-animals-1.17479>

05 May 15

A skin-eating fungus that has decimated the salamander populations in Belgium and the Netherlands has arrived in the UK, infecting and killing imported animals. If it escapes into the wild *Batrachochytrium salamandrivorans* could pose a serious threat to the UK's native great crested newt population. "It's critical that no animals potentially carrying [the fungus] are released into the wild, which is illegal anyway," says Matthew Fisher from Imperial College London. "Likewise, water and organic matter from collectors and hobbyists shouldn't be dumped down sinks or in gardens without disinfection – 1-per-cent strength bleach will kill the fungus if it's there." <http://www.newscientist.com/article/dn27461-deadly-skin-eating-fungus-threatens-uks-great-crested-newt.html#.VUiDRvIVhBc>

The world's biggest whales have a biological secret weapon to help them feed: the nerves in their jaws are very stretchy. Rorqual whales, a family that includes many of the large baleen whales such as blue and humpback, feed by engulfing large volumes of water and krill. Researchers from the University of British Columbia examining the jaw of a fin whale discovered a stretchy cable that was found to be a nerve. This is the first time that stretchy nerves have been observed in vertebrates. Normally if a nerve needs to be flexible extra slack will be created to prevent damage or injury. This study also highlights the difficulties of dissecting an animal that can be up to 20m long. "[T]hese animals are so huge that even getting in through the skin is something you can't do without having heavy machinery around," said Prof Wayne Vogl, an anatomist at the University of British Columbia and the study's first author. "When you are working with a 20m fin whale, it's important to have the right equipment, he said. "If a heart falls on you, it could kill you."

<http://www.bbc.co.uk/news/32548856>

And finally, *Science* have covered the news that German neuroscientist Nikos Logothetis, a director at the Max Planck Institute for Biological Cybernetics, has announced that he will conclude his current primate experiments following continued pressure by activist groups. Sadly, Logothetis also cites a lack of support from colleagues and the wider scientific community as key factors in his decision.

<http://news.sciencemag.org/europe/2015/05/embattled-max-planck-neuroscientist-quits-primate-research>

30/04/15

Researchers have identified a neural circuit that controls feelings of fullness in mice. A group of neurons in the hypothalamus create a feeling of fullness that stops hungry mice from eating and creates a pleasurable feeling when they are activated. The circuit could provide targets for new weight-loss drugs.

“Our results show that the artificial activation of this particular brain circuit is pleasurable and can reduce feeding in mice, essentially resulting in the same outcome as dieting but without the chronic feeling of hunger,” study coauthor Bradford Lowell of Harvard’s Beth Israel Deaconess Medical Center

<http://www.the-scientist.com/?articles.view/articleNo/42828/title/Turning-Off-Hunger-Pangs/>

New study in rats shows that youthful binge drinking could lead to brain issues as you get older. Drinking at early stages can cause memory problems in adults and brain cells may become more vulnerable to injury or disease.

<http://philadelphia.cbslocal.com/2015/04/29/study-binge-drinking-in-your-youth-could-lead-to-brain-issues-later/>

News 29 April 2015

By humanising the immune system of mice, researchers are in a better position to study the growth of tumours, allowing them to better assess which treatments might work. These XactMice are infused with human blood stem cells to grow the humanised immune system.

<http://au.ibtimes.com/humanised-mice-developed-improve-immunotherapy-testing-1443799>

The artificial lighting found in harbours are altering the behaviour of nearby wildlife, with some drawn to, and others deterred by the light. Many small invertebrates, for instance, seek out the light when deciding where to cling to, resulting in a large increase in mussels and barnacles near the bright harbours.

<http://www.bbc.co.uk/news/science-environment-32500640>

Yesterday, when we mentioned the Wired website showing videos of Cambridge University’s research, we neglected to mention a similar article in the Mirror. It’s got some really strong quotes from scientists in it.

<http://www.mirror.co.uk/news/technology-science/science/cambridge-university-shows-how-experiments-5573551>

News 28 April

Cambridge’s video from their lab was featured in wired:

<http://www.wired.co.uk/news/archive/2015-04/27/university-of-cambridge-cancer-testing-mice>

The high pitched squeaks of mice and rats could be causing seizures in older cats. This condition, nicknamed 'Tom and Jerry Syndrome' because of the way the cartoon cat is often startled by sounds, was found to be

more common in Birman cats (see picture). These cats' conditions appeared to be alleviated through medicine used to control epilepsy.

<http://news.sciencemag.org/health/2015/04/tom-and-jerry-syndrome-causes-seizures-old-cats>

After a rat attack left a 90 year-old tortoise (called Mrs T) without any front legs, her owner took it upon herself to come up with a remedy. With the help of a friend, they provided Mrs T with her own wheels. Changing odds for the tortoise vs the hare?

<http://www.telegraph.co.uk/news/newstoppers/howaboutthat/11567404/Tortoise-90-gets-wheels-for-legs-after-rat-attack.html>

Science news 23 April

Asthma could be cured within 5 years thanks to drug breakthrough. Researchers have identified in mice which cells go into overdrive and cause the airways to narrow when triggered by irritants such as pollution. Drugs that can deactivate those cells already exist, and now researchers hope to have found a way to stop asthma from happening in the first place. Scientists are hoping that clinical trials will start soon.

<http://www.telegraph.co.uk/news/health/news/11556249/Asthma-could-be-cured-within-five-years-after-drug-breakthrough.html>

Ebola drug cures monkeys infected with the virus. The treatment targets the West African strain of the virus and could be adapted to target any strain of Ebola. It works by blocking particular genes, which stops the virus from replicating. Currently, there are no treatments or vaccines for Ebola that has been proven to work in humans, but human trials with the monkey-saving drug are expected to start in the second half of this year.

<http://www.bbc.co.uk/news/world-32424145>

Science news 22 April

A new gene therapy appears to be successful in curing a rare genetic condition, Wiskott-Aldrich syndrome, in children. The trial at the Great Ormond Street Hospital could pave the way for new gene therapies for conditions such as sickle cell anaemia.

Although not mentioned in the articles, preclinical work was conducted in immunodeficient (genetically altered) mice. These animals were key to developing and evaluating the lentiviral vector used to treat Wiskott-Aldrich Syndrome.

<http://www.theguardian.com/science/2015/apr/21/new-gene-therapy-may-cure-childhood-immune-condition>

Also: <http://www.telegraph.co.uk/news/health/news/11553415/New-era-of-medicine-begins-as-first-children-cured-of-genetic-disorder.html>

Space experiment shows the playfulness of geckos. A Russian experiment sent 15 female thick toes geckos into orbit for 30 days to understand gecko behaviour in zero gravity. After one gecko lost his collar, the group could be found batting it about and playing with it.

<http://www.theguardian.com/science/2015/apr/21/space-geckos-show-their-playful-side-in-orbit-experiment>

Science news 21 April

A common athlete's foot drug may offer hope to those with multiple sclerosis (MS), a debilitating condition that can lead to paralysis and blindness. Early tests in rodents show the drug repairs some of the cell damage by encouraging the growth of myelin to coat and protect nerves. Off-label prescriptions offer a lot of promise because the compounds are already known to be safe for human use. However, it will be some time before it is known if the results will translate from rodents to humans.

<http://www.bbc.co.uk/news/health-32378240>

also: http://www.huffingtonpost.co.uk/2015/04/21/eczema-cream-multiple-sclerosis_n_7106292.html

and: <http://www.telegraph.co.uk/news/science/science-news/11550530/Common-athletes-foot-cream-could-reverse-multiple-sclerosis.html>

A study suggests that calves should spend more time with their mothers after birth in order to improve their weight and well-being. Currently, many calves are separated immediately after birth, but a study in Norway shows that the longer the calf is kept suckling from its mother the healthier the animal (in daily weight gain). They also found by separating the mother and calf for half of the day, the less anxiety is felt by both after permanent separation.

<http://sciencenordic.com/calves-need-more-motherly-care>

How do you deliver treatment directly to the brain? How do you ensure a treatment affects only a specific region of the brain? French and Swedish scientists have developed a micropump, 20 times thinner than a human hair, which uses electrical charge to draw positively charged drug ions along it. The team used mice to test the technology, with positive results for treating an epilepsy-like disease in mice.

http://www.nanomagazine.co.uk/index.php?option=com_content&view=article&id=2822:an-electronic-micropump-to-deliver-treatments-deep-within-the-brain&catid=38:nano-news&Itemid=159

Science news 20/04/15

Study in mice at Duke University shows that immune cells which are meant to protect the brain will sometimes start consuming an important nutrient - arginine. The researchers managed to block this process using a small-molecule drug. This had the effect of preventing brain plaques and memory loss in the mice - both associated with Alzheimer's disease.

<http://www.independent.co.uk/life-style/health-and-families/health-news/alzheimers-breakthrough-scientists-may-have-found-potential-cause-of-the-disease-in-the-behaviour-of-immune-cells--giving-new-hope-to-millions-10176652.html>

And editorial: <http://www.theguardian.com/society/2015/apr/15/alzheimers-disease-cause-study-caveats-aside-findings-encouraging>

Also: <http://www.telegraph.co.uk/news/science/science-news/11536014/Alzheimers-Disease-could-be-prevented-by-immune-system-tweak.html> and <http://www.dailymail.co.uk/sciencetech/article-3039107/Alzheimer-s-breakthrough-researchers-discover-new-cause-treatment-help-millions.html>

Science news 16/04/15

The 'love hormone' oxytocin could be used to treat mental health problems. Oxytocin is known to reinforce the bonds between individuals. Studies in mice have found that oxytocin plays a role in manipulating how the brain processes social information by amplifying or suppressing neural signals of the brain - oxytocin controls the volume of social information that is being processed by individual nerve cells. Researchers believe the results could lead to new ways of using the hormone as a drug to treat a range of psychological problems

related to social behaviour such as social anxiety, post-traumatic stress disorder, speech and language disorders and many others.

<http://www.independent.co.uk/news/science/love-hormone-oxytocin-could-be-used-to-treat-mental-health-problems-10178627.html>

Nicotine use increases Compulsive Alcohol Consumption in rats. Smokers have a five to ten time greater risk of developing alcohol dependence than nonsmokers and now we know why. In rats, nicotine exposure promotes alcohol dependence – nicotine makes individuals crave alcohol to ‘reward’ the brain and reduce the stress. The combination of nicotine and alcohol activates a group of neurons, giving positive reinforcement to continue alcohol and nicotine use. This may explain why it is difficult for smokers to quit drinking and vice versa.

<http://www.alnmag.com/news/2015/04/nicotine-use-increases-compulsive-alcohol-consumption-rats>

Gum disease treatment lowers risk of heart attack in rabbits. This discovery further underscores the increasing body of evidence showing how problems in the mouth can influence other parts of the body, including the heart – there is a real link between oral health and heart health. The scientists aim to generate greater awareness of gum disease, affecting 64.7 American adults, as a critical risk factor for heart disease, independent from diet and lifestyle.

http://www.alnmag.com/news/2015/04/gum-disease-treatment-lowers-risk-heart-attack-rabbits?et_cid=4517518&et_rid=762765857&type=headline

Grey whale makes record migration across the North Pacific. The female whale travelled a round trip of 22,500 km, from Russia to Mexico and back. It is the longest recorded migration of any mammal. Until now, it was believed that there were two distinct groups of gray whale, but they may be part of the same population. The whales were driven to the brink of extinction last century, and while the Eastern population recovered to around 20,000 animals, the number of Western whales very low with only 180 individuals left. This could mean that the ‘true’ Western gray whales are now extinct and Eastern gray whales are moving further from their traditional breeding grounds.

<http://www.bbc.co.uk/news/science-environment-32288279>

Science news 15/04/15

An editorial in Nature has discussed whether some animal studies in the UK may be underpowered. There is concern that sample sizes being used in some preclinical research may not be sufficient to determine whether a drug is worth pursuing.

<http://www.nature.com/news/numbers-matter-1.17315>

Also see: http://www.nature.com/news/uk-funders-demand-strong-statistics-for-animal-studies-1.17318?WT.mc_id=TWT_NatureNews

Election Special:

Lib Dem manifesto is out and offers support for the 3Rs:

https://d3n8a8pro7vhmx.cloudfront.net/libdems/pages/8907/attachments/original/1429028133/Liberal_Democrat_General_Election_Manifesto_2015.pdf?1429028133

The UKIP manifesto seems more confused, believing our laws are created by Europe on this issue, rather than having been exported to Europe:

http://downloads2.dodsmonitoring.com/downloads/misc_files/theukipmanifesto2015.pdf

Check the views of all the parties on our website here: [{CCM:BASE_URL}/news/policy-issues/animal-research-in-the-2015-general-election/](#)

Science news 14/04/15

Vampire bats appear to have a taste for bacon. Or to be specific, pig blood. By examining DNA found in the droppings of Brazilian vampire bats, scientists from the National Institute of Amazonian Research in Manaus determined that bats were seven times more likely to feed on pigs than on chickens. This finding accounts for chickens being more readily available as prey than pigs. Although no evidence of human DNA was found in the wild bats, Gerry Carter of the University of Maryland, who developed the bat poop sequencing technique, notes that understanding what vampire bats are eating could shed light on their role as a rabies vector. According to the study bats caused 25 deaths from rabies in northern Brazil between 2004 and 2005. <http://news.sciencemag.org/biology/2015/04/vampire-bats-have-taste-bacon>

Surgical tape made from wine and glue has been used to stop liver bleeding in mice. Most glues are not suitable for use in surgery because they are toxic or because they stop being sticky when exposed to moist surfaces. However by combining two cheap, safe chemicals scientists in Korea have created a strong, reusable adhesive that could be used to patch people up after surgery. Mice treated with the new adhesive bled six times less than those treated with fibrin, and had stopped bleeding altogether within 2 minutes. http://www.newscientist.com/article/mg22630162.700-wine-and-glue-tape-ideal-for-postsurgery-patchups.html#.VSzNO_nF9Rp

One to be aware of – *Science* magazine have a short piece on a newly launched investigation by the U.S Department of Agriculture into several suspicious primate deaths at Harvard University's New England Primate Research Centre. The enquiry coincides with a series of articles in *The Boston Globe* about the centre, due to close at the end of the month, in which they uncover a number of potential animal welfare violations at the centre, including a dozen dehydrated squirrel monkeys found dead in their cages or euthanized because of poor health between 1999 and 2011. <http://news.sciencemag.org/plants-animals/2015/04/monkey-deaths-prompt-probe-harvard-primate-facility>

And finally, today is political manifesto day, with the Conservatives, Lib Dems and the Greens all making their election pledges public. At the time of sending, only the Greens had made their manifesto publicly available, and it is largely what you would expect.

"Greens want to see an end to all animal experimentation and will ensure that research funding is directed away from failing animal disease models and towards modern human biology-based techniques, which offering [sic] greater opportunities to cure disease and improve product safety.

*We will work to end **animal experiments** but believe immediate action must be taken to:*

- *Stop non-medical experiments, experiments using primates, cats and dogs. End the use of live animals in military training.*
- *Stop the breeding and use of genetically altered animals.*
- *End government funding of animal experimentation, including any that is outsourced to other countries.*
- *Provide greater funding for non-animal research methods and link funding to a target for developing of humane alternatives to animal experiments.*
- *Increase transparency and ensure publication of all findings of animal research, including negative findings.*
- *Introduce a comprehensive system for reviewing animal experiments and initiate a comparison of currently required animal tests with a set of human-biology based tests."*

http://downloads2.dodsmonitoring.com/downloads/misc_files/Green_Party_2015_General_Election_Manifesto.pdf

Science news 13/04/15

A genetic mutation linked to human eating disorders appears to have similar effects in mice. Researchers sequenced the genomes of two large human families and found one particular mutation that was common to all those who developed eating disorders. Mice bred with the same genetic mutation showed obsessive-compulsive-like behaviors and social impairments, as well as a decreased willingness to work for high-fat food when hungry. "It's been known for a long time that about 50% to 70% of the risk of getting an eating disorder was inherited, but the identity of the genes that mediate this risk is unknown," explains senior author Michael Lutter, MD, PhD, a neuroscientist at the University of Iowa's Carver College of Medicine.

<http://www.sciguru.org/newsitem/18874/mutation-causes-mice-behave-if-they-have-eating-disorder>

'Smaug', a 16 year old male Komodo dragon living at Houston Zoo, can now walk comfortably again thanks to a prosthesis from the Baylor College of Medicine. "About a year ago, we noticed that Smaug wasn't using his right, front foot normally and that occasionally he was flipping it underneath and walking on the top of his toes," said Dr. Lauren Howard, associate veterinarian at the Houston Zoo. "So that started the last year-and-a-half of our diagnostic investigation into what was going on with him." The new prosthesis should allow Smaug to walk in a more healthy position, and over time the team hopes his leg will become strong enough to remove the prosthesis all together. <http://www.washingtonpost.com/news/speaking-of-science/wp/2015/04/10/komodo-dragon-named-smaug-gets-a-leg-up-from-a-new-prosthetic/>

Science news 10/04/15

Bald truth: plucking hair out can stimulate growth in mice. Plucking hairs in a precise pattern can make even more pop up in their place. Playing with the density of hair removed altered the communication of hair follicles with each other and the decision of how serious the hair-plucking injury is which in turn controlled how much hair regrew. Pulling every hair out led to every hair coming back, but no regeneration. A low – density pluck led to no regeneration, a high one to a little regeneration and a medium one to the most hair regrowth – the researcher managed to regenerate 1,300 hairs by plucking 200 in mice. Half of men have male-pattern baldness by 50, and this might lead to a cure.

<http://www.bbc.co.uk/news/health-32233570>

New species of monkey revealed thanks to distinctive penis. The new white-cheeked macaque, *Macaca leucogenys* was discovered in south-eastern Tibet. It was distinguished from the other macaque species in the region by its thick long hair around its neck and its rounded glans penis and white scrotums – other macaque there have a spear-shaped glans penis and white scrotums.

<http://www.newscientist.com/article/dn27317-new-monkey-species-revealed-thanks-to-distinctive-penis.html#.VSeXdfnF-Ck>

Blind Cave crustaceans are 'losing visual brain'. Living in deep, dark caves has driven evolution to shrink the visual parts of the brain of tiny blind crustaceans – which had already lost their eyes. However, the areas of the brain devoted to touch and smell have remained the same and sometimes expanded in the 200 million years or so they have diverged from other 'malocosracans' species such as lobsters, shrimp or wood-lice.

<http://www.bbc.co.uk/news/science-environment-31988721>

FOLLOW UP: Man volunteers for first ever head transplant in humans. He has the rare genetic Werdnig-Hoffman disease, which gradually wastes away muscles and is willing to undergo the risky procedure to give himself a chance at living in a healthy body. The head transplant is set to work by taking the head off a person suffering from a wasting or degenerative disease, and transplanting it onto the body of someone who is braindead but still has a functioning body. The procedure was carried out on a monkey in 1970. But surgeons didn't transplant the spinal cord, so the monkey could not move, and it lived for only nine days and died when the head was rejected by the body's immune system.

<http://www.independent.co.uk/news/science/head-transplant-russian-man-to-become-first-to-undergo-pioneering-and-controversial-surgery-10162639.html>

Butterfly markings really do mimic a predator's gaze and help protect the insects. Scientists have long suspected that the eye-spots on butterfly wings were mimicking a predator's gaze but never came around to testing it. Researchers showed blue tits – natural predators of butterflies – digitally altered pictures of owl butterflies. The images with no eye-spot didn't bother the birds, however, those that had kept the eye-spots made the birds very weary –even more than the real animal they are mimicking. Different butterflies are known to mimic owls but also foxes, snakes, mantis and others.

<http://www.dailymail.co.uk/sciencetech/article-3030780/Eye-knew-Markings-butterfly-wings-really-mimic-predator-s-gaze.html>

A new drug to treat drug-resistant breast cancer cells in mice. The researchers were trying to find possible drugs effective on cancers already resistant to traditional therapies. Instead of thinking of a certain protein that would target a cell and kill it, they did the reverse – they identified a compound that worked well in the cells first and then determined how that overpowered drug-resistant cells. The compounds they found called BHPI blocked the growth of cancer cells and prompted tumour regressions by 50% in just 10 days. The drug still needs to go through toxicity tests before clinical tests can start.

http://www.dailyillini.com/news/article_781bc728-dd81-11e4-82d3-ebab77090bd9.html

Selfish shellfish cells cause contagious clam cancer. This clam leukaemia – where their blood, typically clear, fills with cells that make it milky – is transmissible. For a long time, scientists believed a virus was involved. However, a team recently discovered that the thing that transmits the cancer isn't a virus but the cancer itself. The clam leukaemia is a contagious cancer—an immortal line of selfish shellfish cells that originated in a single individual and somehow gained the ability to survive and multiply in fresh hosts. The disease is associated with a jumping gene, which is more than 15 times more present in infected clams. There are only 2 other forms of this type of transmissible cancer.

<http://phenomena.nationalgeographic.com/2015/04/09/selfish-shellfish-cells-cause-contagious-clam-cancer>

Science news 02/04/15

Old cancer drug could have new use in fighting cancer

A drug used for decades to treat leukemia may have other uses in the fight against cancer, researchers at the University of Missouri have found. Jeffrey Bryan and his colleagues found that 6-TG can not only kill cancer cells, but also works to change how certain cancer cells function, weakening those cells so they can be killed by other drugs.

When testing the drug on cells from dogs with cancer, the MU researchers found that 6-TG can affect these epigenetic markers in cancer cells through a chemical process called demethylation.

http://www.eurekalert.org/pub_releases/2015-04/uom-ocd040115.php

Rats and mice in pain make facial expressions similar to those in humans—so similar, in fact, that a few years ago researchers developed rodent “grimace scales,” which help them assess an animal's level of pain simply by looking at its face. But scientists have questioned whether these expressions convey anything to other rodents, or if they are simply physiological reactions devoid of meaning. Now, researchers report that other rats do pay attention to the emotional expressions of their fellows, leaving an area when they see a rat that's suffering.

<http://news.sciencemag.org/biology/2015/03/rats-see-pain-other-rats-faces>

Cancer drug found to restore memory in mice holds promise as Alzheimer's treatment

Yale University researchers found that the previously approved drug, saracatinib, targeted beta amyloid deposits and reduced their toxic effect on surrounding brain cells. The buildup of beta amyloid in the brain can be a precursor of Alzheimer's disease in the aging brain.

<http://www.washingtonpost.com/news/local/wp/2015/03/31/study-cancer-drug-found-to-restore-memory-in-mice-holds-promise-as-alzheimers-treatment/>

Widespread agricultural contaminant impacts fish reproductive behaviour

A common growth-promoting hormone used worldwide in the cattle industry has been found to affect the sexual behaviours of fish at a very low concentration in waterways – with potentially “Endocrine disrupting chemicals (EDCs) are cause for concern given their capacity to disturb the natural functioning of the endocrine (hormonal) system, often at very low concentrations, with potentially catastrophic effects.

<http://www.alphagalileo.org/ViewItem.aspx?ItemId=151329&CultureCode=en>

It whistles, grunts and croaks. The Lusitanian toadfish is [quite musical](#) for a fish. It makes at least five kinds of calls, and males even sing in choruses to attract mates with their boatwhistles – long, rhythmical, tonal sounds. Now it seems the boatwhistle has another function: keeping intruding males away.

<http://www.newscientist.com/article/dn27280-zoologger-bagpiper-fish-keeps-intruders-away-with-song.html#.VRz5ymbZm1o>

12-gram songbird flies for days non-stop over Atlantic

Come the first signs of winter, the blackpoll warbler (*Setophaga striata*) takes flight from its home in the forests near of the north-eastern coast of the US and Canada. Three days later, the birds arrive in the Caribbean after a non-stop southwards flight over the western part of the Atlantic Ocean.

Depending on the starting point, the total journey can be as long as 2770 kilometres. It's no mean feat if you weigh only 12 grams.

<http://www.newscientist.com/article/dn27276-12gram-songbird-flies-for-days-nonstop-over-atlantic.html>