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MELBOURNE AUSTRALIA...A SCIENCE ADVENTURE IN MELBOURNE, AUSTRALIA...A SCIENCE ADVENTURE IN MELBOURNE, AUSTRALIA...

Australian science stories

A taste of current stories – for more details of these, and many other stories, visit www.scienceinmelbourne2007.org or email niall@scienceinpublic.com. Let us know if you would like to receive future story summaries from us. And in 2007 visit us and discover your own Australian stories.

Hay fever relief

Relief may be close for the more than two million Australians who suffer from seasonal allergies to the pollen of perennial ryegrass.

In an innovative use of biotechnology, a new ryegrass with significantly reduced levels of pollen allergens that cause the sneezing and itchy eyes of hay fever has been developed by Melbourne researchers.

Live fast, die young

Australia has notched up a new world record – for the fastest-living fish on the planet. The Australian coral reef pygmy goby enjoys barely three weeks' adult life before it meets its maker.

Fossil fish supports Aussie crawl theory

The discovery of a perfectly preserved fish fossil by Australian researchers has added further weight to the theory that ancient four-legged animals (tetrapods) may have first moved onto the land in Australia, rather than in the Northern Hemisphere as previously assumed.

Pick up your crying baby

Parents should listen to their instincts and pick up their newborn babies when they cry. A lot of parents are unsure if they should pick up their baby when their baby cries. Professor Thorpe from Queensland University of Technology says, "Our study says, pick them up. Babies in the first 12 weeks of their life need highly responsive parents. They want and need a parent that is responsive to their cries."

Help babies breathe easier

Studies of the lung function of newborn rabbits by Monash University researchers have revealed it can take more than two hours for the lungs to fully fill with air, a finding that could lead to better ways to treat premature babies who may have to be artificially ventilated because their lungs are not fully developed.

Bionic nerves

A woven plastic tube infused with chemicals that encourage new nerve growth may allow patients with severed nerves in their arms and legs to regain the full use of their limbs – University of Wollongong/Bionic Technologies Australia.

Aussie team makes landmark insulin discovery

A team of CSIRO scientists has determined the molecular structure of the insulin receptor, the protein on the surface of cells that mediates the effects of insulin. The discovery reported in Nature is sure to lead to further important developments in the ongoing quest to understand the complexities of insulin's actions.

Brain scan breakthrough helps predict schizophrenia

University of Melbourne researchers have shown that brain scans can be used to predict how well young people will recover from early psychotic episodes that occur in mental illnesses such as schizophrenia.

Climate change will hit Oz wine grape growth

Climate change will dramatically alter the growing season for Australian grapes and affect the wine styles produced here, according to new University of Melbourne and CSIRO research.

Sydney's coastal areas threatened

Sea level modelling undertaken by Dr Peter Cowell and Marc Daley from the University of Sydney's Institute of Marine Science has shown that even moderate sea rises caused by global warming will submerge or threaten billions of dollars worth of property around Sydney.

Scientists copy the brilliance of a leaf

A University of Sydney research team has created synthetic copies of the light-harvesting molecules found in plants. The best leaves can harvest up to 40 per cent of the light falling on them. The Sydney researchers have constructed synthetic porphyrins made from carbon, hydrogen and nitrogen atoms.

Making coal cleaner

University of Queensland researchers has developed unique hollow fibre technology that can separate oxygen from air, making the process of capturing carbon dioxide in coal-fired power stations much easier. "Our process happens at the start, before the coal is even burnt, which reduces the cost of removing oxygen as well as making the capture of CO₂ easier."

Gardening the reef

Australians may have to resort to 'underwater gardening' if they are to protect the Great Barrier Reef from the stresses of climate change. A recent CSIRO study suggests that up to half the reef could be bleached every year with only a 1 degree warming in sea temperature.

Carp virus

Victorian researchers are investigating the use of Koi herpesvirus as a means of controlling carp – an introduced pest fish that is destroying river ecosystems.

Wheat greenhouse

Early results from field trials on wheat crops show that a special plastic film that goes over crops during planting accelerates plant growth and encourages vigorous, high-quality crops despite dry field conditions.

Marathon jellyfish

Research conducted in waters off tropical Queensland has taken scientists a step closer to understanding the secret lives of deadly box jellyfish. During the last stinger season (2005 to 2006) researchers radio tagged and tracked box jellyfish confirmed that some were very capable long- distance swimmers." One individual covered more than seven kilometres over a 17-hour period of constant movement."

Sex for moms means healthier babies

Promiscuous females are more likely to give birth to healthier offspring, researchers at The Australian National University have found. The findings were published in the latest edition of Nature. The researchers found the first compelling evidence for this sperm competition theory among brown antechinuses. These are mouse-sized, insect-eating marsupials that are common in the forests of south-eastern Australia .

Mystery solved by kangaroo and platypus

Australian scientists have unravelled a mystery of the origins of two debilitating human genetic diseases by studying the kangaroo and platypus genome. The ANU researchers studied the genes which contribute to Prader-Willi Syndrome (PWS) and Angelman Syndrome (AS)

Test-tube koalas

Koala joeys have been produced by artificial insemination (AI) as part of the development of the world's first koala sperm bank at the University of Queensland. This technology could help manage the genetic diversity of koala populations but eventually also help conserve other threatened marsupials.

Royal jelly – bee brain food from bacterial genes

The sticky, nutritious bee secretion given to future queen bees, royal jelly, is related to ancient bacteria genes which developed a new role in the honey bee, scientists from The Australian National University have discovered.

Fishy sex changes

Changing sex is common among coral reef fish – but the cause can depend on who's around, according to a recent study by James Cook University and US researchers. They found that juvenile bluehead wrasse choose their sex according to the crowd they grow up with.

Ancient marine reptiles

A team led by University of Adelaide palaeontologist Dr Benjamin Kear has identified two new species of ancient marine reptiles that swam the shallow waters of an inland sea in Australia 115 million years ago. Umoonasaurus and Opallionectes belonged to a group of animals called plesiosaurs.

Reading genes

Being able to recognise words visually when learning to read is affected by different genes to those used to sound out words, according to University of Melbourne research. The results are a breakthrough in understanding how reading is learned, and will bring further insight to the phonics debate.

Stars 'heartbeats'

A US-Australian research team found that a "magnetar" – a kind of star with the strongest magnetic fields known in the Universe – is giving off extraordinary radio pulses, which links this rare type of star with the much more common "radio pulsars".

Surfing in Alice Springs

TWO BILLION years ago, the Australia we know today existed only in pieces. Northern, western and central Australia all belonged to different continents. Kate Selway, a PhD student at the University of Adelaide has found evidence for a collision between northern and central Australia which happened 1.64 billion years ago. "If you looked south from Alice Springs before that time, you would have seen an ocean," Selway says.

Aussie of the Year prevents cancer

University of Queensland (UQ)'s Professor Ian Frazer and Dr Jian Zhou (now deceased) discovered a vaccine to tackle prevent cervical cancer, which kills approximately 270,000 women each year, worldwide.

The vaccine is now available in Australia and the US.

The following Australian and New Zealand stories were covered in a recent Nature Biotechnology supplement on Australasian biotechnology:

- Deadly cone shells fight pain
- More deadly reptiles
- Transgenic quolls?
- Dipstick test for clean water
- Vaccine for deadly new diseases
- Bird-scaring grasses
- Omega 3 from kiwifruit
- Better cartilage repair
- The basmati gene
- Leaner sheep
- Better grass, less farts
- Blackcurrants improve memory loss
- Healthier wheat
- City turns waste to compost
- In the war against pollutants, know thine allies
- New ways to fight sexually transmitted diseases
- Reducing brain injury
- Arthritis cured... in mice
- A plastic that melts in your mouth...and ear, and spine, and brain
- Pigs help treat Huntington's disease and deafness.

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