

# China experiments human stem cells in cargo spacecraft

China is conducting stem cell experiments to investigate the possibility of human reproduction in space aboard cargo spacecraft Tianzhou-1, according to the Tianzhou's engineer.

The experiments include the studies of the proliferation and differentiation of stem cells, the differentiation of germ cells, and the impact on bone cells of a microgravity environment, said Li Xuzhi, deputy chief designer of the space application system of China's manned space program.

Scientists on the ground will remotely control the research equipment, and receive the images of the cells under the microscope.

Experiments in microgravity will provide theoretical ground and technical support for the study of the human reproduction in space, said Li.

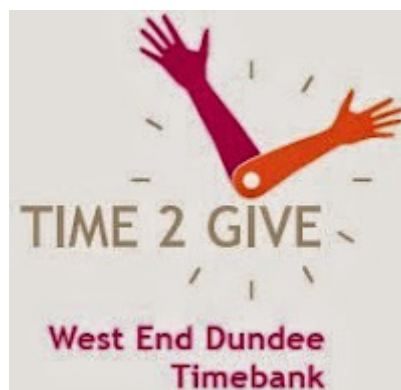
Other experiments on Tianzhou-1 include the research on fluid evaporation and condensation in a microgravity environment, in-orbit tests of a high-precision electrostatic accelerometer and others, added Li.

Tianzhou-1 started its five-month journey in space Thursday evening.

The ship will dock with China's orbiting Tiangong-2 space lab, and provide fuel and other supplies before falling back to Earth.

---

## West End Timebank



The West End's Timebank, Time2Give, sadly disbanded over a year ago. Timebanking is a means of exchange used to organise people and organisations around a purpose, where time is the principal currency.

For every hour participants 'deposit' in a timebank, perhaps by giving practical help and support to others, they are able to 'withdraw' equivalent

support in time when they themselves are in need. In each case the participant decides what they can offer.

It is a great, community-based, concept and there was originally great enthusiasm towards getting the West End timebank off the ground. It ran well for a time and it was a real pity it came to an end.

I spoke some time ago with Jimmy Mooney who runs the Broughty Ferry Timebank (Ferry Time) and Jimmy advised that some West End residents were taking part in the Broughty Ferry group now given the lack of a West End group.

Jimmy is keen to encourage more West End residents to register with the group where they will be recognised as members from the West End.

For further information, please call him on 07975 943863.

---

## [Scientists to test medicine for bone loss on Tianzhou-1](#)

Scientists will test a medicine to treat bone loss during the maiden voyage of China's first cargo spacecraft Tianzhou-1.

The medicine has been specially developed for astronauts, but they hope it will benefit ordinary people too.

The main mission of Tianzhou-1 launched on Thursday is to test propellant refueling technology, which is crucial for the construction and operation of China's planned space station. But each voyage is a precious opportunity to conduct space experiments.

Chinese scientists will use the micro-gravity environment to test the effect of 3-hydroxybutyric acid (3HB) in preventing osteoporosis, said research leader Chen Guoqiang, who is also director of the Center for Synthetic and Systems Biology at Tsinghua University.

Normally, the solid structure of bone tissue is stimulated and maintained by gravity and physical exercise. But the micro-gravity environment in space eases the load on bones, causing rapid bone loss and osteoporosis, Chen said. "One day of bone loss in space is equivalent to a year on earth," he said.

Research shows astronauts suffer average monthly bone loss of 0.5 percent to 2 percent in space, especially in weight-bearing bones such as the tibia, femur and vertebrae. Back on earth, they can take double or triple the time of their flight period to recover. Sometimes bone loss is permanent.

Micro-gravity mainly inhibits the differentiation of osteoblasts (bone-forming cells), which is accompanied by the mass growth of osteoclasts (bone-

resorbing cells), causing bone structure to change, said Chen.

Standard drug treatments for osteoporosis have a range of side effects, including tumors or cardiovascular diseases. The medicines are also relatively ineffective for treating osteoporosis caused by micro-gravity.

Chen said 3HB is one of the main components of ketone bodies, which occur naturally in mammals. It had been used to treat epilepsy for many years. "We found that 3HB can promote bone formation," said Chen.

In an experiment simulating the micro-gravity environment, the effect was obvious. Unlike the chemical synthetic 3HB for treating epilepsy, Chen's team use microbial fermentation to produce 3HB, which has entirely the same structure as the 3HB naturally existing in the human body. So it's safer than chemical synthetic drugs, Chen said.

Experiments simulating the micro-gravity environment have been conducted on the ground. Scientists hung up mice by their hind legs, and found that those given 3HB had normal bones, while those without suffered serious bone loss. "We hope to test the effect of the medicine in a real space micro-gravity environment," Chen said.

Since Tianzhou-1 cannot carry animals, scientists will compare the osteoblast cell samples treated and not treated with 3HB. Microscope images of the samples will be transmitted to earth.

Although China has conducted many experiments on the Shenzhou series spacecraft and the Tiangong-1 and Tiangong-2 space labs, opportunities for space experiments are still rare.

"After more than a decade of research we have one chance to conduct an experiment in space. We cherish the chance. We hope Chinese scientists will have more opportunities to conduct experiments in China's space station in future," Chen said.

Scientists believe the science and technologies developed in space exploration can benefit ordinary people. For instance, modern baby diapers were originally developed for astronauts on extended space walks. And the intensive care unit (ICU) system was first developed to monitor astronauts preparing to go to the moon in the 1970s.

The medicine for treating bone loss could also be used by ordinary people.

Osteoporosis is the seventh most common disease in the world. Each year it causes 8.9 million cases of fractures worldwide.

China has 90 million osteoporosis sufferers. The morbidity of osteoporosis among Chinese over 60 years old is 56 percent, while the rate among postmenopausal women is between 60 percent and 70 percent.

With China's aging population, osteoporosis cases will continue to rise. Experts estimate the number of patients in China will reach 200 million in 2050, accounting for 13.2 percent of the total population. "We hope to solve

this global problem," Chen said.

---

## [Press release: High fines for illegal fishing](#)

On 13 April 2017, at Barkingside Magistrates court, Billy Cox was fined £300 for fishing without the required number of rod licences, with costs of £127 and a victim surcharge of £30 imposed after a prosecution by the Environment Agency.

Magistrates heard that on 8 September 2016, an Environment Agency enforcement officer found Billy Cox fishing with 3 rods and lines at White Hart Lakes, Dagenham. He was only able to produce one valid licence and further licence checks confirmed that he did not have a second licence to cover the use of his third rod. At the time of the incident a rod licence permitted the use of up to 2 rods and lines which was clearly stated in the terms and conditions supplied with the licence. He was reported for the offence of not being able to produce the required number of licences when challenged by the bailiff.

Billy Cox was convicted in his absence.

Darren Wakenell, of the Environment Agency, said:

The majority of anglers fish legally and purchase a fishing licence. We invest the money from fishing licences back into fisheries improvements, fish stocks and fishing, this is essential for the future of the sport.

The minority of anglers that fail to buy a fishing licence are cheating their fellow anglers and the future of the sport. In addition, fishing licence cheats risk a criminal conviction, a significant fine and could lose their fishing equipment.

During 2015-2016 the Environment Agency checked more than 62,000 fishing licences and prosecuted more than 1,900 anglers for rod and line offences resulting in fines and costs in excess of £500,000.

Anyone witnessing illegal fishing incidents in progress can report them directly to the Environment Agency hotline, 0800 80 70 60. Information on illegal fishing and environmental crime can also be reported anonymously to Crimestoppers on 0800 555 111.

You need a valid Environment Agency fishing licence if you are aged 12 or over and fish for salmon, trout, freshwater fish, smelt or eel in England.

Junior fishing licences (aged 12-16) are now free, but you must still get a [fishing licence online](#).

## Contact

For media enquiries please call us on 0800 141 2743.

Or email us at [southeastpressoffice1@environment-agency.gov.uk](mailto:southeastpressoffice1@environment-agency.gov.uk)

---

## Remarks at the Spirit of Anzac Centenary Experience Official Reception

### PRIME MINISTER:

Thank you very much Tim and thank you Brendan, both very powerful addresses.

Vice Admiral Griggs, General Campbell, Keith Payne and Flo, Catherine Livingstone and Andy Penn from Telstra and Robert Dick, President of the RSL of Australia, dear friends, all.

As Anzac Day approaches, we remember and honour the sacrifices that have kept us free.

A high price indeed paid for our freedom, paid in young lives lost far from home.

We do not glorify war – Anzac Day is not the anniversary of a great victory.

But it commemorates the triumph of the human spirit, the patriotism, the sacrifice, the courage, the endurance, the mateship.

The same spirit embodied by today's Anzacs who are defending our freedom in the Middle East today.

And I will say today, as I say on many days, we best honour the diggers of a century ago by supporting the servicemen and women, the veterans and their families of today.

We honour all of you and thank you for your service. Those of you that are here and those of you that are around Australia and far from home, keeping us safe.

This is a day we honour the diggers, the servicemen and women of today, as we remember the sacrifices and honour the sacrifices of their grandparents.

Now, a hundred years ago, Australian diggers and French poilus were fighting shoulder to shoulder in the mud of France – and today France and Australia are partners in the war against Daesh, the war against terrorism – and in the light of the attack in Paris today, we offer the family of the victims and the people of France, as we always have, our heartfelt sympathy and resolute solidarity.

*Notre plus sincères condoléances et notre plus forte solidarité*

The Spirit of Anzac Centenary Experience is the flagship of our centenary commemorations of the Great War.

And it reminds us that our Australian values have been fought for from the time we became a nation.

Freedom, parliamentary democracy, the rule of law, mutual respect, equality, the opportunity to get ahead, the fair go – the opportunity to get ahead but lend a hand to those who fall behind.

Ours is the most successful multicultural society in the world. While other countries are divided by race or religion or indeed defined by them, our diversity is a strength. It is our Australian values open to all that define us. It is our Australian values open to all that unite us.

This remarkable exhibition is a poignant tribute to those values. And at its heart are people, people and their unique stories of loss, of fear, of hope, of courage.

At each stop along its 200,000 kilometre route, communities have contributed memorabilia, making this exhibition an evolving tapestry of human triumph and tragedy.

By the time it closes in just a few days, some 350,000 Australians will have passed through its doors and learned more about why we speak of the legend of Anzac.

Anzacs like Private James Bostock, the second soldier ashore at Gallipoli, whose story and belongings are part of the community zone in Brisbane. It was here that the exhibition welcomed its oldest visitor, 107-year-old Marjorie Bostock who came to pay her respects to her late brother-in-law.

Anzacs like trooper Arthur Blain whose sister Nellie started knitting a pair of socks, only to put them aside when she heard Arthur had died at Gallipoli. And as we reflected just a moment ago, what a poignant tribute to that tragic loss.

Nellie kept those unfinished socks with her until her death at 92. It is one of the most moving objects in this exhibition.

And then there is the bell of Darwin which rang through the night to signal the end of hostilities in 1918, the shell case from the last shot fired at Gallipoli, a medal, a portrait.

Out of context they are objects, but accompanied by stories brilliantly created with a mixture of traditional museumship and the latest digital technology, they are powerful symbols of the human face of war.

They are stories of the lives of our servicemen and women. They are the stories of communities.

My grandfather Fred Turnbull enlisted in 1915 and served on the Western Front. He was a farmer's son, a country boy from the Macleay River, a schoolteacher, he was 22.

A letter to his parents which was reprinted in Kempsey's Macleay Chronicle on the 21 May 1917 is a reminder of how a whole generation enlisted and so many did not return.

This is what it says: "Sig. F.B. Turnbull, writing from France to his parents, Mr and Mrs J.B. Turnbull of Yarravel, expresses his regret at the death of several Macleay soldiers. Also he writes: I've been rather fortunate lately in meeting people whom I know. A few weeks ago I met Jack Colwell, Bert Dyson and Sam Bond and the other day I met Tom Crielly and an old friend from the Comboyne Jack Allan. Hasty Booth is not far from here, but I have not seen him yet. We expect to have another battle before long. I think the war will not end before next summer, but we can stick to it just as long as old Fritz, and we must bring him down before we can have peace. Please give my regards to all friends."

You can just imagine a whole class, a whole classroom, whole community, young men all of the same age within a few years, all of their friends, there, in France, in the trenches.

This year we commemorate the centenaries of the battles of Bullecourt, Beersheba, Polygon Wood and Passchendaele, each of which carries its own stories.

We mark the 75th anniversaries of the Battle of the Coral Sea, El Alamein and Kokoda and Milne Bay – where more Australians died in seven months of fighting in Papua than in any other campaign of the Second World War.

When I was in PNG two weeks ago I visited Isurava on the Kokoda track and also the Bomana war cemetery to pay my respects to the Australians and Papua New Guineans who made the supreme sacrifice to halt the advance of the Japanese.

That was in Wellington's words a near-run thing. The Australians broke the two pincers of the Japanese advance at Milne Bay and Kokoda.

So much depended on the courage, the endurance, the sacrifice, the mateship of those men and women who fought to stem the tide, but victory was theirs, and we enjoy the freedoms of today because of the sacrifices they made there in New Guinea three quarters of a century ago.

And as I said at the outset and I will say it again, we are always reminded that the best way to honour the diggers of a century ago is to support and

care for the servicemen and women and the veterans of today and their families.

Today we acknowledge the final stop for this homage to those who fought in the First World War. It started its journey in Wodonga in September 2015, it finishes here in Sydney after stopping in cities and towns across the country.

More than 80,000 visitors left heartfelt messages in the book of remembrance, conveying their overwhelming pride and gratitude for those who sacrificed their lives for our country.

And it means that the Spirit of ANZAC Centenary Experience has done its job.

Now the Australian War Memorial's quiet presence across Lake Burley Griffin reminds the Parliament and Governments that there is no more solemn decision than to send Australians into battle, and no greater responsibility than to ensure they are well led, well supported, so that they can, God willing, return home safely to their families, mission completed.

I want to thank the Australian War Memorial for organising this centrepiece of the Australian Government's ANZAC Centenary programme.

To Imagination Australia for creating the biggest, most technically advanced exhibition of its kind in Australia.

To the corporate sponsors Telstra and the Commonwealth Bank who not only gave financial support, but enabled staff to volunteer at the exhibition as it rolled into towns around Australia.

To members of the RSL, the Red Cross, Volgistics and community organisations for giving so generously of their time.

And to the members of the Australian Defence Force who covered 45 per cent of the volunteer shifts.

You've brought our most treasured stories out of the museums, out of the history books. You've given them life, and you've brought them into lives of Australians today, a century on.

You've honoured the sacrifice of those Anzacs and you've honoured the values for which they fought.

For all that, and much more, I thank you all.

Lest we forget.

**[ENDS]**