

ROBOT NEWS

Star car

John Jostins, designer of *Star Wars* icon R2-D2, has created a hydrogen-powered car. Called the Microcab, it will presumably be slightly faster than the trundling droid.

SCORECARD



Bill Gates's credentials

The world's richest college dropout will finally claim his degree from Harvard — albeit an honorary one — when he speaks at the university's commencement ceremony in June.



Cell biologists' aches

Repetitive strain injury in the biology lab could be a thing of the past with the advent of the Shake 'N Plate, an ergonomic invention that reduces the strain caused by endless hours of bacterial culture plating.

ZOO NEWS

The calamari's off

Researchers in New Zealand are considering microwaving the largest squid ever caught... but not so they can eat it. They hope the treatment would help to thaw the 490-kilogram frozen specimen without it rotting so that they can study it.

Born survivor

Knut, the world's new favourite bear (pictured), has shrugged off a bizarre request by animal activists that he should be killed because keepers at Berlin Zoo raised him by hand — an action that was apparently a "gross violation" of animal-protection laws.

Sources: *Times Higher Education Supplement*, *Network World*, *Joint Genome Institute*, *Bloomberg.com*, *Yahoo news*

M. SCHREIBER/AP



Chinese network to start trials of spinal surgery

Earlier this month, around 60 of China's top orthopaedic surgeons and neurosurgeons met at a military hospital in the southwest provincial capital, Kunming. Over three days of discussion and joint operations on two monkeys, the surgeons reached a consensus on how and where incisions should be made to transplant materials in spinal-cord treatment. "It's hard to get a bunch of prima-donna surgeons to agree," says Wise Young, a neuroscientist studying spinal-cord injuries at Rutgers University in Piscataway, New Jersey. "We need to have them roll up their sleeves and do it."

Young, originally from Hong Kong, is preparing a network of surgeons to address a big problem in China: maverick doctors, pushed by growing medical tourism, are increasingly transplanting cells or drugs into injured spines despite having only anecdotal support for their effectiveness. There is also little rigorous follow-up of the patients, so although many procedures are done, the field does not advance. But Chinese local and national governments are increasingly requiring doctors to use clinically proven procedures. "People are starting to demand data," says Young.

Young's network — called China SCINet and based in Hong Kong — aims to provide those data. Its first major trial will test a combination therapy of lithium and stem cells. Starting in 2008, the team will transplant umbilical-cord stem cells to around 400 patients. Half of the patients will also receive lithium, which stimulates the growth of neurons, in the same oral doses as those prescribed for manic depression (L.-W. Yick, K.-F. So, P. T. Cheung and W. Wu *J. Neurotrauma* **21**, 932–943; 2004). The idea is that the stem cells will provide a 'bridge' at the injury site, which new axons can grow on. Twenty centres in the network are already doing an observational study on the patients who will be in the trial, to get a baseline from which to judge improvement from the therapy.

Young also hopes to involve industry. He is negotiating with pharmaceutical companies to provide a third element to add to the mix — drugs known to block the chemicals that inhibit growth of neurons.

Young says that he has two main reasons to work in China. The number of patients living with spinal-cord injuries has increased over

the past decade, which Young attributes to the growth of the automobile market and better care, which keeps patients alive longer. China now has more of these patients than any other country. In addition, it is fast and cheap to run trials there. Large numbers of patients gather in relatively few hospitals, making recruitment easy. "You can get hundreds, or even thousands, of patients at a single centre," says Young. And the cost of surgery and after-care is about US\$20,000 per patient in China — about a fifth of that in the United States.

The combination therapy in the trial will be preceded by preliminary studies on lithium and umbilical-cord transplants separately, the first of which will begin next month. Together, the trials will cost just US\$12 million.

The 2008 trial will be the first controlled study for spinal-cord injury in a country where doctors have increasingly been transplanting all kinds of cells. The most famous example is Hongyun Huang from Chaoyang Hospital in Beijing, who has performed hundreds of procedures in China after working with Young as a postdoctoral student at Rutgers (see *Nature* **437**, 810–811; 2005 and **440**, 850–851; 2006).

These studies tend to claim that the treatments are effective, often on the basis of patient testimony, without peer review or any rigorous follow-up. Huang is now carrying out

"It's hard to get a bunch of prima-donna surgeons to agree."

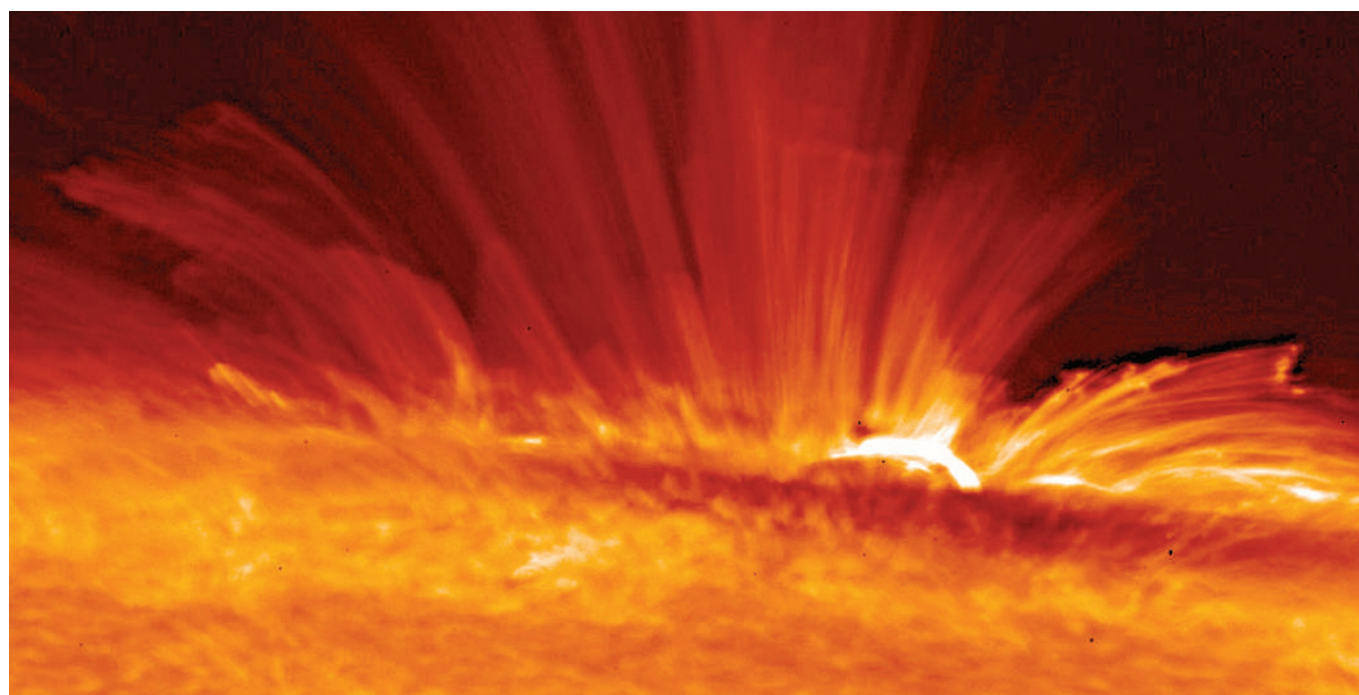


Spinal tap: some techniques lack solid data.

D. RIESS/THE IMAGEBANK/GETTY


AMERICAN CHEMICAL SOCIETY

Get diary reports from the meeting on our newsblog. <http://blogs.nature.com/news>



H. JAXA/NASA

SNAPSHOT

The best images of the Sun yet obtained are now streaming in — and they are both illuminating and baffling for scientists.

The Hinode spacecraft, an international mission led by the Japanese space agency JAXA, was launched in September 2006, and is now circling Earth in an orbit that gives it a good view of the Sun. The latest data to be sent back from its three main instruments show our star as a dynamic, turbulent, mysterious hothouse of magnetic activity.

Researchers have long been puzzled by the observation

that the Sun's corona — the atmosphere of gas that extends out from the Sun at a temperature of millions of degrees Celsius — is about 100 times hotter than its surface. One possible explanation is that magnetic fields projecting from the Sun twist about in the turbulent environment until they eventually snap, releasing energy as heat. The data being returned by Hinode's X-Ray Telescope add weight to this theory.

"We can see the corona structures twisting and shearing," says Leon Golub of the Harvard-Smithsonian Center

for Astrophysics in Cambridge, Massachusetts. "There are things that look exactly as predicted," he says.

But some of the observations are proving more confusing. Astrophysicists have been stunned by a video image of a magnetic arc collapsing in on itself. "We are used to seeing magnetic fields emerging outwards," says Golub. But this one went in the other direction. "Nobody can explain how this happens," Golub says.

Golub expects that this, too, may be related to the corona's high temperature, but says

that as yet there is no theory to predict this kind of activity.

"Processes that we see on the Sun are not intuitive and not easily explained," says Alan Title of the Lockheed Martin Advanced Technology Center in Palo Alto, California. Title works on Hinode's third instrument, the Solar Optical Telescope.

And Hinode is likely to provide yet more surprises. "Almost every day we see data coming down and we don't know what they mean," says Golub. ■

♦ To see the video, go to www.nature.com/news/2007/070319/full/070319-11.html

trials with fetal Schwann cells, fetal olfactory cells and a combination of the two, which he says have a strong scientific basis. But his critics remain sceptical. Huang has "had a thousand or so chances so far to acquire scientific data", says James Guest, a neuroscientist with the Miami Project, a huge spinal-cord-injury research centre at the University of Miami in Florida, referring to the number of patients Huang has treated.

Guest says he hopes that Young's network will "standardize spinal-cord injury care within China", adding that "a success of this venture could do a lot to establish China as a credible place to do multicentre trials".

Young's reputation, including his work with one of the first successful treatments for spinal-cord injury, methylprednisolone, should set the project in good stead. "There is no doubt that he can run a clinical trial," says John Steeves, director of the International Collaboration On Repair Discoveries at the University of British Columbia in Vancouver.

But there are concerns that the procedure and follow-up must be high level and consistent across the trial. "Having a lot of patients does not necessarily mean you can test them all in a controlled, valid manner," says Steeves. And Guest worries whether a cultural aversion to admitting problems might hamper data

sharing: "Will the adverse events really be disclosed?" he asks. Some spinal-cord clinicians also suggest that more animal data should be collected for lithium and umbilical cells before moving to humans.

Young says he knows that the difficulty will now be in the trial's execution. But he argues that even establishing a network in a country where harsh competition makes researchers and doctors hesitant to collaborate is a huge achievement: "They used to say, 'no way, I'm not letting Dr so-and-so come into my hospital'. But now they are pooling resources and setting up joint teams." ■

David Cyranoski