India's space science

A chance for rationality

The launch into space of India's INSAT-4 satellite by a European rocket in French Guyana last week, and the prospect of our satellites being launched by the indigenous Geo-synchronous Satellite Launch Vehicle (GSLV) from the Sriharikota Range by late 2006, give cause for reflection on where we are in space and where we may or may not want to go. Our satellite programmes in the last thirty-five years have vastly improved meteorology, telecommunications and television programming in the country, and made us a better integrated nation. The ambition sometimes expressed of now sending an Indian Moon mission or even an Indian astronaut in orbit decades after the USA and USSR stopped doing such things would be extravagant and meaningless. Yet science is a marvellous adventure and space science in particular can be a magnificent way for the Government to educate hundreds of millions of ordinary citizens into rational and objective ways of comprehending the world as it really is. For many centuries, mankind believed Earth was flat and that a stern heaven was placed above it from where rained down thunder, lightning and the Wrath of God. After all, Earth certainly appears flat to every person who lives on its surface.

Mankind also believed for many centuries that the Sun along with the Moon rotated around the Earth. After all, that again is how things appear to the ordinary person who sees every morning the Sun "rising" on one horizon and every evening "setting" on another horizon of a seemingly flat Earth. It was when the sea-voyagers had circumnavigated the globe that Earth's true shape came to be mapped correctly. And it was the thinking and empirical experiments of scientific men like Copernicus, Kepler and Galileo which established that, contrary to casual observation, our solar system was in fact heliocentric and not geocentric. Yet millions of people around the world continue to believe in scriptures that imply a flat Earth with Paradise located somewhere above it. And scores of millions of our fellow-citizens today remain deep believers in astrology even though all astrological horoscopes, without exception, assume a geocentric pre-Copernican solar system. Astrology was a European invention, and came to decline in popularity in Europe after the discoveries of Copernicus and Galileo were widely understood there.

Today, 48 years after the Sputnik satellites, 44 years after Yuri Gagarin became the first man in space, we have begun to understand where we are in the solar system — though where the solar system is in the Universe as a whole, or what the Universe is at all, are destined to remain mysteries for many generations after us. Indeed the Rig Veda's ancient Hymn of Creation continues to find fresh scientific significance. Reflecting on such matters certainly makes everything else in today's newspaper, or all newspapers ever published, seem rather trivial and inconsequential.

The first function of India's space science must be to help improve rational modes of thought among the country's people by explaining the state of scientific knowledge about the solar system as that is commonly known in the world. For our Government to send satellites into space yet permit astrology to be taught using public funds is too great a contradiction to bear further mention.

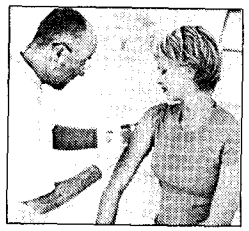
THE STATESMAN

Vaccine for cervical cancer likely within a year

By Julie Wheldon

A revolutionary vaccine that could end cervical cancer is to be rushed through in 12 months, it emerged on Monday. Gardasil has proved 100% effective against the two main strains of a virus that happens to triggers most cervical cancers.

If there was blanket coverage, it could even put an end to cervical cancer for good, they say. The drugs company behind the jab has applied to sell it in 25 European countries including the UK. A quick licensing process means women could start receiving jabs before the end of 2006.



Around 3,000 cases of cervical cancer are diagnosed in the UK each year. Almost all are the result of infection by the human papilloma virus. Currently women go for smear tests every three to five years to help spot the early warning signs. It is hoped that in future girls will have an injection to protect them from the most common forms of the papilloma virus.

Dr Anne Szarewski, clinical consultant at Cancer Research UK, said: "This vaccine is very good news for women everywhere. It has the potential to prevent 70% of cervical cancers. We also have the prospect that girls born today may not have to have smear tests when they grow up."

Use of the vaccine, however, is controversial because it targets a sexually-transmitted disease. It would have to be given to girls as young as ten to ensure they were protected before becoming sexually active.

Doctors and the vaccine's makers argue that many parents will agree to give their children the jab to protect them against a future cancer risk.

But there will also be many parents unhappy with the idea of vaccinating girls against sexual disease at such a young age.

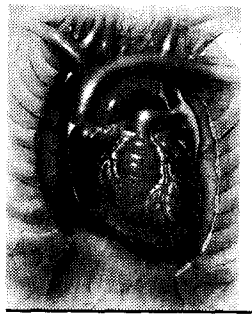
There are also suggestions that to help provide full immunity in the future, boys may also need to be vaccinated because they can carry the virus without showing any symptoms. Daily Mail

Vaccines against heart attack soon

SAMRAT Choudhury
New Delhi, December 10

DON'T GET off the treadmill just yet, but the news is that a vaccine to prevent heart attacks and strokes may be around the corner. Two scientists of Indian origin are leading international research groups that have developed vaccines for atherosclerosis, the disease that leads to deposit of cholesterol inside arteries — and often, to heart attack and stroke. The vaccines are currently being tested on animals and will be ready for human testing in about four years.

Dr Vijay Kakkar, Director of the Thrombosis Research Institute (TRI) in London, is the man who developed what is now known around the world as 'low-dose heparin' therapy for combating Deep Vein Thrombosis. This treatment now saves over 300,000 lives a year. Dr Kakkar, who is currently in India to set up a branch of the TRI, told HT that he has been working on a vaccine for atherosclerosis for the past 15 years. And that he is certain this disease is not merely the lifestyle disease it is made out to be.



The vaccines are currently being tested on animals and will be ready for human testing in about four years

"We have been able to confirm that in addition to cholesterol and other lipids, infection with certain viruses and bacteria cause changes in blood vessels that enhance areas of localised thickness called atheroma," he says. "The evidence we have is that this infection happens very early in life, usually around the age of 2-3 years." Dr Kakkar's team has synthesized a unique DNA vaccine to prevent infection and the changes in blood vessels that lead to their thickening. This bi-functional antibody, which enhances the body's immunity, is now being tested on animals. The clinical trials of the vaccine will begin in four to five years.

A competing team, led by Dr Prediman K Shah, Director of the Cardiology and Atherosclerosis Research Centre at Cedars Sinai Medical Center, USA, and Dr Jan Nilsson of the University of Lund in Sweden, will also be conducting clinical trials of an atherosclerosis vaccine by then. Dr Shah, in an email interview from the US, wrote that, "Our vaccine for atherosclerosis and heart disease is not based on the premise that infections cause atherosclerotic cardiovascular disease. It is an entirely different concept where we are exploring a vaccine against cholesterol."

According to him, "The body's immune system recognizes oxidized LDL cholesterol (the form of cholesterol found in plaque) particles as foreign (an antigen) and mounts an immune attack against LDL, presumably to attenuate the damaging effects of LDL on the artery wall. We have taken this idea to develop a vaccine that could hyper-activate the body's immune system to more aggressively neutralize the effects of LDL cholesterol."

His lab has shown that when experimental animals are immunised with these LDL related antigens, there is a significant reduction in the build up of cholesterol plaque inside the arteries along with a lessening of inflammation. "These proof of concept studies raise the possibility that a similar approach could be developed and tested on humans," he writes. His group will begin human tests of their vaccine in 3-4 years.

According to World Health Organisation data, coronary heart disease kills more than 7 million people each year, and strokes kill nearly 6 million. Most of these deaths are in developing countries. As Dr Shah says, "The implications for global health are enormous if this concept works in humans as well as it does on experimental animals."

New ocean in formation in Ethiopia: Scientists

Addis Ababa (Ethiopia): Ethiopian, American and European researchers have observed a fissure in a desert in the remote northeast that could be the "birth of a new ocean basin," scientists said on Friday.

Researchers from Britain, France, Italy and the US have been observing the 60-km long fissure since it split open in September in the Afar desert and estimate it will take a million years to fully form into an ocean, said Dereje Ayalew, who leads the team of 18 scientists studying the phenomenon. The fissure, now four metre wide, formed in just three weeks after a Sept 14 earthquake in a barren region called Boina, some 1,000 km north east of the capital, Addis Ababa, said Dereje. "We believe we have seen the birth of a new ocean basin," said Dereje of Addis Ababa University. "This is unprecedented in scientific history because we usually see the split after it has happened. But here we are watching the phenomenon."

The findings have been presented at a week-long American Geophysical Union meeting taking place in San Francisco that ends on Friday. The Ethiopian Afar Geophysical Lithospheric Experiment, involving scientists from Royal Holloway and the universities of Leicester, Leeds and Addis Ababa, is using sensitive instruments to study what is happening deep within the earth. Dereje said that the split is the beginning of a long process. AP

10 DEC 2005 THE TIMES OF INDIA

Oral vaccine invented for hepatitis B

Scientists Claim New Drops More Potent Than Shots

By Kounteya Sinha/TNN

New Delhi: In what could be a totally new approach to tackling the life-threatening hepatitis B, scientists at the Indian Institute of Chemical Technology, Hyderabad, and the Indian biotech company Transgene Biotek Ltd claim to have developed the world's first oral vaccine for the disease.

Speaking to TOI, the scientists said that pre-clinical trials of the oral vaccine have shown it to be much more effective than injections. The scientists are now preparing for the final phase of human trials which will be conducted simultaneously in India and Europe in the first week of January.

With the pre-clinical trial data providing exciting results, the team is also discussing with one of the biggest pharma companies in the world, the name of which the company refused to divulge, to licence the formula.

India has the second largest pool of carriers in the world—43 million chronic carriers, out of which 10% are highly infectious. It has decided to include Hep B vaccination in its national immunisation programme. From 2006, children will be given the vaccine along with diphtheria, pertussis and tetanus vaccine shots.

"We have been working on this oral Hep B vaccine for the past two years along with developing oral insulin. Pre-clinical trials of both these programmes have shown promising results. Both can be delivered through drops like in the case of polio. We have developed these oral vaccines with the help of the pharmacology division of IICT, Hyderabad, headed by Prakash V Diwan," director of Transgene Biotek S S Marthy said.

Transgene had earlier developed the Hep B injectable vaccine Genvac B, which is marketed across the world by the Serum Institute.

Hepatitis B is a disease of the liver caused by a virus which destroys liver tissue and leads to cancer. The virus is transmitted through infected blood. Health ministry records say one in every 20 people in India is a carrier of the virus which is the cause of 80% of all liver cancer and about 1% of all adult deaths.

Health minister A Ramadoss said: "The government has decided to integrate Hepatitis B vaccination in the National Immunisation Programme."

NO PAIN, BUT MORE GAIN

Japanese encephalitis shots from 2006

New Delhi: The government has decided to immunise children against Japanese encephalitis in the 11 high prevalence districts of the country using a Chinese vaccine from next year. The vaccine would be given to all children between one and 15 years and will be followed up with routine vaccination every year to those children who are not covered. TNN

Clone pioneer disgraced

Seoul, Nov. 24 (Reuters): South Korea's pioneering stem cell scientist apologised today that two members of his team had donated their egg cells for research, saying his rush to advance science may have clouded his ethical judgment.

Hwang Woo-suk, who became a hero in South Korea after major developments in cloning research, has been caught in a swirl of allegations over his work after a US collaborator left the group, saying Hwang unethically procured human eggs.

Time magazine called Hwang's team's cloning of a dog the year's most amazing invention. Snuppy was the world's first cloned dog — dogs are considered one of the most difficult animals to clone. "Being too focused on scientific development, I may not have seen all the ethical issues related to my research," Hwang said.

He told a packed news conference he had become aware earlier this year that the researchers provided egg cells in 2002 and 2003, even though he had turned down their offers to do so.

"At the time technology was not as advanced as today and creating one stem cell line required oocytes (eggs). It was during this time when my researchers suggested making voluntary donations. I clearly turned it down," Hwang said.

Hwang said he could understand their way of thinking and said if he were a woman, he probably would have donated eggs.

Hwang also said he was stepping down as the head of a global stem cell hub, established only last month in South Korea. "It is my way of seeking repentance," he said.

Hwang will continue his research, but said he was considering leaving once his work was finished.

"I again sincerely apologise for having stirred concern at home and abroad," he said.

Hwang Woo-suk in Seoul. (AFP)

Hint of rat virus, in fever mask

G.S. MUDUR

New Delhi, Nov. 24: Scientists have spotted the first signals that the deadly hantavirus may be circulating in India, masquerading as other viral fever.

Through preliminary blood tests, researchers at the Christian Medical College (CMC) in Vellore have shown that 22 patients who had suffered fever without any apparent cause earlier this year were exposed to hantaviruses, which can cause respiratory distress and haemorrhage.

The researchers said the test results give the first hint that the hantavirus, which spreads to humans through the urine, droppings and saliva of infected rodents, may be making people ill in India.

"It's possible hantavirus infections are sometimes mistakenly viewed as dengue or other fevers," said Gopalan Sridharan, the head of clinical virology at the CMC.

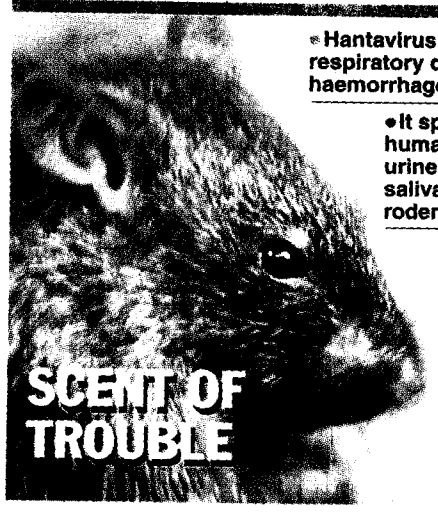
Researchers at the CMC and the Kasturba Medical College (KMC) in Manipal are also investigating an outbreak of fever and severe lung symptoms, some of which turned fatal, in southern Karnataka earlier this year.

Tests on blood samples from some of these patients have revealed hantavirus antibodies, the researchers said.

The scientists, however, have cautioned that the presence of antibodies in blood is not a concrete evidence of a virus.

They have also stressed that there is no cause for alarm. Only people who inhale aerosolised particles containing infected rodent waste are likely to be at risk. "At this point in time, we do not seem to have an active outbreak anywhere in India," a researcher said.

Hantavirus can be lethal but its symptoms and severity have changed over time. The first recognised outbreak, with fever and haemorrhage, occurred during the Korean War in 1951 with fatalities of 5 to 10 per cent.



- Hantavirus can cause acute respiratory distress and haemorrhage
- It spreads to humans through the urine, droppings and saliva of infected rodents
- It can be lethal and there is neither a cure nor a vaccine
- Treatment involves medical support to keep the patient alive until the infection burns itself out

Another outbreak in south-western US in 1993 was marked by flu-like illness followed by severe lung symptoms and a mortality of 30 to 50 per cent.

Hantaviruses do not make all infected people sick. The CMC team found hantavirus antibodies in five out of 87 healthy people.

Reporting their findings in the *Indian Journal of Medical Research*, Sridharan and his colleagues said there is a need for detailed studies to isolate the virus and examine rodent reservoirs in India.

There is neither a cure nor a vaccine for hantaviruses, the only treatment being medical support to keep the patient alive until the infection burns itself out.

The first and the only hint of the virus in India came 35 years ago when scientists isolated a hantavirus from the spleen of a rodent in Tamil Nadu.

Sridharan and a senior doctor at the KMC said five out of 12 blood samples collected after the Karnataka outbreak from July through October this year have tested positive for hantavirus antibodies.

"Until someone isolates the virus from the blood or body fluids of patients, we cannot say for certain that they were infected with hantavirus," George Verghese, professor of medicine at the KMC, said.

He added that between 15 and 20 people had shown what appeared to be hantavirus pulmonary syndrome, somewhat similar to the illness in the US in 1993. The proportion of fatalities here is about 10 per cent, Verghese said.

The researchers said blood samples from the Karnataka outbreak have been sent to the National Institute of Virology in Pune to authenticate the findings. A senior scientist at the institute declined to comment on the investigations.

Motion carried: Newton > Einstein

LONDON, Nov. 24. — Albert Einstein may have made the discoveries that led to nuclear and solar power, lasers and even a physical description of space and time, but Sir Isaac Newton had a greater impact on science and mankind, reveals a poll. Newton, the 17th-century English scientist most famous for describing the laws of gravity and motion, beat Einstein in two polls conducted by eminent London-based scientific academy, the Royal Society.

More than 1,300 members of the public and 345 Royal Society scientists were asked separately which famous scientist made a bigger overall contribution to science, given the state of knowledge during his time, and which made a bigger positive contribution to humankind.

Newton was the winner on all counts, though he beat the German-born Einstein by only 0.2 of a per cent point (50.1 per cent to 49.9 per cent) in the public poll on who made the bigger contribution to mankind.

The margin was greater among scientists: 60.9 per cent for Newton and 39.1 per cent for Einstein.

The results were announced ahead of the "Einstein vs Newton" debate, a public lecture at the Royal Society last evening.

"Many people would say that comparing Newton and Einstein is like comparing apples and oranges, but what really matters is that people are appreciating the huge amount that both these physicists achieved, and that their impact on the world stretched far beyond the laboratory and the equation," said Royal Society president Lord Peter May. — AFP

Mystery surrounds HIV patient's 'cure'

London: A British man is believed to have become the first person in the world to get rid of the HIV virus, newspaper reports said on Sunday.

Andrew Stimpson, 25, was diagnosed as HIV-positive in August 2002. However, tests 14 months later showed that the virus had completely gone from his body, despite taking no medication to combat it.

His doctors are adamant there were no mix-ups with his tests and the sandwich maker will now offer his body for medical research to help doctors in their quest to find a cure for HIV, which leads to full-blown AIDS.

"I remember after the repeat tests my doctor came into the room saying, 'You've cured yourself! This is unbelievable, you're fantastic!' It's so amazing to think that one day I was staring death in the face and now I am waving it goodbye," he told News of the World. The Mail on Sunday reported that in two previous cases of "spontaneous clearance", it was impossible to prove the positive and negative tests came from the same person. Stimpson was all the more surprised given that on hearing he had tested HIV positive, he gave up safe sex with his infected boyfriend, 44-year-old Juan Gomez. On hearing of the negative tests, he considered suing his hospital over what he thought must have been bungled earlier tests. The hospital launched an investigation and Stimpson received a letter last month saying that DNA testing had confirmed it was his blood in all the samples.

"There had been no error in the labelling or testing of the samples," it added. Both newspapers printed the letter from the National Health Service Litigation Authority. "The fact that you have recovered from a positive antibody result to a negative result is exceptional and medically remarkable," the letter read. "I understand the (hospital authority) Trust have written to you highlighting your importance to other HIV patients." Stimpson said: "I will do anything I can if it will help find a cure for HIV."

MEDICAL MARVEL?

Dr George Kinghorn, an HIV specialist, said Stimpson could provide vital clues in the battle to beat AIDS.

"For an individual to have been infected with a virus, cleared of it and then become antibody negative is highly unusual." Stimpson, from the Scottish coast west of Glasgow, went for tests in May 2002 after feeling weak and feverish. They came back negative. However, the virus can take three months to appear in the blood after contraction.

Tests in August that year found an exceptionally low level of HIV antibodies. Because he was in the early stages, he did not require medication, but doctors were surprised by his continuing good health. Repeat tests in October 2003 and ever since have come back negative. AFP

THE TIMES OF INDIA

11 NOV 2005

Scientists find way to predict quake strength

SEISMIC ALERT: Research Could One Day Lead To Early Earthquake Warning System

Scientists have found a way to estimate an earthquake's ultimate strength by analysing the initial seconds of a rupture a step that could one day provide early earthquake warning. Currently, a quake's magnitude or how much energy is released is determined after the shaking stops, usually minutes after an event.

But researchers from the University of California, Berkeley, say the measurements of seismic waves soon after a temblor can signal whether it will be a minor or monster temblor.

They say the information could possibly be used in an alert system to give seconds to tens of seconds of advance notice of an impending quake enough time for school children to take cover, power generators to trip off and valves to shut on pipelines.

"We're not taking about a massive amount of time," said Richard Allen, an assistant professor of earth and planetary science, who led the study. "But one can use our approach to come up with a magnitude before people have felt the ground shaking."

The study suggests different magnitude quakes begin in different ways, said Lucy Jones, the scientist in charge of the US Geological Survey in Pasadena, who was not part of the study.

But Jones was sceptical that the information can be reliably used to create an early warning system. The US is still years away from an alert system because of fears of false alarms and disagreement among scientists about what physical forces cause an earthquake to turn into a big one.

In the study, Allen and colleagues analysed records of 71 major Pacific Rim quakes in the past decades including 24 events that were greater than a magnitude-6.

Using a mathematical model, they were able to estimate a quake's size to within one magnitude unit from as little as four seconds of data of the frequency of the energy in the primary wave. These low-energy waves typically cause a jolt, signaling the occurrence of a quake.

Earlier research conducted by Allen showed that the first few seconds after a quake can be used to estimate quakes smaller than magnitude-6.

Allen is currently testing the model in real-time using an intricate network of seismic instruments scattered in Northern California. AP

The prediction is made possible by the fact that a typical earthquake sends out three different types of waves, which Allen has been studying for the past few years. He and colleague Erik Olson of the University of Wisconsin-Madison examined the seismic records of 71 large temblors

- Primary waves, or P waves, come first. They move like a pressure wave, typically creating a jolt. P waves are the least destructive
- Next comes a secondary wave, or S wave. It shears the ground back and forth and up and down
- Then come surface waves, the most destructive. They jerk the ground sideways and later roll in like ocean waves

Delhi targets flu drug stockpile

G.S. MUDUR

New Delhi, Oct. 26: The health ministry has said it wants to stockpile one million doses of the anti-influenza drug oseltamivir, but officials appeared unclear about legal mechanisms and the source of raw material for local production of the drug.

Health minister Anbumani Ramadoss, who chaired a meeting with top health officials, said the government has launched a preparedness plan that would include surveillance of poultry and wild birds and stockpiling oseltamivir.

"We'd like 10 lakh doses to begin with," Ramadoss said, adding that the government has initiated discussions with the Switzerland-based multinational drug giant Roche. Health ministry officials said the government was also examining the legal mechanisms through which oseltamivir could be produced by local manufacturers.

A product patent for oseltamivir is currently pending in India's patents office, independent sources told **The Telegraph**. The US-based Gilead Life Sciences had originally discovered oseltamivir and licensed it to Roche for marketing.

Independent drug experts said a key hurdle to the production of oseltamivir is the availability of its primary raw material — shikimic acid, a compound extracted from the plant called star anise, a spice used in Chinese cuisine. While star anise is cultivated in China, specialists in pharmaceutical sciences said nearly 90 per cent of the harvest is used up by Roche to make oseltamivir.

With several countries already having stockpiled oseltamivir and the demand still growing, experts anticipate a shortage of the raw material.

"Indian companies may or may not have the expertise to produce oseltamivir, but where are they going to get shikimic acid?" asked Chandra Gulhati, editor of the *Monthly Index of Medical Specialities, India*.

Health officials said the Council of Scientific and Industrial Research and the Indian Council of Medical Research have been asked to determine whether the plant is available in India.

Ramadoss said the preparedness plan would include equipping hospitals in district headquarters with ventilators, maintaining district-level surveillance and keeping medical staff aware of the steps they need to take should they encounter a case of avian influenza.

The high-security Animal Diseases Laboratory in Bhopal has tested thousands of blood and faeces samples from poultry and wild birds over the past several months. There is no sign of the lethal H5N1 avian influenza virus yet, officials said.

The H5N1 virus does not spread easily from birds to humans, and there is no evidence yet of efficient human-to-human transmission of this virus.

THE TIMES OF INDIA 27 OCT 2005

Indian drug firms can make Tamiflu

By Kounteya Sinha/TNN

New Delhi: Indian pharma firms Cipla and Ranbaxy will be allowed to manufacture Tamiflu, the anti-viral drug thought to be the best defence against a bird flu pandemic.

Facing imminent threat from the disease, the health ministry has decided to give the companies a green signal to produce generic versions of Tamiflu at a cheaper price.

The ministry will exploit a loophole in the Patent Law to its favour, which will enable the two pharma firms to produce the drug without waiting for permission from Switzerland's Roche Holding AG, the original makers of Tamiflu.

Confirming this, health secretary P Hota said "As of today, Roche has not applied for a product patent of Tamiflu in India. So legally, we don't need its permission. There is therefore no bar against our firms producing the drug."

The ministry plans to announce this decision after a meeting of the bird flu task force, called at the behest of the PMO, on October 26.

The health ministry's decision will come as a relief for both the pharma firms. An official said "Following global pressure to increase supply of its Tamiflu, Roche had announced that it was willing to allow both governments and companies to produce Tamiflu under sub-licensing agreements despite it having an exclusive patent. Following that, Cipla and Ranbaxy wrote to Roche for permission but are still to hear from it."

But there is a problem - the ministry is worried about the availability of raw material to make Tamiflu here. The active substance of Tamiflu is Oseltamivir in phosphate form and the ultimate raw material for Oseltamivir is Shikimic acid which is extracted from a Chinese spice Star Anise (Illicium Verum).

Also, the chemical path from Shikimic acid to Oseltamavir consists of 12 complicated steps "Getting the raw material will be the main problem. Now, it is found only in China and Germany. We may therefore have to seek help from Roche," an official added.

Meanwhile, the Centre has also decided to stockpile two lakh doses of both Tamiflu and Relenza. The latter is made by drugs giant GlaxoSmithKline and is also seen to be effective against the H5N1 virus.

AVIAN INFLUENZA

Health minister Dr A Ramadoss said "India will import the Tamiflu vaccine to prevent bird flu in the country. We are stockpiling two lakh doses."

Roche, the sole manufacturer of Tamiflu holds its patent over Tamiflu in several countries until 2016.

Fearing an outbreak, several countries are thinking of breaking international patent regulations to produce generic versions of Tamiflu.

The World Trade Organization in 2003 decided to allow governments to override patents during national health crises, though no member state has yet invoked the clause.

H5N1 strain of bird flu has already killed more than 61 people in Asia since 2003.

Pune centre ready for bird flu tests

By Siddhartha D Kashyap/TNN

Pune: Although not a single case of the deadly avian flu has been detected in India, the Pune-based National Institute of Virology (NIV) has said it has developed a detection kit, which can confirm the results in 24 hours.

Director of NIV, Dr A C Mishra, when contacted, confirmed that the institute, managed by the Indian Council of Medical Research (ICMR), can detect any bird flu infection within 24 hours.

According to him, NIV has been appointed as part of the nodal laboratory, along with the National Institute of Communicable Diseases (NICD), by the Union health ministry to strictly monitor any incidence of the life-killer avian flu virus.

"With our experience in influenza-related ailments, developing the testing kit was not very difficult," Mishra said, pointing out that a reagent for the laboratory tests has been procured from the Atlanta-based Centre for Disease Control and Prevention (CDC).

"Being part of the global network for influenza of which the CDC and WHO are members, it was but normal to ask for the specific reagent for the lab tests," he said.

While molecular biological tests hold the key to the detection of the avian flu virus, he said steps were being taken to conduct related serological tests too.

Mishra, who was in Delhi for an inter-ministerial task force meeting recently, said the Centre had sounded a high state of preparedness for NIV and NICD

Probe ordered into deaths

Kolkata: The state government has ordered a probe into the death of hundreds of migratory birds that had flown in from China to nest in the Kulik sanctuary.

The carcasses were found after a cyclone hit the area, but the fact that the birds had come from China is worrying officials.

The blood samples and carcasses of the birds have been sent for testing and officials have been ordered to capture other migratory birds and send them for lab tests. TNN

Fatal flu strain in Croatia confirmed

Associated Press

ZAGREB, (Croatia), Oct. 26. — Dead swans found in a Croatian nature park were infected with the lethal H5N1 bird flu strain, the agriculture ministry said today after receiving test results from a British laboratory.

The laboratory in Weybridge, England, which tested samples from six swans that had already tested positive for H5 subtype of bird flu last Friday — Croatia's first bird flu case — confirmed it was the H5N1 strain, ministry spokesman Mladen Pavic said.

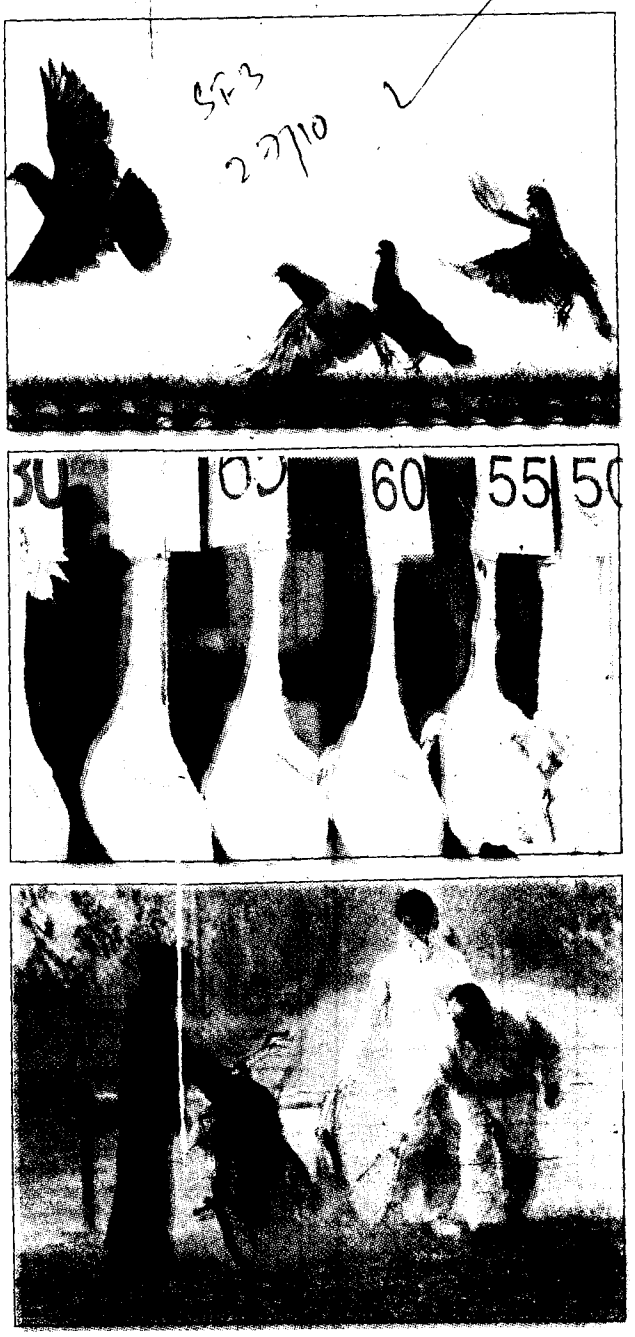
"We have already taken measures to contain the disease" since Friday, he said. The test results were confirmed by the European Commission in Brussels. Following the announcement of the suspected case over the weekend, the European Commission on Monday issued a precautionary ban on imports of live poultry, wild birds and feathers from that Balkan country. "That ban remains in force," said EU spokesman Mr Philip Tod. Croatia also has stopped exporting live poultry.

The six dead swans were found in the nature park of Zdenci last week and experts later found 13 more dead swans that were believed to have belonged to the same flock in a nearby fish pond. Two of those 13 also tested positive for the H5 subtype, but their sampleshave yet to be examined to determine whether it was the H5N1 strain.

Croatia disinfected and quarantined the region around the sites and all domestic poultry there were slaughtered and incinerated. The ministry said none of the 17,000 domestic poultry culled earlier this week had tested positive for bird flu. Negative results also came for hundreds of dead birds turned in over the past months. The ministry warned farmers across the country to comply with the order to keep their poultry indoors.

The H5N1 strain had previously been confirmed in birds in Romania, Turkey and Russia as it moves west. It has decimated poultry flocks in Asia in the past two years and killed more than 60 people.

Croatian experts yesterday shot down a sick swan in the Zdenci park they suspected of having bird flu. It carried a ring showing that it was at Hungary's Lake Balaton on 9 September, Pavic said, and the Hungarian Ornithological Society later confirmed the bird originated from there. The society said the swan was healthy when it was ringed. Hungary has not recorded a bird flu case yet, but it has been testing six pigeons and a swan recently found dead. Initial tests detected no bird flu virus, but final results are expected tomorrow.



(TOP) Pigeons fly over the roof of a house at a slum area in Jakarta on Wednesday. (Centre) Chickens for sale are displayed at a market in Hong Kong. Health workers disinfect a farmer's bicycle as he leaves the village of Tianchang, in eastern China's Anhui province on Wednesday. — AFP

China reports third outbreak

China Daily/ANN

BEIJING, Oct. 26. — Fears of avian flu spreading deepened today after China reported another outbreak in poultry.

In China's latest case, hundreds of chickens and ducks died in a village in central Hunan province. China had notified the United Nations of the latest outbreak in Wantang village in Xiangtan County near the provincial capital Changsha yesterday, according to a notice on the Web site of the World Organization for Animal Health (www.oie.int).

"The outbreak has been effectively controlled," the *Agriculture Daily* said, quoting the national bird flu laboratory as saying it had identified the strain as the deadly H5N1. China reported another outbreak yesterday among farm geese in the eastern province of Anhui and said it too had been brought under control with no reported human infections. China, the world's most populous nation, has billions of poultry, many living around the homes of farmers. At present, most people are infected with bird flu by handling sick birds or through their droppings.

But scientists' greatest fear is that H5N1 will mutate into a form that will pass easily among people.

Threat looms in Manila

MANILA, Oct. 26. — The department of health has upgraded 21 hospitals in preparation for an imminent bird flu outbreak, saying this is no longer a question of "if" but "when" it will strike. The hospitals, along with 16 regional medical centers, are equipped with isolation roo-ms, anti-flu drugs and protective gears. Health Secretary Francisco Duque III yes-terday told a news briefing that these hospitals have the capability to manage. — ANN

THE TIMES OF INDIA

Bird flu hits China again, Europe on high alert

Beijing: A virulent strain of bird flu has broken out again in China, officials said on Tuesday, as the human toll from the virus rose and Europe mulled a ban on wild bird imports to help avert a feared human pandemic.

Also in Asia, which has borne the brunt of a recent outbreak of the deadly H5N1 strain of avian influenza, Vietnam said it had contained its first outbreak of the approaching winter.

In eastern China's Anhui province, 2,100 geese and chickens were infected with H5N1, which has now killed at least 62 people in Asia since late 2003, two-thirds of them in Vietnam.

The outbreak, the sixth to hit China so far this year, was detected on October 20 and prompted the culling of nearly 45,000 birds, according to a Chinese agriculture ministry report.

On Tuesday, Indonesia confirmed its fourth human fatality from the virus, the its health ministry announced. "We now have seven cases of bird flu, including four fatalities," said a health ministry official. Thus far, all human bird flu victims have been in close and prolonged contact with birds carrying the virus.

DUCKING FOR COVER? **A woman feeds geese in a park in France on Tuesday.**

But scientists fear the H5N1 strain may mutate, acquiring genes from the human influenza virus that would make it highly infectious between people, potentially killing millions worldwide.

Meanwhile, on Tuesday, a disease control expert said a human influenza pandemic provoked by bird flu or another virus will surely hit Europe at some point and the EU needs to prepare for the public health crisis.

"Europe experienced three pandemics of human influenza in the last century, the average for the continent in recent centuries," said Denis Coulombier, who heads the preparedness and response unit of the European Center for Disease Prevention and Control (ECDC). "There is no reason why it should not happen again," he warned.

Canadian Prime Minister Paul Martin told health ministers and experts from 30 countries gathered in Ottawa on Tuesday that all nations must work together to stem a possible flu pandemic.

The Canadian leader spoke on the second day of a conference that aims to forge a coordinated international response against the deadly H5N1 bird flu virus and advance global preparations for a potential flu pandemic. "This gathering reflects, in my view, the imperative for a new multilateralism, the collaboration of developed and developing countries with a common interest, to work together toward urgent goals which no one nation can accomplish alone,"he said. Agencies

Bird watchers on sentry duty

Lake Naivasha (Kenya): Most mornings James Njenga launches his motorised canoe on Lake Naivasha to show tourists some of the most spectacular birds in East Africa. These days he has a second duty: sentry against bird flu. In addition to looking for African spoonbills, fish eagles and harriers, Njenga now looks out for migratory ducks suspected of carrying avian flu: the northern pintail, the garganey and the northern shoveler.

These ducks are believed to have brought the H5N1 strain of bird flu to Europe. "They come every year, though I haven't seem them yet this year," said Njenga, a top bird guide for the Great Rift Valley Lodge with a decade of experience on Kenya's lakes. "But they are coming, they always do." AP

Flu fear flutters in state

Statesman News Service

SF-1 26/10

City in a flap

KOLKATA, Oct. 25. — The state government today received a set of Central guidelines to prevent the bird flu outbreak that is sweeping South-east Asia and northern Europe from reaching India.

The state government has forwarded the guidelines to the authorities of the five sanctuaries — East Kolkata wetlands, Santragachi Jheel in Howrah, Ahiran Bill in Murshidabad, Gazaldoba in Jalpaiguri and Rasik Bill in Cooch Behar — frequented by migratory birds. Officials said three species of migratory birds — the barheaded goose, the great black-headed gull and the Great Cormorant — which flew in from Mongolia, China or other neighbouring countries, would be monitored as it was believed that the deadly H5N1 strain was being spread mainly by them.

The Centre has asked also for monitoring of poultry. Several precautionary measures would be adopted to avoid bird flu.

A committee has been formed in the state under the chairmanship of the chief secretary to monitor the state-level measures.

Another report on page 3

KOLKATA, Oct. 25. — Unaffected though Kolkata is from bird flu, the big question is whether it is safe to eat chicken. Doctors say the virus gets killed while cooking but there is a risk of the disease spreading to humans while raw chicken flesh is handled.

Dr TK Banerjee, well-known city physician, said: "Men working at meat shops run the risk of being infected with the virus while butchering white fowls." When infected, humans show symptoms of severe influenza.

Poultry dos
- Workers should wear gloves, shoes and masks
- Workers should use disinfectants

Poultry don'ts
- No mixing of old and new stocks
- Don't let filth pile up in poultry units
- No vehicles at poultry farms

Migratory birds dos
- Monitor all birds in sanctuaries
- Segregate birds found drooping and test their blood
- Deaths in sanctuaries to be reported to the National Animal Disease Emergency Committee

THE STATESMAN 26 OCT 2005

INDIAN EXPRESS

A Threat Worse than Terror

The government can't even give intelligent advice to its citizens

A FLU pandemic is the most dangerous threat the United States faces today," says Richard Falkenrath, who until recently served in the Bush administration as deputy Homeland Security adviser. "It's a bigger threat than terrorism. In fact it's bigger than anything I dealt with when I was in government." One makes a threat assessment on the basis of two factors: the probability of the event, and the loss of life if it happened. On both counts, a pandemic ranks higher than a major terror attack, even one involving weapons of mass destruction. A crude nuclear device would probably kill hundreds of thousands. A flu pandemic could easily kill millions.

FAREED ZAKARIA

Whether this particular virus makes the final, fatal mutation that allows it to move from human to human, one day some virus will. The basic factor that is fueling this surge of viruses is China's growth. (China is the natural habitat of the influenza virus.) As China develops, it urbanizes, and its forests and wetlands shrink. That forces migratory birds to gather closer together—and closer to human habitation—which increases the chances of a virus spreading from one species to the next. Also, growth means a huge rise in chicken consumption. Across thousands of homes in China every day, chickens are slaughtered in highly unhygienic ways. "Every day the chances that this virus or another such virus will move from one species to another grow," says Laurie Garrett, author of "The Coming Plague," who has been writing brilliantly on this topic for years.

Nobody really disputes that we are badly unprepared for this threat. "If something like this pandemic were to happen today," says Falkenrath, "the government would be mostly an observer, not a manager." The government can't even give intelligent advice to its citizens because it doesn't actually know what to say. We don't know whether people should stay put, leave cities, stay home or go to the nearest hospital. During the cold war, hundreds of people in government participated in dozens of crisis simulations of nuclear wars, accidents and incidents. These "tabletop exercises" were conducted so that if and when a real crisis hit, policymakers would not be confronting critical decisions for the first time. No such expertise exists for today's deadliest threat.

We need a massive biomedical project aimed at tackling these kinds of diseases, whether they're natural or engineered by terrorists

Beyond short-term measures for this virus—mainly stocking up on Tamiflu—the only credible response is the development of counter measures. The best response would be a general vaccine that would work against all strains of the flu. That's a tall order, but it could be achieved. The model of the Manhattan Project is often bandied about loosely, but this is a case in which it makes sense. We need a massive biomedical project aimed at tackling these kinds of diseases, whether they're natural or engineered by terrorists.

The total funding request for influenza-related research this year is about $119 million. To put this in perspective, we are spending well over $10 billion to research and develop ballistic-missile defenses, which protect us against an unlikely threat (even if they worked). We are spending $4.5 billion a year on R&D—drawings!—for the Pentagon's new joint strike fighter. Do we have our priorities right?

The final sense in which we are unprepared is that we have weak global organizations to deal with pandemics. The bird flu is a problem that began in Guangdong, China, and spread to Indonesia, Russia, Turkey, Romania and now possibly Iran. It may move next into Africa. Some of these governments are competent; others are not. Some hide information from everyone; others simply refuse to share it with the United States. We need a system that everyone will follow. The World Health Organization should become the global body that analyzes samples, monitors viruses, evaluates cures and keeps track of the best practices. Yet the WHO leads a hand-to-mouth existence, relying on the whims and grants of governments. A year ago its flu branch had five people. Now it has 12. It needs a much, much larger staff and its own set of laboratories around the world that would allow it to fulfill this clearinghouse function. Countries have finally agreed to a new set of conventions that give the U.N. and the WHO some of the authority they need. And Kofi Annan has appointed one person to coordinate the global efforts to fight pandemics.

We have weak global organizations to deal with pandemics. The bird flu is a problem that began in Guangdong, China, and spread to Indonesia, Russia, Turkey, Romania and now possibly Iran. It may move next into Africa

Many people believed that globalization meant that government would become less important. But as we see, today's world has actually made government more crucial. Only government can tackle a problem like this one, not by being big but by being smart and effective. And we need good governance not just at home but beyond. Without effective international coordination, we are doomed to failure. John Bolton once said that you could chop off 10 floors of the United Nations and we'd all be better off. Let's hope that the scientists fighting global diseases aren't on any of those floors.

By arrangement with *Newsweek*

Write the author at comments@fareedzakaria.com.

Toxic test prescribed for herbal drugs

By Kounteya Sinha/TNN

New Delhi: Testing of all herbal medicines in India (ayurvedic, unani and siddha) for heavy metals like arsenic, lead and cadmium will soon be compulsory.

From January 1, every licensed manufacturer of herbal products in the country will have to display a 'heavy metals within permissible limits' sign on their containers before exporting them.

UNDER WATCH

A health ministry survey recently showed that one in every five herbal products contains potentially toxic levels of heavy metals. Recently, the Canadian government had also banned the sale of Indian ayurvedic medicines in the country because it contained high levels of metals like lead, mercury and arsenic.

The products that face the axe for being unsafe for consumption include Hamdard's Safi, Dabur's Shilajit, Himalaya Drug's Karela Capsules and Zandu Pharma's Maha Sudarshan Churna Powder.

The Canadian government's advisory followed a review of a study in the Journal of the American Medical Association (JAMA) that found potentially harmful levels of lead, mercury and arsenic in 14 commercially available Indian ayurvedic medicinal products sold in Boston.

Shiv Basant, joint secretary, department of Unani, Ayurveda, Yoga and Naturopathy, told TOI "Such incidents dent the image of the entire ayurvedic fraternity. We will not take any chances anymore. From now on, if any herbal product contains even one of the 18 potentially toxic elements as mentioned in schedule E of the Drugs and Cosmetics Act of India, 1940, manufacturers will have to post a statutory warning asking consumers to buy them under medical supervision. All products will have to mention all the ingredients they contain as against the exact quantity. The licence of the manufacturers will be cancelled if they don't follow this direction."

The permissible limits for arsenic, lead and cadmium will be as recommended by WHO on quality control methods for medicinal plants and materials.

Stem cells without destroying embryos

ELIZABETH Weise
Washington, October 17

SCIENTISTS ARE pursuing two different ways to create embryonic stem cells without destroying an embryo.

The techniques are in early stages of research and have been tested only in mice. But they "raise promising possibilities" and will open up a new dialogue in the national debate over stem cell research, says William Hurlbut, a professor at the Neuroscience Institute at Stanford University.

Hurlbut is opposed to stem cell research that destroys embryos, as is President Bush, who has blocked federal funding of research on new stem cell colonies. These embryonic cells are master cells from which specific tissues arise. When scientists "harvest" them, the embryo is destroyed. Opponents view that as akin to murder.

The research, published online in Nature on Monday, may one day bypass those moral concerns and open the door to federal funding of the new stem cell lines, with which scientists hope to treat degenerative diseases.

The first method, by Rudolf Jaenisch and Alexander Meissner of the Massachusetts Institute of Technology, involves creating mouse embryos with a placenta-development gene blocked. The resulting cell masses lack reproductive potential but can be used to create healthy stem cells. "They can never, ever, become a baby," says Jaenisch.

The second method, from a group headed by Robert Lanza at the company Advanced Cell Technology, uses a single cell from a developing embryo to create a stem cell line without disrupting the embryo's ability to develop.

"Many people, including the President, are concerned about destroying life while trying to save it. We're showing a method by which you can create stem cells without destroying the embryo," Lanza says.

A variation of this process, called preimplantation genetic diagnosis, has been used for several years by couples who carry genes for genetic diseases such as sickle cell anaemia and cystic fibrosis. Embryos are created in a Petri dish, and one cell is removed at an early stage for genetic testing, usually without harming the embryo. However, the technique has drawn opposition because it damages some embryos.

Arthur Caplan, director of the Centre for Bioethics at the University of Pennsylvania, notes that if these individual cells have the potential to become any cell in the body, those with moral concerns may want to protect them as well.

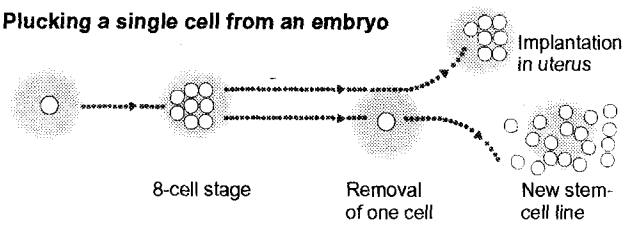
George Daley, a stem cell researcher at Harvard Medical School, cautions that both techniques are in early stages. "It's not clear it's going to work in human embryos. And in order to determine that, we'll have to actually do the research on human embryos and likely destroy some in the process."

USA Today

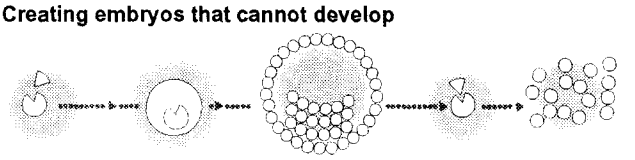
Stem-cell work may bypass objections

Studies show the possibility of collecting stem cells without destroying viable human embryos. The proposals might overcome religious objections and allow federal funding for promising research.

Plucking a single cell from an embryo



Creating embryos that cannot develop



Deadliest virus in history resurrected

ROGER HIGHFIELD

London, Oct. 6: The deadliest virus on record has been resurrected from a strain of influenza that was preserved in the frozen body of a victim of the 1918 pandemic and triggered a row about whether the benefits of its recreation outweigh the risks.

The replica 1918 "Spanish flu" virus revealed today in the journal *Science* shows how the pandemic was caused by a strain of bird flu against which humans had no immunity. The virus penetrated deep into the lungs and killed 50 million people worldwide.

The effort to resurrect the virus, which has alarmed some security experts, will help scientists anticipate which viruses could become pandemic and develop new vaccines and treatments.

The announcement comes as the World Health Organisation said that it is only a matter of time before the world suffers another pandemic, and also demonstrates that a current bird flu outbreak has some frightening similarities with the 1918 replica.

Although vaccines offer some immunity and the replica influenza A virus can be fought with two classes of available drug, the reconstructed virus is under lock and key in "stringent safety conditions" at the Centres for Disease Control (CDC) in Atlanta, Georgia.

The genetic code of the 1918 virus, however, has been released to the public because scientists claim that the beneficial uses of this knowledge outweigh the dangers posed by its misuse.

Dr Terrence Tumpey of the CDC said his team wanted to understand the biological properties that made the 1918 virus so exceptionally deadly. "We wanted to identify the specific genes responsible for its virulence, with the hope of designing anti-virals or other interventions that would work against virulent pandemics." Today's *New Scientist* asks if this "triumph for virology" is worth the risk of triggering a pandemic. *Nature* quotes experts who criticise the project for showing how to make "the most effective bioweapons agent now known".

The genetic sequence of the virus was recovered in fragments from lung autopsy tissues from an Inuit woman who was buried in the Alaskan permafrost in 1918.

The 1918 replica kills mice and chicken embryos and it grows rapidly in human lung cells. Most flu viruses that infect humans tend not to be deadly in other species and grow significantly slower in human lung cells.

Dr Jeffery Taubenberger, of the Armed Forces Institute of Pathology in Washington, who was also involved in the project, reports in *Nature* today that the 1918 virus had several mutations that are found in the H5N1 bird flu strain, which is active in southeast Asia and has killed around 60 people.

Dr Taubenberger said this shows that such viruses can cause serious infection without first combining with a flu strain already adapted to humans, as was previously thought.

One gene that is linked with highly virulent strains of flu is the HA gene responsible for the hemagglutinin protein. This protein helps the flu virus attach to cells and multiply. The gene seemed to be responsible for much of the severe lung damage in Spanish flu victims and this insight could be useful for the development of anti-viral treatments, Dr Tumpey said.

He added that the anti-viral drugs oseltamivir and amantadine have been shown to be effective against viruses carrying certain genes from the Spanish flu virus.

THE DAILY TELEGRAPH

Scientists inject humanity into mice

Infusion of chromosome 21 may help identify roots of Down's syndrome

IAN Sample
London, September 23

SCIENTISTS HAVE successfully transplanted human chromosomes into mice, a first that promises to transform medical research into the genetic causes of disease. The mice were genetically engineered to carry a copy of human chromosome 21, a string of about 250 genes. About one in a thousand people are born with an extra copy of the chromosome, a genetic hiccup that causes Down's syndrome.

Genetic studies of the mice will help scientists to nail down which genes give rise to medical conditions which are prevalent among people with Down's syndrome, such as impaired brain development, heart defects, behavioural abnormalities, Alzheimer's disease and leukaemia.

Medical researchers hailed the work as a 'tour de force', but critics accused the team of pushing the boundaries of genetic manipulation too far and blurring the distinction of what was biologically human.

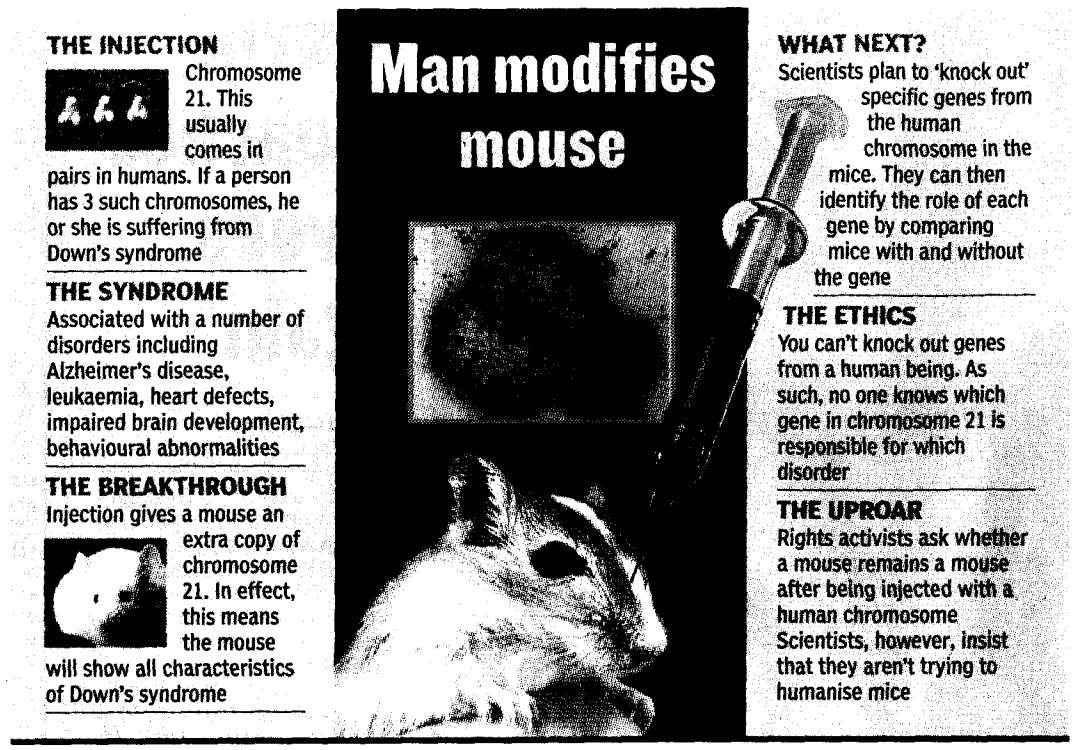
Elizabeth Fisher at the Institute of Neurology and Victor Tybulewicz at the National Institute for Medical Research in London spent 13 years perfecting the technique which is reported in the journal *Science*.

To create the mice, the team first extracted chromosomes from human cells and squirted them on to beds of stem cells taken from mouse embryos.

Any stem cells that absorbed human chromosome 21 were injected into three-day-old mouse embryos, which were then re-implanted into their mothers. The newly born mice carried copies of the chromosome and were able to pass it on to their own young.

"By adding the chromosome, we have mice that show nearly all of the characteristics of Down's syndrome in humans," said Fisher. "It means we can tease out the genes that give rise to the different aspects of Down's syndrome, because we know we've got the right genes in there."

According to Tybulewicz, genetic tests on the mice, which will systematically knock out different genes on the transplanted chromosome, will help identify which gene or genes cause each of the symptoms common to people with Down's syndrome. "This should illuminate which genes lead to heart defects, the higher risk of leukaemia and early onset Alzheimer's," he said.



Peter Scambler, a molecular geneticist at the Institute of Child Health in London, said: "This is a technical tour de force. It's difficult to envisage how one could otherwise tackle something as complex as Down's syndrome, because we can't go around creating human embryos with the condition."

Steve Brown, director of the Medical Research Council's mammalian genetics unit, said: "This will tell us a lot about which genes are key to the myriad abnormalities we associate most with Down's syndrome. We are taking a step forward in the tools we have to investigate the genetic basis of these conditions."

But according to David King, of the pressure group Human Genetics Alert, the potential breakthrough comes at too high a cost. "Creating organisms with whole chromosomes from another species is genetic engineering taken to another level. Before, researchers have said they're not making big changes because they're only inserting the odd gene into animals," he said.

"If you're talking about creating something with a whole human chromosome in it, you have to ask, is this really a mouse any more? Is it starting to be a new species, a hybrid between a mouse and a human? If more chromosomes are put in, are we going to have to start giving these things pseudo human rights?" he added.

King said the research could lead to technologies that would allow humans to be genetically engineered. "Once Britain has a clear ban on human genetic engineering, I'll be much happier for scientists to do these studies with mice. But they're developing techniques that could be applied to human beings and, in essence, that leads to a new form of eugenics," he said.

Fisher said the transferring of a chromosome was merely a more effective way of swapping large numbers of genes into an animal to benefit medical testing. "We're not trying to humanise mice, we're trying to tease out the genetics of a very complex disorder."

Tybulewicz added: "There's nothing more obviously human-like about these mice than any others. If you were to see them, you'd not be able to tell they are different to a normal one."

Carol Boys of the Down's Syndrome Association said she welcomed the research if it would lead to an improvement in the lives of people with Down's syndrome.

"Any research that could lead to a greater understanding of why people with Down's syndrome are more susceptible to certain medical conditions is important. However, this research does not herald a 'cure' or a 'treatment' for Down's syndrome."

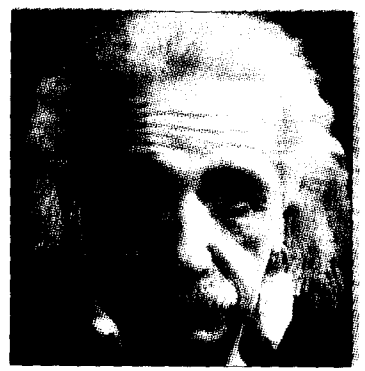
The Guardian

Bose-Einstein 'blob' begets quantum leap

Press Trust of India

SAN FRANCISCO, Sept. 19. — A new form of matter, proposed 80 years ago by Indian physicist Satyendra Nath Bose and Albert Einstein, has been trapped inside a minute storage ring by scientists at the California University, who say the "blob" might hold the key to new quantum physics.

Mr Subhadeep Gupta and his colleagues at the University of California, Berkeley, have created a "blob" of the supercooled Bose-Einstein Condensate (BEC) and have kept it running in circles inside a race-track two millimetres across.



Cold collisions of the slow-moving BEC blobs might reveal new quantum physics, according to the researchers. Apart from basic physics, the millimetre storage rings could be used as sensitive gyroscopes to detect minute changes in rotation.

The Berkeley scientists created the Bose-Einstein condensate of rubidium atoms and nudged it into a particle storage ring analogous to the accelerator storage rings of high energy physics. This ring is full of cold particles at a temperature of only one-millionth of a degree above absolute zero, traveling with energies a billion trillion times less than the particles in a high-energy storage ring, they reported in a paper to appear in the journal *Physical Review Letters*.

Bose and Einstein had proposed that if a gas of neutral atoms was cooled to a low enough temperature, they would fall into the same quantum state.

The human brain continues to evolve, study hints

Research Dents Notion That Human Evolution Stopped 50,000 Years Ago

By Nicholas Wade

Two genes involved in determining the size of the human brain have undergone substantial evolution in the last 60,000 years, researchers say, leading to the surprising suggestion that the brain is still undergoing rapid evolution. The discovery adds weight to the view that human evolution is still a work in progress, since previous instances of recent genetic change have come to light in genes that defend against disease and confer the ability to digest milk in adulthood.

It had been widely assumed until recently that human evolution more or less stopped 50,000 years ago.

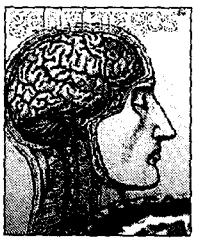
The new finding by Bruce T Lahn of the University of Chicago, could raise controversy because of the genes' role in determining brain size. New versions of the genes appear to have spread because they enhanced brain function in some way, the report suggests, and they are more common in some populations than others.

But several experts strongly criticised this aspect of the finding, saying it was far from clear that the new genes conferred any cognitive advantage or had spread for that reason. Many genes have more than one role in the body, and the new alleles could have been favoured for some other reason, these experts said, such as if they increased resistance to disease.

Even if the new alleles should be shown to improve brain function, that would not necessarily mean that the populations where they are common have any brain-related advantage over those where they are rare.

Different populations often take advantage of different alleles, occurring at random, to respond to the same evolutionary pressure, as has happened in the emergence of genetic defenses against malaria, which are different in Mediterranean and African populations.

If this is true of brain evolution, each population might have different sets of alleles for enhancing function, many which remain to be discovered.



MIND MATTER

The Chicago researchers began their study with two genes, known as microcephalin and ASPM, that came to light because they are disabled in a disease called microcephaly.

People with the condition are born with a brain much smaller, often a substantial shrinkage of the cerebral cortex, that is a throwback perhaps to when the human brain was a fraction of its present size.

They say with microcephalin, a new allele arose about 37,000 years ago. About 70% of people in European and East Asian populations carry this allele.

With the other gene, ASPM, a new allele emerged 14,100 to 500 years ago. The allele has attained 50% frequency in Middle East and Europe and is less common in East Asia, and sub-Saharan Africa peoples.

The team suggests the new microcephalin allele may have arisen in Eurasia or as the first modern humans emigrated from Africa 50,000 years ago. NYT News Service

Major study calls for end to homoeopathy

Likens It To Dummy Drugs

By Rashmee Roshan Lall/TNN

London: A major study in a top medical journal has dismissed homoeopathy, calling for an end to the 18th century natural pharmaceutical science which is the third most popular method of treatment in India and is now freely available on Britain's National Health Service.

The study in Lancet says homoeopathy is no better than dummy drugs. It has cited a Swiss-led review of 110 trials, which alleged that homoeopathic drugs work-ed no better than a placebo. In what many admit is an authoritative call to review the cult-like status of the medical treatment, the study said Western doctors must be honest about homoeopathy's "lack of benefit".

But advocates of homoeopathy said the Swiss scientists' research merely overturned a previous assertion by Lancet, which published a favourable review in September 1997 of 89 double-blind or randomised placebo-controlled clinical trials. The 1997 study, by a German professor, had concluded that the clinical effects of homoeopathic medicines were not that of a placebo and had 2.45 times more effect.

They said a research conducted in 1991 indicated that of the 107 controlled clinical trials of homoeopathic medicines, 81 had demonstrable beneficial results. But the Lancet research by Prof Matthias Egger of the University of Berne, his Swiss colleagues from Zurich University and a UK team at the University of Bristol reportedly found disappointing results from homoeopathic treatment of asthma, allergies and muscular problems.

▶ City homoeopaths defend, P 5

USED & ABUSED

late 1700s: Samuel Hahnemann develops homoeopathy in Germany

1829: Belgium's 1st homoeopath, Dr Pierre deMoor, begins practice. Another in Lyons

1830: Beginning of cholera epidemic in Germany. Hahnemann ascribes its cause to "infinitely small, invisible living organisms". He publishes four pamphlets detailing the use of camphor, cuprum, and veratrum for treatment of the epidemic. The remarkable results boost homoeopathy's status in Europe

1830s: Homoeopathy becomes illegal in Austria, but many people still use it during the cholera epidemic of 1831

1835: 'Domestic Physician', the first popular homoeopathic self-care manual, is published

1836: Richard Phelan, MD, introduces homoeopathy to the English county of Kent

1843: Hahnemann dies in Paris

PRESENT DAY: There are more than 47,000 practitioners of alternative medicine in UK– more than the no. of general practitioners

INDIAN EXPRESS

Homoeopathy report was study of a study: *Lancet* author

SONU JAIN & TOUFIQ RASHID
NEW DELHI | AUGUST 27

A REPORT in the reputed medical journal *Lancet* has shocked the world, saying Homoeopathy has an effect only in the mind and has no real curative powers.

While experts in India are rejecting these findings outright, these will be taken seriously by the world: The author of the study is also responsible for the blow to Merck in largest-ever settlement dealing with its anti-inflammatory drug Vioxx.

Matthias Egger, at the Department of Social and Preventive Medicine at the University of Berne in Switzerland, established the connection between Merck drug Vioxx and increased risk of cardiovascular problems. This study was published in *Lancet* in November 2004.

Egger spoke to *The Indian Express* from his office in Berne about his latest work that has stirred a controversy. "It's a study of a study," said Egger, explaining the methodology of meta-analysis. "It is controversial but at the end of the day, we needed to find out if it is the special effect of pills...and our study disentangles it," said Egger. According to him, a single study can never be depended on and hence the need for meta-analysis.

The study on Homoeopathy was commissioned by the Federal Office of Public Health in Switzerland to find out if Homoeopathy treatment should be a part of a social insurance package. Already, acting on Egger's findings, the country has decided to not include Homoeopathy in its package.

He has used the same methodology he used for Vioxx to arrive at his controversial conclusions on Homoeopathy. In two years, he and his colleagues have studied 110 major studies, analysed them and arrived at their conclusion. His team compared results of 110 trials of homoeopathic medicines with the same number of trials of conventional medicines in a whole range of conditions from respiratory infections to surgery.

"We found that there was no difference between the homoeopathic medicines and placebo, but there was a difference between placebo and conventional medicine," he said. Placebo is used in all medical trials where a group of patients are administered sugar pills to check the efficacy of medicines.

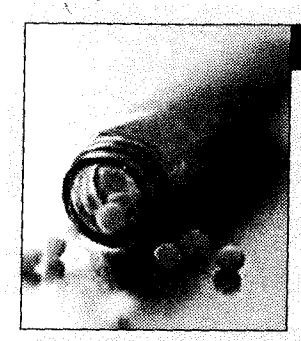
The study says remedies are so dilute that they do not have any impact on the body. While homoeopaths argue that the water retains the properties of the medicine as it is shaken regularly, critics have said that most of it is lost. "The effect is not due to pharmacological impact but due to extra attention and extensive care that homoeopaths do," said Egger. Homoeopathy is known for doctors spending extra time with patients dealing with their emotional state too, in addition to their physical state.

This might be the biggest blow to a 250-year old system of medicine discovered in Germany and growing in strength in many countries including India.

With the paper, *Lancet* wrote a hard-hitting editorial saying "The end of Homoeopathy" demanding doctors tell the truth to their patients about this system of medicine.

"I have nothing against Homoeopathy. My Vioxx work is proof, that we also do things against pharmaceutical giants," said Egger commenting on the storm.

Placebo or medicine: Experts want evidence



- Homoeopathy is the second most widely used system of medicine in the world, after allopathy. Developed by German Samuel Hahnemann as early as 1780s.
- **WHO** recognises it as a form of traditional medicine. In 2003, WHO conducted a global survey in 141 contries on policies of traditional medicine for enhancing safety, efficacy and quality.
- **S.P. Singh, Advisor Homeopathy, Govt of India**: The answer lies in the article itself. In 1997, *Lancet* itself informed the public that homoeopathy is as good as any recognised system. What will you believe? We need to know how they evaluated. Standards for allopathic trials are different, the researcher has to have clear knowledge of the science. If four people have migraine, homoeopathy treats them in four different ways. We need to know whether they showed the data to homoeopathic experts.
- **Uma Pillai, secy AYUSH, Ministry of Health**: It is very unfair to say the system doesn't work. It can't be there for centuries if it was such a miserable fake. We need to know what kind of a study it is. We have to see if pharma companies are behind the study.
- **Kalyan Banerjee, leading practitioner**: It is pure propaganda as the popularity of homoeopathy is increasing. I have been treating patients for 30 years now, how do they get cured? The consultant has to understand homoeopathy as no two patients are treated alike in this form of medicine. What the study is based on has to be clear.
- **Anoop Misra, Prof of Medicine at AIIMS**: A WHO monograph which some feel is promoting homeopathy is also available in the lancet issue but has not been reported anywhere. As a scientist-the study seems to have no scientific loophole published . But it doesn't mean that everything in homeopathy is bad. We have to have some way of evaluating the traditional forms of medicine in some manner to put an end to the controversy. We can't say it can't be evaluated and keep the controversies alive".

— Toufiq Rashid

'We will counter in a scientific manner'

- **Dr Anbumani Ramadoss, Union Minister of Health and Family Welfare** on the controversy:

"India is the largest user of homeopathic medicines and it is becoming increasingly popular everyday. Publisising studies like this creates panic. Even in the past a Journal of American Medical Association study on lead and mercury toxicity was splashed all over the international media. We are planning to write to *Lancet* and other journals and ask them for original research papers. This is a scientific thing we will counter it in a scientific manner by sending our own findings." *— ENS*

British cloud on ayurvedic drugs

OUR BUREAU

Aug. 18: Indian ayurvedic products sold in Britain have come under the scanner after the drug regulatory authority there issued a warning about the possibility of dangerous levels of heavy metals in the herbal remedies.

The Medicines and Healthcare Products Regulatory Agency said these products might have entered the British market and advised consumers not to take them, according to *The Times*, London.

Its warning came after a similar one issued by its counterpart, Health Canada, which found that several herbal products in the Canadian market contained high levels of the metals.

The products listed are all made by Indian companies, like Dabur, Zandu Pharmaceuticals, Himalaya Drug Company and Hamdard, whose Pakistani counterpart has also been named.

Roy Alder, the agency's director of executive support, said: "Medicinal products containing high levels of heavy metals pose a serious public health risk. Many of the products we suspect to have entered the UK may contain mercury, arsenic and lead. These metals can cause severe nausea, vomiting and abdominal pain. Other serious problems such as kidney damage, convulsions and coma have also been reported."

Several studies in recent years have found heavy metals in ayurvedic medicines imported from India. In some cases they may be contaminants, but in others they are deliberately included in the belief that they have health benefits, the paper said.

CAUTION LIST

The suspect medicines and the companies producing them:

- Karela tablets, Shriji Herbal Products
- Karela capsules, Himalaya Drug Co, India, & Charantia, UK
- Yograj Guggul tablets, Zandu Pharmaceuticals
- Sudarshan tablets, Zandu Pharmaceuticals
- Shilajit capsules, Dabur India Ltd
- SAFI Liquid, Hamdard WAKF Pakistan & Hamdard WAKF India
- Maha Sudarshan Churna Powder, Zandu Pharmaceuticals, D&K Pharmacy and Dabur India Ltd

Indian drug firms said they have had the drugs tested by foreign agencies. S.K. Mitra, executive director of research and technical of Himalaya, said: "We have had *karela* capsules tested by Rigaku, a research laboratory in Texas and by the Indian Institute of Technology, Chennai. Both have given a clean chit."

Its *karela* capsules, said to promote vitality and control blood sugar, are on the list the UK regulator has asked consumers to stay away from. Claimed to be a rejuvenator, Shilajit, sold by Dabur, is also on the list.

A Dabur spokesperson said: "We are very sensitive to issues related to our products. We have got our Shilajit tested by SGS (based in Switzerland), a global chain of independent and renowned testing laboratories, that confirms that our product does not contain heavy metals."

In India, the market is brimming with myriad herbal drugs, without any standardisation or quality control. These drugs have not undergone rigorous pharmaceutical studies and clinical trials.

Under Indian laws, a company can produce and sell a cocktail of herbal extracts as long as each ingredient is mentioned by name in one of several ancient ayurvedic texts.

There are now signs that the government is responding to calls by doctors and drug control directorate officials for a change of rules to regulate manufacture and sale of ayurvedic products.

Ashwani Kumar, the drug controller of India, said over phone from Delhi: "There is nothing secret about the fact that ayurvedic drugs have some permissible level of metals known as *bhasma* used for centuries. No one has ever questioned its composition or quality, but with controversies surrounding its efficacy emerging in the US, Canada and other countries, the government is now seriously looking into the issue."

Garlic: It hurts so good

ASSOCIATED Press
Washington, August 17

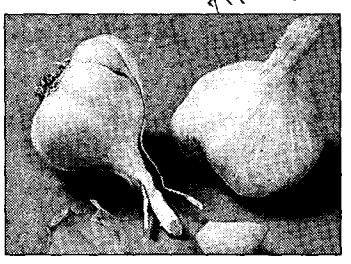
PEOPLE TEND to love garlic or hate it, but few probably associate it with pain. Nonetheless, it turns out that pain-sensing nerves respond to the sulfur-based chemicals in garlic.

Indeed, the same mechanism the body uses to react to the sharpness of chili peppers and spicy condiments, like mustard and 'wasabi', is the one that detects garlic, according to a study in Tuesday's *Proceedings of the National Academy of Sciences.*

David Julius of the department of cellular and molecular pharmacology at the University of California, San Francisco, said the finding was made during research on the mechanisms of pain sensation.

Julius discovered that when a subset of pain neurons in rats activates a cell membrane channel called TRPA1 the result is a release of brain chemicals that stimulate blood vessel dilation and inflammation.

Understanding how such nerves work, he said, can help researchers learn more about how arthritis and some muscular problems develop. "You can use these natural products as very interesting pharmacological probes of the pain pathways," Julius explained.



How it works

- The same mechanism the body uses to react to the sharpness of chili peppers and spicy condiments, like mustard and 'wasabi', detects garlic
- Garlic has a long history of use in folk medicine, having been used to treat ailments as high blood pressure, high cholesterol and blood clots

Susan Travers of Ohio State University said the most interesting finding of the paper is that the neurons that respond to garlic compounds are only a subset of those that respond to the capsaicin in hot peppers.

Garlic, sometimes called the stinking rose, belongs to the group of plants called allium, which also includes onions, leeks, chives and shallots. All of them produce sulfur-based compounds that make them pungent. One, called allicin, actives the set of pain sensors and is especially prominent in garlic.

In addition to its culinary properties, garlic has a long history of use in folk medicine, having been used to treat such ailments as high blood pressure, high cholesterol and even blood clots. Capsaicin, the chemical that gives hot peppers their heat, is currently a major ingredient in a cream used by arthritis sufferers.

This and similar studies "clearly do not explain the complex sensory experience that this ingredient lends to food. It is likely that garlic stimulates olfactory receptors and the olfactory system is largely responsible for garlic's distinctive aroma, and yet other compounds stimulate specific receptors in taste buds," Travers said.

Drugs breakthrough raises hopes of AIDS cure

ASSOCIATED Press
London, August 12

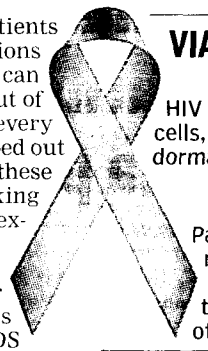
A NEW treatment strategy has shown promise in helping to transform HIV into a curable infection. Preliminary research published this week in *The Lancet* medical journal outlines how scientists used an anti-convulsant drug to awaken dormant HIV hiding in the body, where it is temporarily invisible but still dangerous.

HIV infection is incurable because current drugs only work when the virus is multiplying, which occurs only when it is in an active cell. However, HIV sometimes infects dormant cells, and when it does, it becomes dormant itself.

While the virus poses no threat in its resting state, the sleeping cells sporadically wake up, reactivating the virus and causing it to multiply. Patients must continue to take medications for the rest of their lives so they can fight the virus when it comes out of the reawakened cells. Only if every last infected dormant cell is wiped out — or the virus purged from these cells — can patients stop taking medication and be virus-free, experts say.

Figuring out how to clear this reservoir of latent infection, or whether that's even possible, is one of the hottest areas of AIDS research. Over the last few years, a handful of drugs have been shown to decrease the size of the dormant HIV pool, but they were subsequently abandoned because their effect was either too weak or the side effects too toxic.

The latest drug, valproic acid, shows more promise, said Dr Warner Greene, director of the Gladstone Institute for Virology and Immunology at the University of California, San Francisco.



VIABLE APPROACH

HIV sometimes infects dormant cells, and when it does, it becomes dormant itself

Patients must continue to take medications for the rest of their lives so they can fight the virus when it comes out of the reawakened cells

"It's a first baby step, showing that maybe the use of (this type of drug) — far more likely in combination with one or two other agents — might be a viable approach for tackling this latency problem," said Greene, who was not involved with the research but is conducting similar studies.

"The idea, if we could ever do it, is to purge every latently infected cell. Treat patients for probably two or three years, they'd be able to come off their antiretroviral therapy and they'd be virus-free," he said.

The study, led by Dr David Margolis at the University of North Carolina at Chapel Hill, tested the ability of valproic acid to reduce the number of infected dormant cells.

Four patients on standard therapy were given the pills to take twice daily for three months. The size of this pool of infected dormant cells decreased by 75 per cent in three out of the four patients, the study found.

"This finding, though not definitive, suggests that new approaches will allow the cure of HIV in the future," Margolis said. "It's a significant conceptual move forward."

Margolis said he believes the drug reactivates the virus inside a dormant cell, either waking up the cell with it or killing it. Dr Jean-Pierre Routy, a professor at McGill University in Montreal, Canada, who also studies the dormant HIV issue, said Margolis' results were an impressive first try.

"It's enormous for just three months' treatment to have such an effect," he said, adding that the findings merit urgent further study. "I think it's very exciting news."

However, other experts were less optimistic. "It's extremely unlikely that this approach would work," said Dr. Robert Siliciano, a professor of medicine at Johns Hopkins University who was one of the scientists who discovered the dormant infection problem in the mid-1990s.

"It didn't get all the cells. That's probably because it's not really targeting the right mechanism for latency," Siliciano said. "It's got to be a 99.9999 per cent reduction to be useful. When you stop the drugs the virus explodes back so quickly, even if you had one latently infected cell left, in a matter of days you would be back to where you started from."

Siliciano said he also doubts the valproic acid approach will solve the problem because it's likely HIV lies dormant in other types of cells that scientists have not discovered yet and tackling those reservoirs may require a completely different approach. "It's a little bit premature to be talking about a cure for HIV," he said.

Discovery makes flawless touchdown

Dramatic climax to 14-day space trip; craft diverted to California after rainstorms at Cape Canaveral

BACK ON TERRA FIRMA: *In this image from NASA television, space shuttle Discovery is seen making a smooth touchdown at the Edwards Air Force Base in California on Tuesday.* – PHOTO: AP/NASA TV

EDWARDS AIR FORCE BASE, (CALIFORNIA): Space shuttle Discovery roared safely back to Earth in California on Tuesday in a dramatic climax to the first shuttle mission since the Columbia disaster in 2003.

Commander Eileen Collins staged a flawless night-time touchdown here at 5:11a.m. (1211 GMT), ending a 14-day trip that had raised new doubts about the shuttle programme.

"Discovery is home," Mission Control said as the wheels touched down on the 6,800-metre (15,000-foot) runway shortly after two huge sonic booms rang out over the Mojave desert as Discovery made its much-delayed return.

NASA personnel broke out in cheers as Ms. Collins announced: "We are back."

"Congratulations on a truly spectacular test flight," astronaut Ken Ham from Mission Control told the crew by radio after the shuttle came to a halt in the Mojave desert. "Welcome home friends."

Ms. Collins replied: "Those are great words to hear. We're happy to be back. We congratulate the whole team for a job well done."

The shuttle was to have landed three hours earlier in Florida but was diverted to the opposite side of the United States after rainstorms thwarted its planned landing at Cape Canaveral.

The ship's arrival was heralded by the appearance of a bright dot in the night sky which grew larger until it punched through the sound barrier of 1,000 kilometres (620 miles) an hour with a triumphant double bang.

The seven-man crew, including an Australian and a Japanese astronaut, remained on board the towering white craft for more than an hour after the landing to complete arrival checks.

Their families were waiting at the Kennedy Space Center at Cape Canaveral and their reunions will now take place at mission control in Houston, Texas on Wednesday.

NASA managers have hailed the mission as a success, even though they failed to solve a critical problem that doomed Columbia 30 months ago and caused it to disintegrate in flames on re-entry into the Earth's atmosphere.

Mission control officials heaved a sigh of relief as a parachute deployed from the shuttle's rear, and Discovery came to a full stop in the dusty desert.

The final moments of the mission are among the most critical. The Columbia burst into flames after superheated gases broke through its heat shield.

The February 1, 2003 tragedy was blamed on insulation foam that fell off and damaged the orbiter's left wing upon take-off.

Similar chunks of foam fell off the external tank when Discovery blasted into space on July 26. NASA said the debris caused no significant damage and gave the green light for landing despite a tear on the cockpit's thermal blanket.

But Discovery is now grounded with the rest of the fleet until the problem is resolved. The U.S space agency is optimistic a solution would be found soon, and has tentatively scheduled the next launch for September 22.

NASA managers said the huge amount of data collected during Discovery's "return to flight" mission would help them figure out how to make the shuttle a safer craft. The mission was largely designed to test changes made to the shuttle since the Columbia disaster, including improvements that were meant to prevent foam from breaking off upon launch. – AFP

Another report on Page 15

The agony and the ecstasy

Agencies
Edwards Airforce Base, California, August 9

IT WAS a long, agonising wait for the families of the seven astronauts aboard Discovery and Nasa workers on the ground. First, the shuttle's arrival was delayed by a day, then it was shifted from Florida to California as the weather refused to let up.

The shift to the opposite coast was a big disappointment for the astronauts' families, who had been waiting to greet their loved ones in Cape Canaveral. Their reunion was put on hold until Wednesday, when they all planned to meet in Houston.

But when the shuttle arrived, everyone heaved a sigh of relief.

"I want it to be safe, wherever the safest place is to go," said shuttle program manager Bill Parsons, who was denied the opportunity to welcome the astronauts back home.

In India, Kalpana Chawla's father thanked the stars. "For the whole day I have been watching television. As 16 minutes remained for Discovery to touch down, I was nervous and profusely sweating. Now, I feel greatly relieved," B.D. Chawla said in Chandigrah.

Kalpana had died two years ago when Columbia crashed on return. The return of Discovery to earth brought back painful memories. "She (Kalpana) will always be with us," he said.

R. K. Lamba, the principal of Tagore Bal Niketan Senior Secondary School in Karnal where Kalpana studied, was also greatly relieved that the Nasa mission had ended in success. "Everyone at school were anxious earlier in the day, but now all of us are feeling greatly relieved," he said.

In Chigasaki, Japan, hundreds of students, officials and hometown well-wishers let out a cheer as the U.S. Space Shuttle Discovery carrying Japanese astronaut Soichi Noguchi returned safely to Earth.

About 400 people gathered at a school gymnasium to watch the live broadcast. "Welcome back!" the crowd shouted with a mixture of joy and relief as Discovery touched down.

Discovery's descent was watched across the world as television channels brought infra-red shots of the shuttle in the final 10 minutes of its journey back home. The inherently dangerous ride down through the atmosphere was more anxiety-ridden than normal because of what happened to Columbia 2½ years ago.

The first cheers at Cape Canaveral went up after Nasa reported that the shuttle had re-entered the Earth's atmosphere without any problem. "Congratulations on a truly spectacular test flight. Welcome home friends," astronaut Ken Ham told the crew by radio after the shuttle came to a halt.

White House spokesman Trent Duffy called it "a proud day for America."


AP


REUTERS


AP

1 Nasa employee Molinda Smith waits in anxiety before Discovery lands at California...

2 ...and after landing

3 Eileen Collins (centre) speaks on behalf of her crew after disembarking

And now, a mission to Mars

AGENCE France-Presse
Cape Canaveral, August 9

A ROCKET carrying a new Mars orbiter will take off from Cape Canaveral on Wednesday in a fresh step towards the US aim to get a man on the red planet.

Despite the backlog caused by the delayed return of the shuttle Discovery, an Atlas V rocket will blast off carrying the orbiter, which Nasa hopes will extend the pioneer work of the Mars rovers still scouring the planet's surface.

"Mars Reconnaissance Orbiter (MRO) is the next step in our ambitious exploration of Mars," said Douglas McCuistion, director of Nasa's Mars exploration programme. "We expect to use this spacecraft's eyes in the sky in coming years as our primary tools to identify and evaluate the best places for future missions to land." The Mars rovers, Spirit and Opportunity, have been on the surface for the past 18 months making spectacular finds for US scientists.

The latest spacecraft, which has cost more than 500 million dollars, is to arrive at Mars in March 2006 to start a 25-month mission. It will carry out a low orbit of the planet to examine its features ranging from the top of the atmosphere to underground layering.

Michael Meyer, Mars exploration chief scientist for Nasa said the main aim of the experts following the orbiter was to "follow-the-water" to see if any ever existed on Mars. The MRO will use a spectrometer that can detect minerals linked to the existence of water, a radiometer that analyses atmospheric dust and water vapour.

Why some people die in their sleep

Reuters
Washington, August 9

PEOPLE WHO die in their sleep may stop breathing because they have lost too many brain cells, US researchers reported on Monday.

Sleep apnea — a condition in which people stop breathing for long stretches of time in their sleep — may sometimes be caused by the destruction of cells in the brain stem, where autonomic functions such as breathing are controlled, they said.

Tests on rats showed that the loss of key brain stem cells that die off with age caused such disrupted sleep that the animals eventually stopped breathing completely.

The same thing may be happening in elderly people, said neurobiologist Jack Feldman of the University of California Los Angeles.

"We wanted to reveal the mechanism behind central sleep apnea, which most commonly affects people after age 65," Feldman said in a statement.

"Unlike obstructive sleep apnea, in which a person stops breathing when their airway collapses, central sleep apnea is triggered by something going awry in the brain's breathing centre."

Writing in this week's issue of *Nature Neuroscience*, Feldman and colleagues said they deliberately killed brain cells in the pre-Boetzinger complex of the brains of rats — a region believed to be the "command post" for breathing in mammals.

Then they monitored the rats' breathing. "We were surprised to see that breathing completely stopped when the rat entered Rem (rapid eye movement) sleep, forcing

HEALTH WATCH

the rat to wake up in order to start breathing again," said Leanne McKay, who worked on the study.

"Over time, the breathing lapses increased in severity, spreading into non-Rem sleep and eventually occurring when the rats were awake, as well."

Feldman believes the same thing could be happening in elderly people, especially those with degenerative diseases such as Parkinson's, which are marked by disturbed sleep. "Our research suggests that the pre-Boetzinger complex contains a fixed number of neurons that we lose as we age," Feldman said.

"We speculate that our brains can compensate for up to a 60 per cent loss of pre-Boetzinger cells, but the cumulative deficit of these brain cells eventually disrupts our breathing during sleep. There's no biological reason for the body to maintain these cells beyond the average lifespan, and so they do not replenish as we age," said Feldman. "As we lose them, we grow more prone to central sleep apnea." And weaker people may not be able to rouse themselves when this happens. They simply stop breathing.

Offer to probe research fraud suspicions

G.S. MUDUR

New Delhi, July 31: A science ethics body here has offered to look into the suspicions aired by two top medical journals that an Indian doctor may have fabricated research data for international publications.

The Society for Scientific Values (SSV), a non-government agency of prominent scientists and engineers that investigates scientific misconduct, would seek details of data collection from the doctor, SSV officials said.

As reported in **The Telegraph** on Saturday, the *British Medical Journal* and *The Lancet* have expressed concern about the reliability of research data submitted by Dr Ram B. Singh, a private practitioner in Moradabad, Uttar Pradesh.

Singh has published a number of highly cited papers on the protective effects of diet on the heart. He has denied wrongdoing and told **The Telegraph** that the allegations against him are motivated by "professional jealousy and prompted by scientists whose research he had criticised in the past".

In its commentary, the *BMJ* said it found no institution in India willing to take on the task to resolve doubts over Singh's work.

"It's the responsibility of the Medical Council of India, but it's sleeping," said Dr Raj Tandon, a New Delhi-based doctor who had raised questions about Singh's research in the mid-1990s.

A senior cardiologist said some of Singh's research results appear so valuable that it is "tragic" that suspicions have been cast on them.

A paper by Singh three years ago in *The Lancet* said that an inexpensive diet of whole grain, legume, fruit, vegetable, nuts and soybean oil could protect the heart.

"It's a great result, but unless the controversy is resolved, we won't know whether to accept it," said Dr K. Srinath Reddy, head of cardiology at the All India Institute of Medical Sciences, New Delhi.

Singh said his papers have been cited worldwide and he has been invited to lecture at international conferences. One of Singh's collaborators, Dr Shanti Rastogi, said the suspicions about Singh are "unjustified" and that Singh has the expertise and facilities for research.

The SSV would ask Singh to provide details of data and research methods for analysis by experts, said Kasturi Lal Chopra, SSV president and former director of the Indian Institute of Technology, Kharagpur. "But it would be well within his rights to ask us to go away," Chopra said.

Doctors here said it is irrelevant that the messages in Singh's papers appear to conform with broad medical consensus about diet and heart disease.

"Method is crucial in research. Even an expected message from fabricated data can do harm to medicine," said Samiran Nundy, a gastrointestinal surgeon and emeritus editor of the *National Medical Journal of India*.

Some doctors familiar with Singh's papers said they have been surprised by the astonishing speed with which he churns out research papers.

The papers contain the right messages — about how diet with high fibre food or vegetables protect the heart — but "some of us have been suspicious about the data", said Anoop Misra, professor of medicine at the All India Institute of Medical Sciences in New Delhi.

'10th planet' icy, rocky & bright

Science & technology

Geoffrey Lean/The Independent

LOS ANGELES, July, 30. — You could call it the tenth rock from the sun. Scientists yesterday made the dramatic announcement that they had found the first new planet in the solar system in three quarters of a century.

The planet — a giant lump of rock and ice, more than nine billion miles from the Sun — is the first to be discovered since Pluto in 1930. The breakthrough will cause the redrawing of the maps of our corner of the universe.

"Get out your pens and start rewriting the textbooks today," says an exultant Dr Michael Brown, of the California Institute of Technology, who made the discovery. But even he admits that the new planet — 97 times further from the Sun than Earth, three times even than Pluto — is scarcely a welcoming place, even to aliens.

These time-lapse images of the new-found planet (circled) in the solar system, called 2003UB313, were taken on 21 October, 2003, at the Palomar Observatory near San Diego, California. **Courtesy Nasa**

It is almost unimaginably cold: on a good day, it might touch minus 400°F. And you'd be a long time waiting for your annual holiday to come round, as the planet's year is wearyingly long — it takes more than 2,04,000 days to orbit the sun. For the time being, the planet is officially the unromantic 2003 UB313.

Dr Brown and his team have christened it Xena, after the warrior princess in the old TV series. But the formal decision on a name will be made by the International Astronomical Union. Xena — if such it formally becomes — is the biggest object to have been discovered in the solar system since Neptune in 1845. More important, at about 2,000 miles across, it is considerably bigger than Pluto, which is what gives it the right to be considered our 10th planet.

Dr Brown rushed out the news of Xena early, after learning that someone "with more cleverness than scruples" had hacked into his restricted website on Thursday night, and fearing that he would be beaten to the announcement.

"We are 100 per cent confident that this is the first object bigger than Pluto ever found in the outer solar system," Dr Brown says.

Dr Brown and his team first photographed Xena two years ago, without realising what it was. It was only when they snapped it again, and found it had moved, that they realised they had found a planet.

Pieces fall off Discovery during liftoff

Houston, July 27

DISCOVERY'S ASTRONAUTS inspected their spaceship for launch damage on Wednesday, delicately operating a 100-foot movable arm with lasers and a camera mounted on its tip. The inspection was planned all along, before Nasa discovered that an object believed to be a 1½-inch piece of thermal tile appeared to break off from a vulnerable spot near the nose landing-gear doors on the underside of Discovery during liftoff. Also, a large object — perhaps a piece of foam insulation — seemed to fly off from the big external fuel tank but did not hit the shuttle.

Nasa planned to stick to its original work schedule and inspect only the nose and wings on Wednesday, examining the dozens of reinforced carbon panels that withstand the heat during re-entry into Earth's atmosphere. Thermal tiles on the belly will be inspected with the movable arm later in the flight. Also, on Thursday, Discovery will execute a slow backflip as it approaches its destination in orbit — the international space station — so that the station's crew members can photograph the shuttle from various angles. That maneuver, too, was planned well before any launch damage was detected.

REUTERS

Steve Robinson and Eileen Collins aboard the Discovery.

The highly sensitive inspection, which was expected to take about seven hours, employed a brand-new 50-foot extension of the shuttle's 50-foot robotic arm. The astronauts had to be careful not to bang the equipment against the shuttle's fragile thermal shield. Flight director Paul Hill has said the inspections are some of the most hazardous of the new procedures put in place since the Columbia tragedy.

"If we make contact with the orbiter while we're doing this, I'm looking for another job," Hill said in the months leading up to the 12-day mission.

Astronauts Stephen Robinson and Soichi Noguchi tested tools and equipment they will use during three spacewalks. During the spacewalks, the pair will try out new repair techniques for the shuttle's tiles and delicate carbon panels; replace a gyroscope, which helps steer the space station; and install a storage platform on the station.

Two weather planes and more than 100 cameras documented Discovery's liftoff to help Nasa watch for any flying debris that could threaten the shuttle. Officials said they also received data from 176 sensors placed on the shuttle wings. Experts were analysing the sensor data and studying the photographic images frame by frame. Nasa officials said it was unclear if the debris spotted so far represented anything out of the ordinary. The shuttle fleet has sustained thousands of dings over the years.

USA Today

New cases spark global flu fears

Geneva, July 22 (Reuters): Indonesia's first human bird flu case, coupled with more birds dying elsewhere including Russia, are signs a long-dreaded global influenza pandemic may be approaching, the World Health Organisation (WHO) said today.

Health officials fear the virus will mutate and mix with human influenza, creating a deadly pandemic strain that becomes easily transmissible and could kill millions of people.

Margaret Chan, WHO's new director for pandemic influenza preparedness, said there had been no known sustained human to human transmission of the deadly virus, but called for stepping up disease surveillance among poultry and humans worldwide.

Indonesia this week confirmed its first death from the virus, which has so far killed more than 50 people since late 2003 in Vietnam, Thailand and Cambodia, roughly half of the known cases. An Indonesian government official was confirmed as having died of the H5N1 bird flu virus, but results of laboratory tests on his two young daughters who also died are still awaited.

An Indonesian worker vaccinates a chicken at a poultry farm near Jakarta. (Reuters)

"This is more evidence for us to be concerned about developments in the region," Chan said.

"This is perhaps the only time since 1968, which was the last pandemic, that we are getting signs, symptoms and warnings from nature ... More and more birds are dying in different parts of the world — this is the kind of signals, and early warnings that we are referring to."

Russia this week said it had discovered a disease in poultry in a remote village in Siberia, its first suspected case of bird flu. Around 300 birds died and specimens are being analysed.

Chan, a former health director of Hong Kong who helped contain its bird flu and Sars outbreaks of 1997, said the WHO's risk assessment of a global pandemic still stood at three on a scale of six.

"We need to be very vigilant and look for early signals or signs of sustained human to human transmission," she said.

Deep Impact on man's knowledge of universe

WARREN Leary
Washington, July 4

NASA SPACECRAFT Deep Impact lived up to its name on Monday when it slammed into a comet with such force that the resulting blast of icy debris stunned scientists with its size and brightness.

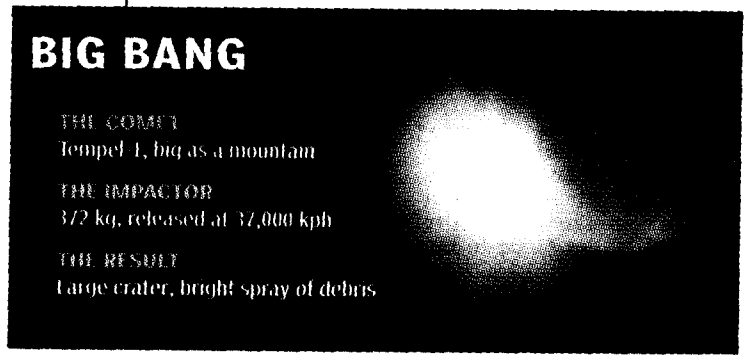
With the flyby stage of the two-part spacecraft watching from a safe distance, a 372-kg, copper-core 'impactor' smashed into comet Tempel 1 at 37,000 kph, sending a huge, bright spray of debris into space.

"The impact was spectacular. It was much brighter than I expected," said Michael A'Hearn, the project's principal scientist.

Culminating a six-month journey to a point 134 million km from Earth, the impactor guided itself to a sunlit point near the bottom of the mountain-sized comet where they collided with a force equal to 4 tonnes of dynamite.

Depending on the comet's composition, scientists speculated that the impact would have excavated a crater as large as a stadium or as small as a house. The blast was so bright that initial images did not reveal the size of the crater. This will be revealed in later images recorded by the flyby spacecraft.

"Obviously, it was a very big impact. Presumably, we have a large crater in one of those images that hasn't played back yet," A'Hearn said. A quick look at data streaming down to Earth indicates that the best is yet to come.



REUTERS

The purpose of the $333 million mission was to make the most detailed study of a comet to date, creating a crater that would emit some of the primal material that makes up its core. Scientists are interested in comets because they are believed to be remnants of the materials that had formed the solar system some 4.5 billion years ago.

The impact was observed by scores of telescopes at ground observatories, as well as Nasa's three observatories in Earth orbit, and other spacecraft.

Rick Grammier, the mission's project manager, said the encounter came off without a hitch. The flyby craft successfully monitored the impact from 8,500 km away. It emerged undamaged after passing within 500 km of the comet while ducking behind a set of shields designed to protect it from dust and other particles streaming from the comet.

"We have a healthy flyby spacecraft," Grammier said. It is particularly gratifying, he added, to have such success on the 4th of July, American Independence Day. "I actually hope it's made America proud," he said.

The battery-powered impactor separated from the flyby craft 24 hours before colliding with Tempel 1. The craft took increasingly detailed pictures with its telescopic camera as impact closed in, shooting its last image just 3.7 seconds before the collision.

The New York Times

See also Page 14

Losing weight can kill you, says research

A new study highlights how poorly the long-term health effects of dieting are understood.

Ian Sample

OVERWEIGHT PEOPLE who diet to reach a healthier weight are more likely to die young than those who remain fat, according to a study. The finding needs to be backed up by further research before sweeping changes are made to public health strategies, the authors warn, but it highlights how poorly the long-term health effects of dieting are understood.

It is proven that losing weight reduces the risk of heart disease and diabetes among the obese, but the new study suggests that dieting also causes physiological damage that in the long term can outweigh the benefits.

The authors stressed that very overweight people and those with weight-related illnesses should not be deterred from dieting, but added that researchers should in future consider the short-term advantages of weight loss against the potential long-term risks. "We need to study the effects of weight loss on the body much better than we have done so far," said the study's lead researcher, Thorkild Sorensen, of the Institute of Preventive Medicine at Copenhagen University hospital in Denmark.

The study, which was carried out in Finland, followed 2,957 overweight or obese people who had been screened to ensure they had no underlying illnesses. Overweight people have body mass indexes (BMIs) greater than 25, while obese people have BMIs greater than 30.

Each participant was questioned about his or her desire to lose weight in 1975 and again in 1981. Records of their weight and general health were kept for the next 18 years, during which 268 of the participants died. Analysis of the data showed that those who wanted to lose weight and succeeded were significantly more likely to die young than those who stayed fat.

"Healthy overweight or obese subjects who try to lose weight and succeed in doing so over a six-year period suffer from almost double the risk of dying during the next 18 years compared with subjects who do not try to lose weight and whose weight remains stable," said Dr. Sorensen. Those who gained weight also had a greater risk of dying young.

The researchers were unable to identify why the dieters were at a greater risk of dying younger, but believe it is caused by fat being lost from lean organs as well as other body tissues. "It seems as if the long-term effect of the weight loss is a general weakening of the body that leads to an increased risk of dying from several different causes," said Dr. Sorensen. "The adverse effects of losing lean body mass may overrule the beneficial effects of losing fat mass when dieting," he added.

The finding is supported by an earlier study by researchers at the U.S. National Centre for Chronic Disease Prevention and Health Promotion in Atlanta. It followed 6,391 overweight or obese people for nine years and found that those who had no intention of losing weight and even gained weight were least at risk of dying young. If the latest study is confirmed, it emphasises the need to prevent people becoming overweight and obese, the authors say.

"If people are overweight, their main priority should be to stop gaining weight and then work on losing some rather than chasing a low body mass index," said Tom Sanders, professor of nutrition and dietetics at King's College, London. "If you can stop people gaining weight in their 20s and 30s, it seems to have the best outcome in the long term."

Adult obesity has nearly quadrupled in Britain in the past 25 years with around 22 per cent now obese and three quarters overweight. A National Audit Office report into obesity in 2002 estimated that the condition cost the British National Health Service £500 million a year. —

Eat more vegetables to lose weight

New York, June 25

WOMEN WHO eat little or no meat are less likely to be overweight than their more carnivorous peers, according to a new study. The findings, say researchers, suggest that replacing some meat and other animal products with plant-based fare may help people control their weight.

The study of more than 55,000 Swedish women found that those who identified themselves as vegetarian or vegan tended to weigh less than meat-eaters, and were less likely to be overweight or obese. The vegetarian group included women who ate no meat, fish or eggs but did consume dairy products (lactovegetarians), as well as "semivegetarians," who said they sometimes ate fish or eggs. Vegans eat no animal products, including dairy.

In the study, self-proclaimed vegans were two-thirds less likely than meat-eaters to be overweight or obese, while the two vegetarian groups were about half as likely as meat-eaters to be overweight — even with other factors, such as age, exercise and total calorie intake, taken into account.

While this was not a weight-loss study, the findings do suggest that a plant-based diet may aid in weight control, according to P. Kirstin Newby, a researcher at Tufts University in Boston. But that doesn't necessarily mean shunning meat and other animal products, she said, noting that semivegetarians in the study had a lower risk of being overweight.

BODY TALK

The study, in the *American Journal of Clinical Nutrition*, included 55,459 healthy middle-aged and older women who were surveyed about their eating habits, weight and other health and lifestyle factors. A small percentage identified themselves as vegan or vegetarian.

Overall, vegans had the lowest average body mass index (BMI) — a measure of weight in relation to height — followed by vegetarians, then meat-eaters. While 40 per cent of meat-eaters were overweight or obese, only 25 to 29 per cent of vegetarians and vegans were, Newby and her colleagues report. The findings, they point out, run counter to the current "fad" of high-protein, low-carbohydrate diets.

That vegetarians are leaner than meat-eaters, according to the researchers, highlights the fact that not all carbohydrates are equal. A diet of fibre-rich carbs like fruits, vegetables and whole grains, they note, differs from one loaded with refined carbohydrates such as those in white bread and snack foods.

Reuters

Virus that kills cancer cells

Reuters
Washington, June 22

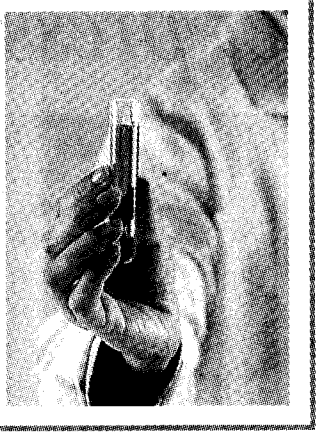
A COMMON virus that is harmless to people can destroy cancerous cells in the body, a study has found. US researchers said on Tuesday that this virus could be developed into a new therapy to treat cancer. The virus, called adeno-associated virus type 2, or AAV-2, infects an estimated 80 per cent of the population on an average but does not seem to have any known symptoms. Infected people do not seem any worse for it.

"Our results suggest that adeno-associated virus type 2, which infects the majority of the population but has no known ill effects, can kill multiple types of cancer cells but has no effect on healthy cells," said Craig Meyers, a professor of microbiology and immunology at the Penn State College of Medicine in Pennsylvania.

"We believe that AAV-2 recognises that the cancer cells are abnormal and destroys them. This suggests that AAV-2 has great potential to be developed as an anti-cancer agent," Meyers said in a statement.

He said at a meeting of the American Society for Virology

BODY TALK



that studies have shown that women who are infected with AAV-2 are less likely to develop cervical cancer if infected with a cancer-causing wart virus called HPV, than the frequency of infection in women uninfected by the AAV-2 virus.

AAV-2 is a small virus that cannot replicate itself without the help of another virus. But with the help of a second virus it can kill cells.

For their study, Meyers and colleagues first infected a batch of human cells with HPV, some strains of which cause cervical cancer. They then infected these cells and normal cells with AAV-2. After six days, all the HPV-infected cells died.

The same thing happened with cervical, breast, prostate and squamous cell tumour cells.

All are cancers of the epithelial cells, which include skin cells and other cells that line the insides and outsides of organs.

"One of the most compelling findings is that AAV-2 appears to have no pathologic effect on healthy cells," Meyers said.

"So many cancer therapies are as poisonous to healthy cells as they are to cancer cells. That often hampers treatment. A therapy that is able to distinguish between healthy and cancer cells could be less difficult to endure for those with cancer."

AAV-2 is being studied intensively as a gene therapy vector — a virus modified to carry disease-correcting genes into the body.

Gene therapy researchers favour it because it does not seem to cause disease or immune system reaction on its own.

JUN 2005 THE HINDUSTAN TIMES

Red meat increases risk of cancer

SARAH Boseley

INTERNATIONAL SCIENTISTS on Tuesday delivered a long-awaited verdict on red meat, concluding in a definitive study of the eating habits of half a million people that beef, lamb, pork, veal and their processed varieties such as ham and bacon, increase the risk of bowel cancer.

Those who eat two portions a day — equivalent to a bacon sandwich and a fillet steak — increase their risk of bowel cancer by 35 per cent over those who eat just one portion a week, the study found.

The World Health Organisation's international agency for research on cancer (IARC) called for everybody to eat more fish and less meat.

The Medical Research Council, Cancer Research UK and IARC funded the European prospective investigation into cancer and nutrition (Epic) study, which monitored the diets of men and women in 10 countries for five years.

It found that eating fibre, in the form of vegetables, fruit and wholegrain cereals, lessened the risk of meat eating and that fish, eaten at least every other day, was protective.

"People have suspected for some time that high levels of red and processed meat increase the risk of bowel cancer, but this is one of the largest studies worldwide and the first from Europe of this type to show a strong relationship," said Sheila Bingham, one of the authors, from the MRC Dunn Human Nutrition Unit in Cambridge.

"The overall picture is very consistent for red and processed meat and fibre across all the European populations studied."

Those who eat more than 160gm of meat a day are in the high-risk group. An average fillet steak weighs about 140gm and an average burger about 100gm. The smallest chipolata sausages weigh in at about 20gm each, but premium sausages are around 40gm, according to the British Nutrition Foundation.

The average Briton eats 93gm of meat a day, according to British Meat, which claimed there was no reason for most people to change their habits. "If you eat meat, you are not going to get cancer," said a spokesman.

The Epic study, published on Tuesday in the *Journal of the International Cancer Institute*, found that the risks of eating red meat were less in people who ate a lot of fibre from vegetables, fruit and wholegrain cereals.

Eating any sort of fish on a regular basis — at least 80gm every other day — had a protective effect, reducing the risk of bowel cancer by 30 per cent over those who ate fish less than once a week.

Although man has been eating red meat for thousands of years, it is the way in which we now eat it that could be the problem. "Meat used to be the relish and still is in Mediterranean countries. It is a treat. The bulk of the meal comes from the other things like carbohydrates and vegetables," said Professor Bingham.

Guardian News Service

No need to eat less salt

NINA GOSWAMI

London, May 29: Advice on reducing your sodium intake should be taken with a pinch of salt, according to the latest research. Not only is there no need to eat less of it but it can also be positively dangerous for some people's health.

Scientists across Europe have completed three studies which contradict a British government health warning that people should cut their intake to 6 g a day.

Research from the University Medical Centre Utrecht in the Netherlands, to be published this summer, showed that there was no material benefit from a lower intake.

Prof Deiderick Grobbee, a cardiovascular specialist and an author of the report, said: "If people stick within a range of moderate sodium intake, which we normally get from salt in our food, there is no material variation to the risk of mortality."

There was little to be gained, he said, by cutting salt for anyone on a typical Western diet who eats the equivalent of 16 g or three-and-half teaspoonfuls a day.

The independent research, known as the Rotterdam Study, involved almost 8,000 people in their fifties and above. Each person's sodium intake was estimated from a nightly urine sample and compared with their blood pressure over a month.

The findings showed that as long as their salt intake was moderate — no more than 16 g a day — there was an insignificant effect on blood pressure.

Excessive consumption, however, between 21 g and 27 g a day increased the risk of a stroke, although there was no causal link with cardiovascular problems such as heart failure.

SALT IS SAFE

Other scientists at the conference, organised by European Union salt producers, went further saying that the guidance to reduce salt intake could be dangerous to pregnant women and the elderly.

Prof Markus Mohaupt, from the Inselspital Academic Health Centre, Bern, in Switzerland, found that pregnant women with pre-eclampsia — that affects two in 25 pregnant women — could benefit from up to 20 g of salt a day.

Pre-eclampsia causes high blood pressure and can lead to still birth. The elderly are also at risk if they stick to a low-salt diet, according to Prof Ingo Füsgen, a cardiovascular specialist from Kliniken St Antonius, in Germany.

His findings showed that one in 10 of the older population suffered from sodium deficiency which could result in nervous disposition, hallucinations, muscle cramps and hip fractures.

THE DAILY TELEGRAPH

Bird flu plucks heart from rural life

FOR A GLOBAL CAUSE: *A nurse injects an experimental flu vaccine into a volunteer, a medical school student, during a clinical trial to test the effectiveness of the vaccine to combat avian influenza recently at University of Maryland School of Medicine in Baltimore, Maryland.* – PHOTO: AFP

Jonathan Watts

UONG BI (VIETNAM): Until last summer, Nguyen Thi Hanh used to watch flocks of ducks waddle across the road outside her house, holding up cars as they wandered about a tranquil village in which almost every family earned a major share of their income by raising fowl. Since a nearby outbreak of bird flu, however, the ducks have been slaughtered, so traffic now speeds through, while the village economy slips into reverse. Hanh's husband has given up chicken farming and taken up driving.

The erosion of the family's finances and lifestyle are among the many consequences of the avian flu pandemic in Vietnam, which is at the frontline of a global battle against a disease health experts believe could become more of a threat to humans than the respiratory illness SARS.

Bird flu has ravaged poultry farms across 10 Asian countries since late 2003. It has also jumped to humans, but nowhere has suffered as badly as Vietnam, where 36 of the 51 confirmed human fatalities have occurred. As well as transforming medical practices, challenging traditional methods of farming and rewriting countless restaurant menus, the H5N1 virus has ravaged the rural economy.

But though it is in the world's interest for Vietnam to control the disease, there has been little aid to help this impoverished country cope with a pathogen that kills more than half the people it infects.

Instead, the residents of Uong Bi village and tens of thousands of other Vietnamese farmers can only envy the billions of pounds that have poured into neighbouring countries affected by the Boxing Day tsunami. –

17 MAY 20[illegible] THE HINDU

Row over future of smallpox virus

U.S. scientists to genetically modify one of the the most lethal organisms

Sarah Boseley and Julian Borger

WASHINGTON: The U.S. scientists are awaiting World Health Assembly approval to begin experiments to genetically modify the smallpox virus, one of the most lethal organisms the planet has known.

Researchers have already been given the go-ahead by a technical committee of the World Health Organisation, which accepts the argument that the research could bring new vaccines and treatments for smallpox closer. This week the debate will pass for a final decision to the floor of the full assembly of the WHO, whose representatives from 192 member states begin a 10-day annual meeting in Geneva on Monday.

Campaigners, backed by some scientists, have launched a late attempt to stop the assembly approving GM experiments on smallpox. They fear that the experiments would make the use of smallpox in bioterrorism more likely, and point to the fact that the assembly itself agreed 11 years ago to destroy all stocks of the virus.

Serious risk

One of the relaxations of the rules would allow small pieces of the virus' DNA to be distributed to laboratories around the world. Opponents say there is a serious risk that the pieces could be used in an artificial reconstruction of the virus, to be used in biological warfare.

Donald Henderson, of Johns Hopkins University in Baltimore, United States, former director of the WHO's global smallpox eradication programme, says permitting the proposed experiments in an increased number of laboratories in today's world is unwise.

"The problem is that we have got a lot of people with a lot more talent working in biological laboratories around the world and a lot of them are very well-trained and the potential for mischief here is much greater," he said.

- **Researchers given already the go-head**
- **Hopes of vaccines, treatments**
- **Fear of use in bioterrorism**

Smallpox was eradicated as a disease in 1977. Since then stocks of the virus have been permitted to remain in just two secure laboratories — the U.S. government's Centers for Disease Control in Atlanta and the Institute for Viral Preparations in Moscow. Even so, they have not always been strictly under the control of the WHO. Russia in 1996 admitted that it had, without WHO permission, moved its stocks to Novosibirsk in Siberia.

Original date

The original date for destruction of all stocks was 1999, but both Russia and the U.S. dragged their feet. The WHO then set up the Variola (smallpox) Advisory Committee to give the WHO scientific advice on what should and should not be permitted. The committee, known as VAC, has gradually shifted the position away from destruction.

At its last meeting, in November, the committee recommended that the U.S. proposals for further experimentation on the live virus, including genetic modification, should be allowed.

Because of the sensitivity of the issue, the WHO's Director-General, Lee Jong-wook, reviewed the proposals. He rejected the recommendation to allow insertion of smallpox genes into related viruses, such as monkeypox , but allowed four other experiments. —

Cancer in your toothpaste?

29/4 Science & Technology

Subhendu Maiti & Agencies
Kolkata, April 23

NEXT TIME you buy a toothpaste from your neighbourhood grocery store, check the label where the name of the input ingredients is printed. If you come across the bacteria-busting agent triclosan in the toothpaste, think twice.

A recent research paper published in the US says the commonly-used chemical triclosan in toothpastes may cause oral cancer.

On its own, triclosan is safe. But, Professor Peter Vikesland of the Victoria Tech University found during research that when this chemical comes in contact with chlorine, it reacts to form carcinogen chloroform. And since all tap water supplied by the municipalities across the country contain a fair amount of chlorine, the harmless toothpaste that you use every morning could pose a major health hazard.

- A recent research says that toothpaste containing triclosan is carcinogenic
- Several stores in the UK have taken such products off their shelves and China has ordered a probe
- Nobody in India seems to be aware of the problem

Though this is a relatively new medical find, several countries have already taken note of the research. In the UK, many stores, including Marks and Spencers, have taken toothpaste containing triclosan off their shelves.

And in China, the government has formed a medical board to go into the problem.

But in India, most doctors are not even aware of Prof Vikesland's findings. Prof D.K. Daftari, an eminent oral pathologist with the Tata Institute of Fundamental Research, told *Hindustan Times*, "I am yet to go through the research paper, so it would not be proper to comment on the matter. I haven't heard of triclosan causing cancer."

Dr T.K. Pal, president of the Indian Dental Federation, said he is aware that many toothpastes contain triclosan, "but I am yet to come across oral cancer cases caused by the chemical".

When contacted, at least two manufacturers of toothpastes containing triclosan refused to comment on the issue. Another said it would ask its relevant department to go through the research paper.

24 APR 2005 THE HINDUSTAN TIMES

14 APR 2005 THE HINDU

Scientists world-wide race to destroy killer virus after alert

U.S. institute distributed sample kits to thousands of laboratories

GENEVA: The World Health Organisation issued a warning on Wednesday after a U.S. institute sent to thousands of laboratories samples of a lethal flu virus that killed up to four million people in the late 1950s.

The controversy revealed an apparent loophole in biosafety procedures, experts said.

"There is a slim but a real risk that this could spark a pandemic," said Maria Cheng, a spokeswoman for the WHO, explaining that many people around the world would have no protection if the virus were ever released from the high-security laboratories.

The virus, H2N2, killed between one million and four million people worldwide during the Asian influenza pandemic of 1957-58 before disappearing in 1968.

"As far as pandemics go, it (the event in 1957-58) was relatively mild. But if this were to recur it would have significant consequences for the public health system," Ms. Cheng said.

Samples in kits

The samples were included in kits used to regularly test the ability of the laboratories in 18 countries to identify strains of flu virus. Ninety per cent of the laboratories were in North America.

The virus was sent to laboratories in Belgium, Bermuda, Brazil, Canada, Chile, France, Germany, Hong Kong, Israel, Italy, Japan, Lebanon, Mexico, Saudi Arabia, Singapore, South Korea, Taiwan and the United States, the U.N.'s health agency said.

So far, laboratories in Canada, Hong Kong, Singapore and South Korea were known to have destroyed all the H2N2 samples they received, it said.

The agency's top flu expert, Klaus Stohr, said all the samples were expected to be destroyed by Friday.

A U.S.-based private institution, the College of American Pathologists, distributed the samples of H2N2 to 3,747 laboratories through the private Meridian Bioscience Inc in two batches, in October 2004 and February 2005.

The samples appeared to have been distributed deliberately and legally because of national differences in the hazard rating of the strain, Mr. Stohr told journalists.

Threat perception

"Legally that's fine, epidemiologically and looking at the risk assessment, it may have not been a good idea to do that," Mr. Stohr said. "It is certainly something that will have to be reconsidered in the future, definitely, and WHO will make recommendations," to ensure that the virus strain is given a higher hazard rating, he added.

The WHO said normally only circulating influenza virus strains to which people have been exposed in recent years should be sent out in testing kits.

It warned in a statement on Tuesday that people born after 1968 would probably have no or only limited immunity to the strain, which is not contained in current influenza vaccines.

The alarm was first raised by Canada's National Microbiology Laboratory after it detected H2N2 virus in a sample on March 25, leading to an alert issued by U.S. authorities through the College of American Pathologists on April 8.

So far, there have been no reports of accidental infection among laboratory workers, the WHO said.

On Tuesday, the WHO "requested that destruction of the H2N2 virus be confirmed and that any case of respiratory disease among laboratory workers be investigated and notified to national authorities."

A public announcement about the distribution of the virus had been delayed until destruction was well under way so to prevent it from falling into the hands of terrorists, Mr. Stohr said.

"There is a biosecurity risk and we did not want to arouse interest in a way that could provide access to others."

U.S. authorities and the U.S. Centres for Disease Control and Prevention in Atlanta were investigating the incident. — AFP

Diabetes pill hope

GARIMA SINGH

New Delhi, April 7: A pill for diabetics is just two to three years away — if everything goes according to the plan that Biocon chief executive and India's richest woman Kiran Mazumdar-Shaw has drawn up.

By the end of the year, Mazumdar-Shaw expects to file an application to investigate a new drug (INDA in pharmaceutical parlance) which would formally kickstart the process of developing a pill that could potentially free 32 million diabetics in India from the agony of regular insulin jabs.

"We hope to file the INDA by the end of this year. Clinical trials will begin early next year. It will, however, take two to three years before the drug hits the Indian market," Mazumdar-Shaw, chairman and managing director of Biocon India, **told The Telegraph**.

The pill is being developed in collaboration with Nobex of the US and is just one of several plans that Mazumdar-Shaw has devised to take the biotech company into the high risk but high rewards world of cutting-edge pharmaceutical research.

Mazumdar-Shaw: Magic cure?

The company, which launched its injectable insulin brand Insugen last year, has taken the competition to companies like Eli Lilly and Novo Nordisk, aided by its low drug-development cost, a fraction of what the global majors have to spend.

Developed over the last four years with an investment of nearly Rs 20 crore, Insugen has carved a new direction in the company's growth strategy. Biocon has now emerged as a branded formulation player from a mere supplier of active pharma ingredients.

While the domestic market for diabetes drugs is pegged at approximately Rs 220 crore, the size of the global market for such drugs is estimated to be Rs 22,000 crore.

Biocon is also focusing on developing drugs to treat cancer. "If everything goes well and we get a fast-track approval, then we might launch the drug early next year," Mazumdar-Shaw said.

In 2002, Biocon licensed a promising molecule — Thera CIM (h-R3) — from the Center of Molecular Immunology in Cuba. The pharma research major is at present testing the molecule for treating cancer of the neck and brain.

Biocon has five other oncology drugs in the pipeline, which include three vaccines to suppress relapses in cancer patients and two that target colon, breast and other forms of cancer.

Biocon has been keen to branch into new areas even as it focuses on its core area of statins (cholesterol busting drugs). Statins currently account for about 60 per cent of the company's overall revenues, but this is projected to recede when the other businesses start growing.

Right to die

Schiavo case falls in grey area

Does one's life belong to oneself, to society or to God? The modern view is that people should be empowered to make decisions about their own lives, but it is difficult to fully accept the implications of this, which is why the right to die is controversial. A further complication of this happened in the case of Terri Schiavo in Florida. She suffered brain damage in 1990 and fell into what is described as a persistent vegetative state where, according to doctors, she was breathing but had no real consciousness of her surroundings. She has been in this state for the last 15 years, and there is no possibility of revival. It is impossible to communicate with her and ascertain whether she wants to be on the feeding tube, her sole link to life. According to her husband, she had told him long ago that she wouldn't like to be kept alive artificially. Her parents report that she still responds to their voices, and is capable of facial expressions. Should her feeding tube be pulled?

The issue has been litigated at various levels between her parents and her husband for seven years; in every case, the court sided with her husband. In other words, instead of hanging on to life at any cost, she can die with dignity. At this point rightwing Christian politicians jumped into the fray, insisting courts and doctors were not a higher authority than God. Since we have no direct way of accessing God's will, it is implicit that such a view empowers the government as God's interpreter, a theological view not very different from that of the ayatollahs ruling Iran. President Bush pushed a law that would allow Schiavo's parents to sue in a federal Court to keep her alive, which was passed by a Republican-controlled Congress. Nevertheless the courts threw out the case again — the US is not Iran yet. Schiavo's feeding tube was pulled, and she was was able to end her vegetative existence. This is a very significant case, as medical technology now allows patients to subsist at the borderline between life and death indefinitely, without quite crossing it. Is life worth living at any cost, or does quality of life matter? The Schiavo case has highlighted the issue, and society must debate it.

THE STATESMAN

Hope of early detection of ailments

Indians track rogue genes

B.R. SRIKANTH

Bangalore, April 2: A group of scientists in Bangalore has found a key that could unravel one of the mysteries of life.

The scientists — in association with those from the US — have tracked down human genes that induce mental retardation and debilitating muscular conditions. The breakthrough could help in early detection of ailments and warn who will be susceptible to them.

As many as 43 new genes (all on the X chromosome, one of the two that determine sex) have been listed by researchers at the Institute of Bioinformatics, Bangalore, and the McKusick-Nathans Institute of Genetic Medicine, Johns Hopkins University, in the US.

"This is the foundation for the big step forward in prenatal diagnosis of congenital mental problems like the Down's Syndrome as well as muscular dystrophy and skeletal deformation," said Krishna Deshpande, the institute's director.

Down's Syndrome is a genetic condition which causes mild to moderate mental retardation and changes the facial profile. Muscular dystrophy weakens muscles and a stage comes when they slowly stop working.

"Perhaps, new tools could be devised to screen families with a history of such health problems. Our success could encourage others to analyse other chromosomes for genes that trigger other ailments," Deshpande added.

BANGALORE BREAK

•What have the scientists done?
They have identified 43 genes that cause mental retardation and debilitating muscular conditions

•How will it help us?
It could in the long run help in pre-natal diagnosis of mental problems. There could come a day when a woman is told soon after conception whether her child would be susceptible to conditions like Down's Syndrome or muscular dystrophy

Deshpande said the breakthrough had been published in *Nature Genetics*, a reputed journal that has stringent standards and screening procedures.

"When the human genome was sequenced, the scientific community had a very vague picture that prompted all scientists to study every chromosome and gene in detail. Though this (sequencing) was a very long-drawn and arduous task, different groups worked on it. Our team analysed the data in a meaningful way and that helped in the discovery of these genes."

Twenty-six scientists worked for over a year-and-a-half to list the genes.

Shreeharsh, one of them, said that apart from its crucial role in determining gender, the X chromosome could well be termed a storehouse of disease-causing genes.

"Our discovery could throw new light on mental retardation linked with genes or even unravel some genes that were not identified so far," he said.

The institute's chief scientific adviser, Akilesh Pandey, said: "This is the first critical analysis of an entire chromosome done by a group that was not involved in determining the chromosome's sequence. We did not start small. We wanted to prove that complete annotation can be done, and done in a way that lets you find new and unexpected things."

The team's comparative study of the human X chromosome and genetic data of chimpanzees, rats and mice helped in the discovery of the new genes, he said.

Pandey, also an assistant professor at Johns Hopkins University, said the discovery was "the acid test that bioinformatics efforts in India can be internationally competitive".

The Institute of Bioinformatics, a non-profit research organisation, has launched several collaborative research projects in human genetics and proteins from the time it was set up here in May 2002.

03 APR 2003 THE TELEGRAPH

টেরিকে ঘিরে বিতর্ক থামার লক্ষণ নেই

ওয়াশিংটন, ১ এপ্রিল: পনেরো বছর হাসপাতালের বিছানায় অচেতন। এর মধ্যে সাত বছরে কুড়িটি মামলা হয়েছে। মামলা হয়েছে, তাঁর বেঁচে থাকার অধিকার নিয়ে, বাঁচিয়ে রাখার ঔচিত্য নিয়ে। তিনি জানতেও পারেননি।

টেরি শিয়াভো জানতে পারেননি, ১৩ দিন আগে কখন পাকস্থলী থেকে নল খুলে নিয়ে তাঁর খাদ্য সরবরাহ বন্ধ করা হল। টেরি চিরনিদ্রায় চলে যাওয়ায় জানতে পারছেন না, তাঁকে নিয়ে আরও কত ঝড়ঝাপটা অপেক্ষা করে রয়েছে। শেষ ক'দিনে টেরির প্রাণশক্তি যত ঝিমিয়ে পড়তে থেকেছে, বিতর্কের ঝাঁঝ বেড়েছে ততই। টেরির বাবামা-ভাইবোন বনাম টেরির স্বামী, প্রশাসন বনাম আদালত।

দেশজোড়া আন্দোলনের ডাক দিয়ে স্বয়ং প্রেসিডেন্ট বুশ বলেছেন, "টেরির প্রতি যাঁদের সহানুভূতি রয়েছে, জীবনমুখী সংস্কৃতি গড়তে তাঁদের অনুরোধ জানাচ্ছি। সেখানে যেন প্রতিটি মার্কিনের জীবনের মূল্য সুরক্ষিত থাকে, বিশেষত যাদের জীবন অন্যের দয়ার উপরে নির্ভরশীল।" এক ধাপ এগিয়ে বিচারব্যবস্থার প্রতি জেহাদ ঘোষণা করে মার্কিন কংগ্রেসের নেতা টম ডিলে বলেন, "কথা দিয়েছিলাম, অসহায় টেরিকে মরতে দেব না।...উদ্ধত, দায়িত্বজ্ঞানহীন বিচারবিভাগ যে ভাবে নিয়ন্ত্রণের বাইরে গিয়ে কংগ্রেস এবং প্রেসিডেন্টের মতামত নস্যাৎ করেছে, তা মেনে নেব না।"

আইনের চোখে আপাতত বিজয়ী পক্ষে থাকা টেরির স্বামী মাইকেল শিয়াভোর আইনজীবী জর্জ ফেলস কাল তাঁর বিবৃতিতে বলেছেন, "শান্তি, স্বস্তি এবং স্নিগ্ধতার সঙ্গে টেরির মৃত্যু হয়েছে।" মাইকেলের মতে, টেরিও এটাই চেয়েছিলেন। উল্টো দিকে টেরির বোন বলেন, "টেরির যত্ন নেওয়ার দায়িত্ব ছিল তার কাছের মানুষদেরই। টেরির ভাগ্যে অবহেলাই জুটল।" 'প্রিস্টস ফর লাইফ সংস্থার মার্কিন কর্ণধার এবং ভ্যাটিকানের জনৈক কার্ডিনাল বলছেন, টেরিকে 'হত্যা' করা হয়েছে। "মার্কিন জাতি যে এমন একটা নৃশংস ঘটনা ঘটতে দিল, তাতে আমরা অত্যন্ত আহত বোধ করছি।"

ফেলসের কথায়, শেষ মুহূর্তে টেরির পাশে তাঁর বাড়ির লোকেরা ছিলেন না। শিন্ডলার পরিবার বলছে, তাদের থাকতে দেওয়া হয়নি। এখন টেরির ভস্মাবশেষ ফিলাডেলফিয়ার কাছে অজ্ঞাত স্থানে রাখা হবে। কারণ, মাইকেলের ভাইয়ের বক্তব্য, অন্যথায় শিন্ডলার পরিবার মিডিয়ার সামনে ফের হইচই বাধাতে পারে। দু'সপ্তাহ পরে আসবে অটোপসি রিপোর্ট। বোঝা যাবে, টেরির মস্তিষ্ক ঠিক কতটা খারাপ অবস্থায় ছিল। মৃত্যু না হত্যা, বেঁচে মরা না মরে বাঁচা সে তর্কের মীমাংসা অন্তত টেরির ক্ষেত্রে তার আগে হওয়ার নয়। মৃত্যুর পরেও টেরির ভাগ্য প্রকারান্তরে চিকিৎসকের হাতেই ঝুলছে। — এ পি, এ এফ পি

Schiavo's 'last words' fail to sway judge

Associated Press
Pinellas Park (Florida), March 26

AS TERRI Schiavo drew closer to death on Saturday, a state judge rejected another attempt by the brain-damaged woman's parents to reconnect her feeding tube, leaving the couple with little hope they could keep her alive.

Her parents, Bob and Mary Schindler, planned to appeal the ruling to the state Supreme Court later on Saturday, family spokesman Gary McCollough said. The high court last week refused to intervene for the Schindlers. Pinellas Circuit Judge George Greer rejected the parents' argument that Schiavo tried to say "I want to live" before her tube was removed March 18. They argued that she said "AHHHHH" and "WAAAAAAA" when asked to repeat the phrase.

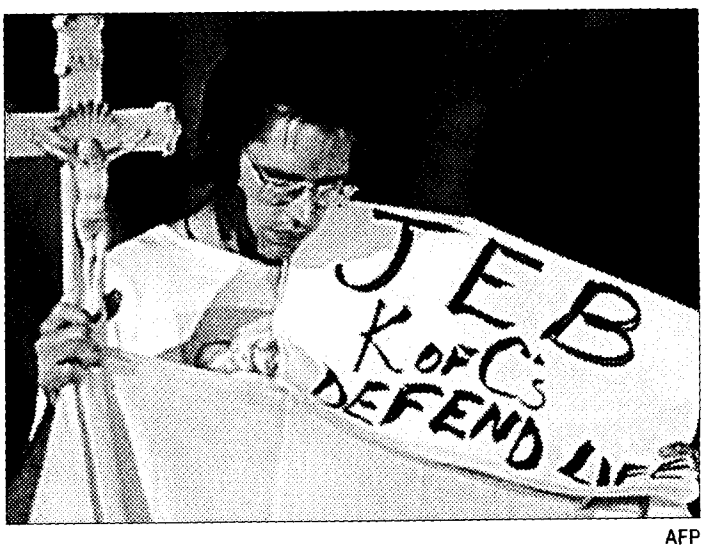
Greer said on Saturday that "all of the credible medical evidence this court has received over the last five years" suggests Schiavo's behavior is not a product of cognitive awareness. Doctors have said Schiavo's past utterances were involuntary moans consistent with someone in a vegetative state. When informed of Greer's rejection, Bob Schindler reacted with sombre sarcasm: "He did? Great surprise."

David Gibbs III, the Schindlers' lead attorney, said the Schindlers had ended their federal appeals less than a week after Congress passed an extraordinary law to let them take the case to federal court. "There is nothing that can be brought back to the court federally that will in any way help Terri," Gibbs said.

The Schindlers are still holding out hope for an unlikely intervention by Gov. Jeb Bush, who has said he has done everything in his power to take custody of Schiavo. As of Saturday afternoon, Schiavo had been without food or water for eight full days, and doctors have said she would probably die within a week or two of her feeding tube being pulled.

Her lawyers, however, have said Schiavo — whose dehydrated body has begun to shut down — may not survive the weekend.

"Time is moving quickly, and it would appear most likely — absent the state court stepping forward — that Terri Schiavo will pass the point that she will be able to recover over this Easter weekend," Gibbs said.



AFP

Mary Porta, a pro-life protester, prays outside the Woodside hospice where Terri Schiavo is lying brain dead.

Japan court raises more questions

A JAPANESE court ruling handing a suspended sentence to a doctor who removed a comatose patient's breathing tube and injected him with muscle relaxant is raising questions on when to end life support. Friday's ruling at a court in Yokohama convicted Setsuko Soda (50) of taking the life of a 58-year-old comatose man and neglecting her duties as a doctor, and sentenced her to three years in prison. Soda pleaded not guilty and said she had acted in line with the family's wishes by removing the breathing tube several weeks after the man was admitted with cardiac and respiratory arrest. The family denied asking her to remove the tube. The judge said it was too early to say the patient would not have recovered.

Reuters, Yokohama

THE HINDUSTAN TIMES

27 MAR 2005

STEM CELLS AND THE RELIGIOUS RIGHT

THE RECENT APPROVAL by the United Nations General Assembly of a non-binding declaration urging member states to ban all forms of human cloning — reproductive and therapeutic or experimental — brings to an end four years of debate on a highly contentious issue. In what may seem a symbolic victory for the Bush administration, the UNGA in its declaration found it "necessary to prohibit all forms of human cloning inasmuch as they are incompatible with human dignity and the protection of human life." Fortunately, there is no question of the UNGA requiring countries supporting therapeutic cloning to abandon their programmes. Having failed to muster sufficient support to pass domestic legislation banning all forms of human cloning, the Bush administration turned to the world body. It widened the scope of the U.N. debate proposed by France and Germany in 2001 on a global treaty to ban cloning of human beings by getting therapeutic cloning included, clearly with an eye on his domestic agenda.

The opposition to human cloning, even for therapeutic purposes, stems from the conservative religious sentiment that life begins immediately after conception and an embryo should be treated with the same respect as any human being. Harvesting stem cells from existing embryos or from those made with an express intent of harvesting stem cells involves 'killing' the embryos; according to the religious Right, this is tantamount to destroying life. Scientists disagree as the question 'when does life begin?' is very much a grey area. If killing embryos while harvesting stem cells is akin to killing life, what is the justification for the Bush administration to provide federal funding for research on a few stem cell lines created on or before August 9, 2001? A survey of 217 infertility clinics in the U.S has revealed that 175 of them had disposed of 'extra' embryos after treating patients. If for the U.S. Government it is acceptable to let these clinics destroy the extra embryos, why should it have any ethical problem with the harvesting of stem cells? If the extra embryos are being destroyed any way, what would be the justification for not letting scientists harvest stem cells from them? If the argument of the religious Right is accepted, reproductive endocrinology — the branch of medicine concerned with the study, diagnosis, and treatment of infertility and reproductive disorders — will be manacled and stopped in its tracks.

Conservative religious sentiment aside, there is an understandable apprehension that a maverick or rogue scientist may use the technology to clone human beings. The answer lies in clear-headed legislation and its strict enforcement. The United Kingdom and Singapore, for instance, have such laws in place. India too has banned reproductive cloning but strict enforcement is imperative to avert any potential misuse of the technology and the exploitation of women for securing eggs. There is a school of thought that adult stem cells harvested without 'killing life' are as good as embryonic stem cells in treating diseases. Yet adult stem cells are no match for embryonic stem cells in their versatility, in their ability to become any kind of human cell. This century is likely to see stem cells — embryonic as well as adult — emerge as a powerful tool to cure several diseases. The U.S. will be denying itself an exciting opportunity to be a part of this revolution if the Bush administration succeeds in banning all forms of human cloning at home. In consequence, progress in research will be slowed down by obscurantist thinking and millions of patients will be victims.

THE HINDU 26 MAR 2005

The politicising of Terri Schiavo

By Sidney Blumenthal

THE POLITICS of piety was transparently masked by Republicans attempting to make capital over the fate of Terri Schiavo, the brain-damaged woman who has been locked in a persistent vegetative state for 15 years and whose feeding tube was ordered to be removed by a Florida State judge at the request of her husband.

At last, the case that had been considered by 19 judges in seven courts and appealed to the Supreme Court three times, which refused to hear it, seemed resolved. But Republican Congressional leaders and President George W. Bush seized upon the court ruling as the moment for "a great political issue," as a memo circulated among Senate Republicans put it. The Democrats, it declared, would find it "tough" and the conservative "pro-life base will be excited." The President, who had hesitated for three days before making a statement on the tsunami in December, rushed from his Texas ranch back to the White House to sign the law.

The Schiavo case is unique among all medical cases, including 35,000 other people in persistent vegetative states. It is the only one in which the parents, who are not legal custodians, have been granted by an Act of Congress and the President a Federal Court review of State court rulings. Wresting jurisdiction from the State judiciary is an unprecedented usurpation, a travesty of the federal system, displacing the U.S. Constitution with an ill-defined faith-based "culture of life," enthroning by edict theology above the law.

In 1999, as Governor of Texas, Mr. Bush signed a State law permitting hospitals to cease artificial life support when doctors decide reasonable hope is gone, even if the patient's family objects. Now, two months into his second term as President, his major domestic initiative to privatise social security is doomed, his budget dead on arrival and his poll ratings down to 45 per cent approval, his low point.

The Republicans have cynical motives for trying to stop Terri Schiavo being taken off life support.

His brother, Governor Jeb Bush of Florida, has campaigned for years on the Schiavo holy crusade and has hired a prominent religious Right-wing leader as the lawyer to represent the State in the case. In their legal battle, the agonised Schiavo parents have made themselves financial dependents of two conservative groups, one anti-abortion, the other whose stated mission is to "confront and challenge the radical legal agenda advocating homosexual behaviour."

The Senate majority leader, Bill Frist of Tennessee, is a leading candidate for the Republican presidential nomination in 2008. For him, the Schiavo case is the beginning of the struggle for Mr. Bush's succession.

A heart surgeon before his entry into politics, the nameplate on the front door to his Capitol Hill office reads "William H. Frist, MD," and he signs correspondence "Bill Frist, MD." Amid the debate, after watching snatches of videotape of Ms. Schiavo, he proclaimed a diagnosis that she was not vegetative, contrary to that of the neurologists who have personally examined her.

The House majority leader, Tom DeLay of Texas, explained the Schiavo case as divinely inspired to rescue conservatives from martyrdom at a meeting of a Right-wing group. "One thing God has brought to us is Terri Schiavo," said Mr. DeLay. "This is exactly the issue that's going on in America, the attacks on the conservative movement against me and many others ... This is a huge nationwide concerted effort to destroy everything we believe in ... and we have to fight back." Like Mr. Frist, Mr. DeLay plays doctor. "She talks and she laughs and she expresses likes and discomforts," he declared.

"Come down, President Bush," said the anguished husband, Michael Schiavo. "Come talk to me. Meet my wife. Talk to my wife and see if you get an answer. Ask her to lift her arm to shake your hand. She won't do it."

Terri Schiavo cannot speak or gesture, but to true believers, even though she is silent, she is making sounds only they can hear. They see what they want in order to believe, and they believe in order to see. For the first time public policy in the U.S. is being made on the basis of pitting invisible signs *versus* science.

As in tribal cultures, a confederacy of shamans — Mr. Bush, Mr. Frist and Mr. DeLay — have appeared to conduct rites of necrophiliac spiritualism. Only the shamans can interpret for the dying and control their spirits hovering between heaven and earth. The public opinion polls show overwhelming disapproval of the Republican position. But these polls are just so much social science. In this operation, for the tribe, there is no way of proving failure. —

(Sidney Blumenthal is former senior adviser to President Clinton.)

Should Terri live?

George Bush's bid to keep a comatose woman alive must alarm us all

THE case of Terri Schiavo has convulsed America into debates on faith and science and on the structure of its federal system of laws and governance. And given the webcasts from her hospice bedside, deeper implications for how we define life and the will to live are already sparking off discussion elsewhere. Schiavo, now 41, slipped into coma fifteen years ago, when her heart stopped beating briefly causing what doctors have confirmed many times is permanent and extensive brain damage. In this unresponsive state, she has divided her family and her country. Joined by her parents, a most resolute Republican politico-legal team is invoking commitment to the "culture of life" and arguing that no amount of medical opinion can justify removing her feeding tube. Her husband, citing Schiavo's desire to die with dignity, last week won a long-fought legal battle, when a state court ruled that medical appraisal gave no reason to believe that recovery was possible. In a rare move, thereupon, the US Congress and President Bush returned to work on Sunday, to enable the case to move to a federal court.

At a time when a case for mercy killing is being made around the world, Schiavo's case would appear strikingly relevant. But clubbing them would be erroneous. Schiavo, on medical opinion, has no chance of recovery from her "vegetative" state; and no move is being made to take her life. Certainly, there are questions about the point at which life support systems can be withdrawn. But answers are in this case being sought on medical grounds, not subjective ones. Allowing a loved one to die with dignity is a difficult decision for families to take. The alarming aspect then is not just, as American observers note, the spectacle of the highest legislature and executive swinging into that process of decision-making. It is the idea of the leadership of the world's only superpower placing faith so wholesomely above science that must make us pause.

Invocation of exceptionalism by the US often irritates. But America does play an exceptional role today in scientific and medical inquiry, a role that benefits the rest of the world in myriad ways. So, when an administration uses a comatose woman to affirm its distrust of science — evidenced already in its repudiation of Darwinian theories of evolution and strictures against stemcell research — the rest of us must know, we are in a bit of a crisis.

INDIAN EXPRESS 23 MAR 2005

THE TIMES OF INDIA
16 MAR 2002
16 MAR 2002

The link between Ecstasy, depression and genetics

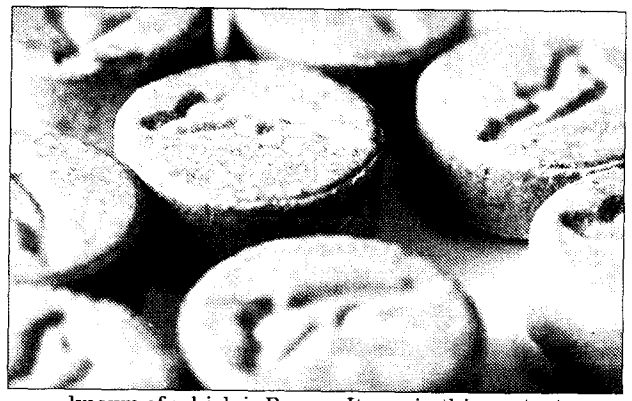
One of the most fashionable fields of medical science these days is pharmacogenomics. This is the study of how people with different genetic make-ups respond differently to particular drugs. The hope is that it will lead to high-precision prescription, with fewer side effects and better outcomes.

But what is sauce for the medical goose, is sauce for the recreational gander. Street pharmaceuticals, too, might be expected to have pharmacogenomic interactions. And so it turns out. In a study carried out on users of Ecstasy (MDMA as it is known to doctors, and E to its consumers), Jonathan Roiser and his colleagues at Cambridge University have shown that someone's risk of developing long-term depression as a result of taking Ecstasy depends critically on his genes. Their results are published this month in the American Journal of Psychiatry.

Ecstasy works its magic by affecting the concentration of a substance called serotonin in the brain. This molecule is a neurotransmitter (a chemical messenger that carries signals from one nerve cell to another) that modulates mood and emotion. Once it has done its job, it is sucked back into the cell that made it by a protein called a serotonin transporter. This process both modulates the signal and conserves supplies of the chemical. Ecstasy works by disabling the transporter protein, and at the same time opening the floodgates so that all the brain's serotonin is released in one glorious gush.

Serotonin transporters, however, come in two varieties—the result of there being two versions of the gene that encodes them. These varieties are known as long and short, and since everyone has two serotonin-transporter genes, one inherited from each parent, a brain may have only long transporters, only short ones, or a mixture of the two.

Previous research has s hown that having even one copy of the short gene makes a person more likely to suffer depression after a stressful event, such as losing a job. It is also known that those with the short version respond less well to a class of anti-depressants called selective serotonin reuptake inhibitors (SSRIs), the best known of which is Prozac. It was in this context that Dr Roiser wondered if Ecstasy users who had inherited the short form were at heightened risk of depression, too. Dr Roiser and his colleagues invited 66 heavy users—people who had taken the drug at least 30 times—to participate in their study. These volunteers agreed to abstain from their pleasure in the three weeks prior to the tests being carried out so that the effect of the drug itself, or its immediate aftermath, were not accidentally measured. For comparison, they asked 28 people who had never taken illegal drugs to join in and, for good measure, they had 30 regular cannabis users as well.



The team employed two well-known indicators of depression to evaluate their subjects. One was a standard questionnaire, known as the Beck Depression Inventory, that taps into depressive thinking. The other was the Affective Go/No-Go test, which is done on a computer. This measures how much influence happy or sad words have on how quickly or accurately a person performs a task. Typically, healthy people respond faster following happy words, while depressed people respond faster after sad words. The researchers also took blood samples to determine what kinds of serotonin-transporter genes their volunteers had inherited.

Using the depression inventory, the team found that people who employ Ecstasy regularly, and who have two short versions of the gene, are significantly more likely to suffer from mild or serious depression than the others. Importantly, the double-shorted folks who did not use Ecstasy were not more likely to have depression, and neither were double-shorted cannabis users.

The Go/No-Go task also indicated depression in Ecstasy users with short versions of the gene and in this case, just one short gene was enough to confer increased risk. Again, people with short genes who had not used the drug were unaffected, even if they used cannabis. The researchers therefore think that those with the short variant are especially vulnerable to the effects of the drug.

Conversely, those who are long on serotonin transporters seem to be at no added risk of depression from their use. That leads to two conclusions. One is that prescribing SSRIs for Ecstasy-induced depression probably won't work, for pharmacogenomic reasons. The second is that if Ecstasy were a legal drug, the knowledge Dr Roiser has revealed would surely lead to testing kits, so that users could check their vulnerability. Perhaps it ought to anyway. The Economist

ANADABAZAR PATRIKA 23 FEB 2005

অণুবীক্ষণে বিবর্তন ঘটালেন তরুণ স্কুলশিক্ষক

বিমল বসু

লাজুক চেহারা। কথাবার্তায় বিনয়ী। জীববিজ্ঞানের ডক্টরেট। পেশায় স্কুল শিক্ষক। এই পর্যন্ত বর্ণনায় তেমন অসাধারণ কিছু নেই। আপাত সাধারণ এই তরুণ যখন মুঠোয় ধরে কিঞ্চিৎ স্থূল-দর্শন কৌটো আকৃতির একটি যন্ত্র দেখিয়ে বলেন, 'প্রচলিত অণুবীক্ষণের সঙ্গে এটি জুড়ে তার বিবর্ধন-ক্ষমতা ১০ হাজার গুণ পর্যন্ত বাড়ানো সম্ভব,' তখন চমকে যেতেই হয়। ব্যাপারটা আরও চমকপ্রদ এ কারণেই যে, উদ্ভাবক এর উপরে ভারতীয় পেটেন্টও পেয়ে গিয়েছেন। পেটেন্ট নম্বর: ১৯২৩২১, তারিখ: ০৩-১২-০৪। যন্ত্রটিকে 'অ্যান ইম্প্রুভড ম্যাগনিফিকেশন ডিভাইস' বলে অভিহিত করে পেটেন্ট অফিস ২০ বছরের জন্য মেধাস্বত্ব মঞ্জুর করেছে উদ্ভাবক অতনু ভট্টাচার্যকে।

যন্ত্রটি দেখতে ও গঠনে বেশ সরল। একটি কাঠের গোল কৌটো, উপরে নীচে ছোট ছোট ছোট দু'টি ধাতব নল লাগানো, যার একটি প্রচলিত অণুবীক্ষণে আইপিসের জায়গায় ঢুকিয়ে দেওয়া হয়। বিপরীত দিকের নলের উপরে লাগানো লেন্সে চোখ রেখে দেখতে হয় অণুবীক্ষণের নীচে রাখা বস্তুর প্রতিবিম্ব। কৌটোর ভিতরে তলদেশে ছোট ছোট তিনটি গর্তের মধ্যে রয়েছে দু'টি করে লেন্স। কৌটোটি ঘুরিয়ে ঘুরিয়ে এক এক বিবর্ধন ক্ষমতার লেন্সকে নলের উপরে লাগানো লেন্সের সমরেখায় আনলেই বস্তুটির ভিন্ন ভিন্ন মাত্রার বিবর্ধিত চেহারা দৃশ্যমান হয়। এই ভাবে লেন্সের সমন্বয় পাল্টে ১০ হাজার গুণ পর্যন্ত বিবর্ধন সৃষ্টি করতে পেরেছেন অতনু।

অতনু ডিহি বাগনান কে বি রায় উচ্চমাধ্যমিক স্কুলে জীববিজ্ঞান পড়ান। এম এস সি করে শিক্ষকতায় আসেন, বছর ১৫ আগে। বর্ধমান বিশ্ববিদ্যালয় থেকে ডক্টরেট করেন। পি এইচ ডি গবেষণা করার সময়েই তাঁর মনে হয়,

অতনু ভট্টাচার্য। — তপন দাশ

প্রচলিত কম্পাউন্ড মাইক্রোস্কোপে, তা সে যতই উন্নত হোক, মেরেকেটে দেড় হাজার পর্যন্ত বিবর্ধন সম্ভব। অর্থাৎ এর নীচে জীবাণু বা অন্য কোনও সূক্ষ্ম বস্তু রাখলে নিজস্ব আয়তনের তুলনায় তা দেড় হাজার গুণ পর্যন্ত বড় দেখায়। অণুবীক্ষণের এই বিবর্ধন ক্ষমতা আরও কয়েক হাজার গুণ বাড়ানো গেলে, গবেষণায় তো বটেই, প্যাথোলজির পরীক্ষাতেও বড় রকমের পরিবর্তন আসবে। বিভিন্ন আণুবীক্ষণিক বস্তুর আরও নিখুঁত শনাক্তকরণে সুবিধা হবে।

এর পরেই শুরু 'ব্রেন স্টর্মিং'। প্রথমে খাতায় কলমে। প্রচলিত অণুবীক্ষণে থাকে দু'দফায় লেন্স-সমষ্টি। অণুবীক্ষণ নলের নীচে যে লেন্স থাকে, তার নাম 'অবজেক্টিভ', যার নীচে একটি মঞ্চের উপরে রাখা হয় 'স্পেসিমেন' বা দ্রষ্টব্য বস্তুকে। নলের উপরে থাকে 'আইপিস', যেখানে চোখ লাগিয়ে ওই বস্তুর বিবর্ধিত প্রতিবিম্ব দেখা যায়। এই বিবর্ধন অবজেক্টিভ, আইপিস উভয়ের মাধ্যমেই ঘটে থাকে। অতনু ছবি এঁকে এঁকে নানা ভাবে ওই দুই লেন্সের মাঝখানে বিভিন্ন জায়গায় আরও একাধিক লেন্স বসিয়ে অঙ্ক কষে বিবর্ধন বাড়ানোর উপায় বার করলেন। প্রচলিত মাইক্রোস্কোপকে ঠিকঠাক রেখে কেবল আইপিসটি সরিয়ে তার জায়গায় বসিয়ে দিলেন নিজের উদ্ভাবিত যন্ত্রটি। যা আসলে এক বহুমুখী আইপিস, বিজ্ঞানের ভাষায় 'ইম্প্রুভড ম্যাগনিফিকেশন ডিভাইস'।

'৯৮ সালের জুনে আবেদন করে পেটেন্ট মঞ্জুর সংক্রান্ত শংসাপত্র কয়েক দিন আগে পেয়েছেন অতনু। ইচ্ছে এ নিয়ে আরও গবেষণা করা ও বাণিজ্যিক ভাবে এর উৎপাদনের চেষ্টা চালিয়ে যাওয়া। এ জন্য শীঘ্রই সি এস আই আরের সঙ্গে যোগাযোগ করছেন। কোনও সংস্থা যদি বাণিজ্যিক উৎপাদনে এগিয়ে আসে, তা হলে তাদের সঙ্গে কথা বলতেও প্রস্তুত তিনি। আলোকীয় অণুবীক্ষণ উদ্ভাবনের পরে ৫০০ বছরে যন্ত্রটির বিবর্ধন-শক্তির তেমন অগ্রগতি ঘটেনি। এক তরুণ বাঙালি শিক্ষকের এই উদ্ভাবন বিজ্ঞান জগতে একটি বড় ঘটনা, সন্দেহ নেই।

Killing me sweetly...79.4 m diabetic cases within 25 yrs

By Arun Kumar Das/TNN

New Delhi: It's a silent disease and has got India in its grip. By 2030, India will have 79.4 million diabetics, projects the WHO. That's more than twice the number today over 35 million cases. No wonder India is called the diabetic capital of the world.

Bangladesh and Pakistan have 3.2 million and 5.2 million cases respectively. China follows with 20.8 million cases and the US with 17.7 million. In fact, South Asians, says Dr A Mittal, an endocrinologist, are genetically more prone to insulin resistance than those from other regions. And if we are far ahead of China it is thanks to our food habits and lifestyle. "There are more diabetes cases in urban populations than in rural because of the fast food culture and less physical activity," he says.

Though a National Urban Diabetes Survey in 2000 by a group of doctors found Hyderabad topping the list (16.6% of those surveyed had diabetes), followed by Chennai (13.5%) and Bangalore (12.4%), the incidence of diabetes in most metros and cities of India presently is 10-15%, says Mittal.

Delhi alone has some 15 lakh cases, says Dr Ashok Jhingon, chairman, Delhi Diabetic Research Centre. "What's disturbing is that more and more children are getting affected by it." According to a 2000 survey, 3,800 children had diabetes. Another survey is being held in 300 schools presently.

What is scary is that diabetes is also related to other life-threatening diseases. Dr S K Wangnoo, senior endocrinologist, Apollo Hospital, says, "More than 80% of deaths in those suffering from strokes, heart and kidney failure are directly attributed to diabetes."

So what is this killer disease? Diabetes is caused by the absence/decrease of insulin. There are two types of diabetes Type-I which is insulin dependent and generally occurs in the 3-25 years age group and Type-II which is not dependent on insulin.

Diabetes occurs when anti-bodies are found against beta cells of the pancreas, the organ producing insulin. This stops insulin production as in Type-I diabetes. Type-II diabetes generally occurs in adults who have only small quantities of insulin in their body or whose pancreas do not function properly. In some cases, viral infections destroy the beta cells.

The pressing need for tackling this disease was underscored by Union health secretary, P K Hota who says, "We will soon launch a National Diabetic Control Programme to deal with the issue."

DIABETES: SILENT MALAISE

Cities with the highest diabetic populations
Figures in (%)
Source: National Urban Diabetic Survey (2000)

Hyderabad	16.6
Chennai	13.5
Bangalore	12.4
Kolkata	11.7
Delhi	11.6
Mumbai	9.3

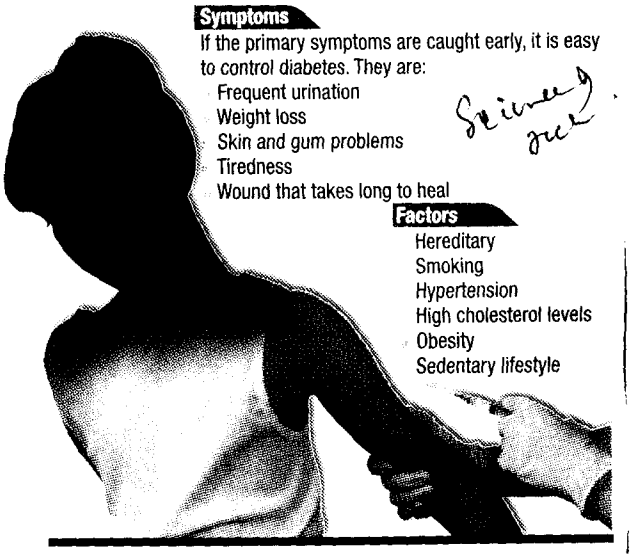
Symptoms

If the primary symptoms are caught early, it is easy to control diabetes. They are:

- Frequent urination
- Weight loss
- Skin and gum problems
- Tiredness
- Wound that takes long to heal

Factors

- Hereditary
- Smoking
- Hypertension
- High cholesterol levels
- Obesity
- Sedentary lifestyle



What is surprising is that despite the seriousness of this problem no surveys have been done by the ministry. Hota says, "The ministry will collect state-wise prevalence of diabetes by commissioning the job to some agencies."

Whether the national programme takes off or not waits to be seen. Senior endocrinologist and chairman, Delhi chapter, Research Society for the Study of Diabetes in India, Dr S V Madhu, says, "The plan for this programme was mooted way back in 1995. However, barring a few workshops, no concrete action has been taken. The government should view this malaise seriously. Diabetes is assuming an epidemic form and should be included in the list of diseases requiring top priority. Unless drastic steps are taken, it'll be difficult to contain it."

Wangnoo says the need of the hour is to launch a massive awareness campaign. "Diabetes control should be part of the curriculum in schools so that children too are equipped to deal with it."

Yoganand Shastri, Delhi's health minister, says, "We had recently launched a week-long campaign 'Fight Obesity, Prevent Diabetes'. We have also waived the sales tax on insulin. However more concerted steps are needed to fight this

THE TIMES OF INDIA

13 FEB 2005

India begins Aids vaccine trials at Pune

Joins Global Initiative By Starting Phase I Clinical Trials

By Siddhartha D Kashyap/TNN

Pune: India on Monday joined the global initiative to fight the Aids crisis by starting the phase I clinical trials of an "investigational" vaccine candidate on human beings at the National Aids Research Institute (Nari) here.

"Today will be marked as one the most important events in the history of India and the whole world," Union science and technology minister Kapil Sibal said. He expressed the hope that though the entire process of trials will take around 8-10 years, the country will be among the front-runners in developing an effective Aids vaccine.

Ram

While three of the 34 volunteers were administered with the injectable vaccine candidate named tgAAC09 (recombinant adeno-associated viral vector), Union health and family welfare minister Anbumani Ramdoss in New Delhi announced that similar phase I trials with the same vaccine candidate in Belgium and Germany, which have recently been completed, have generated "excellent safety data records."

The vaccine candidate is being developed by a Pune researcher—Dr Pervin Anklesaria—at the Seattle-based Targeted Genetics Corporation, a biotechnology company developing gene therapy products for the treatment of acquired and inherited diseases.

The mandatory regulatory and ethics committee approvals for conducting the clinical trials of the Aids vaccine were sanctioned earlier last month. Nari's officer in-charge, Dr Ramesh Paranjape, said both the drugs controller general of India (DCGI), the expert committee on genetic engineering, besides the Union health ministry's screening committee, have given the approvals for the clinical trials.

Principal investigator of the trials, Dr Sanjay Mehendale from Nari said during the phase I trial, some volunteers will be injected with tgAAC09 in the upper arm, while others will receive an inactive substance called a placebo. "Neither the volunteers nor the clinicians working with them will know who received tgAAC09 or the placebo until after the study finishes," he added.

The phase I trials, according to president and CEO of the International Aids Vaccine Initiative (Iavi) Seth Berkley from New York, will "tentatively" take about a year and half, before a decision for the next phase can be taken.

In a four-centre live video conference, between Pune-Bhosari-Delhi and New York, Sibal said the start of the vaccine trials in India is a step in the right direction. "From the first case in 1986, we have 5.1 million cases today alone in India," he said, adding that 68 new cases of infection are reported every hour.

THE TIMES OF INDIA 08 FEB 2005

Scientists replicate brain cells

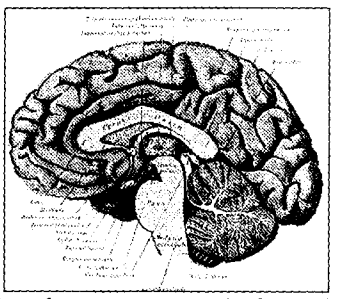
By Jonathan Leake

Scientists have successfully grown human brain cells in the laboratory for the first time and used them to repair the damaged brains of head-injury victims.

The breakthrough brings new hope in the search for therapies not only for accident victims but also for those suffering the effects of strokes, Alzheimer's, Parkinson's and a range of other degenerative conditions.

The researchers emphasise the research is experimental, but it suggests there may one day be hope for spinal injury victims. In the initial experiments, a man given the cultured brain cells apparently regained the ability to walk. The research was carried out in China by Professor Zhu Jianhong of Fudan University hospital, who will announce the results in London later this month.

Professor Stephen Minger, director of the stem cell biology laboratory at the Wolfson Centre for age-related diseases at King's College London said, "If the initial results prove accurate, then this has huge implications for new treatments."



Scientists have long recognised that if they can find a way to grow neurons, the cells that comprise the functional parts of the brain and spine, then they will be able to treat a wide range of currently incurable conditions. That is because in adult humans such cells have almost no ability to divide, grow and replace themselves as they die off through disease, injury or old age. By contrast, most other tissues, such as skin or muscle, can repair and rebuild themselves.

Scientists have tried to find a ways to enable neurons regain the ability to divide, grow and repair themselves. The discovery of stem cells, which have the potential to divide and grow into almost any kind of specialised cell, prompted new hope.

However, all previous attempts to use these to grow brain cells have failed due to difficulty in obtaining fresh brain cells to work on, since many groups had to use samples from dead bodies. Zhu is, however, understood to have obtained his brain samples from the accident victims from the hospital where he works. He experimented with a range of culture mediums and growth factors—hormones that encourage cells to divide and grow—and found his approach had worked.

He grew several million cells that he transplanted into a patient with a serious head injury, by drilling tiny holes into the skull and placing several clumps of cells around the injury site.

Brain scans showed the cells had grown and integrated with the patient's surviving brain cells to help them recover abilities lost through the injury. The Sunday Times

Migraine linked to hole in heart

Guardian News Service
London, January 17

>> HEALTH TALK

Thousands of migraine sufferers may have holes in their hearts as well as pains in their heads, doctors said yesterday.

And fixing those heart defects might just offer the best hope of a cure for the headache misery caused by some forms of the condition. A relatively simple cardiac procedure that has been used to repair the hearts of small children, divers with the bends, and stroke patients is to be tested for its migraine-solving potential on volunteers at British hospitals.

If the technique is proven to work, it will end migraines for only a minority of the estimated 6 million sufferers in this country; but it could pave the way for understanding of the causes for the debilitating superheadaches.

Part of the problem in some migraines, researchers believe, is linked to a common defect in the heart called patent foramen ovale, or PFO. As many as one in four people may suffer from this problem but many will never know it.

But those who suffer from migraine with aura, the type that causes visual disturbance and pins and needles — about one in six of all sufferers — are thought twice as likely to have PFO.

Cardiac and migraine specialists have been excited by reports from migraine sufferers among divers and stroke patients who have undergone procedures to put right their PFOs. These suggest that the headaches have disappeared or been hugely reduced after they have had a hole between their hearts' upper chambers repaired. The supposition is that ensuring blood going through the heart is filtered through the lungs on the way to the brain, instead of bypassing that step, removes chemicals that are thought to play a prime part in causing migraines.

Doctors are now appealing for volunteers. The trial will include only those who have migraine for at least five days a month and have migraine with aura. They will also have a large PFO, around a centimetre across, so will have to undergo tests to establish this first.

The operation, taking less than an hour, is carried out under light general anaesthetic. A tube is inserted through a vein in the groin and worked through the blood vessels into the heart, before the patch is dispatched through the tube and over the hole. Half the chosen volunteers will not undergo the procedure, being left only with a nick in the groin. These patients and those monitoring the trial will be unaware of who had sham operations until the migraine results are checked. However, the patients who did not have the operation will be offered the real thing if the trial delivers good results.

The checks for migraine will not begin until three months after the procedures to give tissues time to cover the patch. But then, the researchers hope, many patients will be free of any attack for at least three months. While one in four people is thought to have a PFO, only 1% to 2% have a large one.

Prevalence might be twice as common in those who have migraines. Foetuses in the womb have overlapping flaps between the heart's chambers to help blood and oxygen circulate before the lungs have developed. After birth these should fuse into a solid wall called a septum, although often they do not. Many people will remain unaware they have a PFO, but if the flaps opens to leave the hole, this may allow venous blood to enter arteries in the brain.

INDIAN EXPRESS 18 JAN 2005

THE TELEGRAPH

Scientist appeals to parents not to give cellphones to kids below the age of eight

Ring of warning for children with mobile

NOT SAFE: A child with a mobile

AMIT ROY

London, Jan. 11: Parents should not give mobile phones to children aged eight or under because "I don't think we can put our hands on our hearts and say mobile phones are safe", the scientist acknowledged in Britain as the world's leading authority on the "health implications" of using hand-held sets said today.

There have long been worries about the effects of radiation from mobile phones, especially on the tender brains of young children, but today's report by Professor William Stewart, the chairman of the National Radiological Protection Board, goes further than previous warnings.

Stewart urged parents to play safe. "When you come to giving mobile phones to a three to eight-year-old, that can't possibly be right," he said.

He recognised that in a society, where both parents were often at work when children returned from school to an empty house, there were worries about their security.

"If you have a teenager and you feel they can benefit in terms of security by having a mobile phone, it is a personal choice, it is a personal decision, although mobile phones have not always helped on that basis," he observed.

But he condemned parents who allowed very young children to use mobiles.

"But if mobile phones are available to three to eight-year-olds I can't believe for a moment that can be justified," Stewart asserted. "What about kids from eight to 14 years? I believe that is a judgement that parents have to make but they have to have the evidence available to them."

He added: "My belief is that they should take a precautionary approach and that they should use them for as short a time as possible and they should use text messaging as much as possible."

The problem for Stewart is that mobile phones are today not only big business with a bewildering array of designs in the market but they are coming to be treated as desirable fashion accessories by the young. The use of personalities such as footballer David Beckham to sell a particular brand has helped to render their image "cool" among the impressionable and the gullible.

CONTINUED ON PAGE 7 ▶

Cell alarm for children

▶ FROM PAGE 1

Matters have come to such a point that children are now routinely subjected to street assaults as thefts of mobile phones have soared. Many teenagers also change their mobiles every six months.

The Financial Times recently noted — approvingly — that India had recorded a milestone because the country now had more mobile phones than fixed landlines — 44.9 million to 43.9 million. (The UK has 40 million mobiles for a population of just under 60 million).

Sunil Mittal, the chief executive of Bharti Televentures, told the paper: "In India, mobile phones are for ordinary people and fixed line phones are for the rich. We used to think it was the other way round."

Today, Stewart pointed to emerging evidence that suggested possible health implications of using mobiles. "All of these studies have yet to be replicated and are of varying quality but we can't dismiss them out of hand. This is still a relatively new area and the divergent views show how more research is needed."

Four years ago, Stewart chaired another study on mobile phones, which found no substantiated evidence that emissions from handsets were harmful. Today's report came to a similar conclusion that "there is no hard evidence at present that the health to the public, in general, is being affected adversely by the use of mobile phone technologies".

However, he admitted he was "more concerned" about the implications than five years ago.

He also raised new concerns about the siting of mobile phone masts near schools — something which has provoked many parents in recent years to protest that such equipment causes cancer among children. According to Stewart, "emissions from mobile phone masts are a small percentage of the emissions that one gets from a mobile phone". But he added that from the evidence he would suggest that they were not sited near schools.

It was announced today that a company, which launched the UK's first mobile phone specifically designed for children, was suspending sales. The British firm Communi8 said its decision followed concerns raised by Stewart's report.

Adam Stephenson, the marketing director at Communi8, said: "We absolutely do not want to damage children's health. We have decided to suspend sales of the MyMo pending a chance to look at the Stewart report in detail."

A spokesperson for the department of health said: "We continue to advise a precautionary approach to mobile phone use in under 16s. The government takes concerns about possible health effects from mobile phones and mobile phone base stations seriously. And that is why the government, jointly with industry, commissioned a £7.4 million research programme to increase the understanding of the possible health effects of mobile phones — a recommendation of the Stewart report."

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Earth ringing like a hard-hit bell

OUR BUREAU

Jan. 9: When the earth is "ringing like a bell", shouldn't its inhabitants be swinging?

Not quite. Australian scientists said the movement is imperceptible to all but the most sensitive equipment.

Much of the earth is still "ringing like a bell" two weeks after the December 26 earthquake that triggered tsunamis around the Indian Ocean killing over 150,000 people, the scientists said.

It is more like vibration than ringing, really, and it may continue for weeks.

Australian National University scientists said hyper-sensitive gravity-measuring equipment had picked up the reverberations, a rare seismic event.

"These are not things that are going to throw you off your chair, but they are things that the kinds of instruments that are in place around the world can now routinely measure," said Herb McQueen, of the university's earth sciences research school.

"It is certainly above the background level of vibrations that the earth is normally accustomed to experiencing."

"Ringing like a bell" that had been forcefully struck is the language he used to describe the phenomenon, recorded at the Mount Stromlo observatory in Canberra in the aftermath of the magnitude 9 earthquake the day after Christmas.

"(It) corresponds to about a millimetre of vertical motion of the earth," he said. "The early signals were much stronger."

Immediately after the quake, the oscillation was probably in the 20 to 30 cm motion range that is typically generated in the earth by the movements of the sun and moon.

"This particular earthquake, because it was 10 times larger than most of the recent large earthquakes, is continuing to reverberate," McQueen said.

"We can still see a steady signal of the earth vibrating as a result of that earthquake two weeks later. From what it looks like, it appears it will probably continue to oscillate for several more weeks."

Just after the quake, US scientists said it might have permanently accelerated the earth's rotation — shortening days by a fraction of a second — and caused the planet to wobble on its axis.

They also said it had permanently altered the map of Asia by moving some small islands up to 20 metres. There is a dispute among scientists whether there have been shifts or tilts, including in the Andaman and Nicobar Islands.

Scientists may say the swing cannot be felt, but the ground beneath our feet has not stopped shaking since December 26.

This evening, there was an earthquake measuring 4.4 on the Richter scale in Japan. The Andamans have not had a respite from tremors for the past two weeks.

Nature-caused misery today also visited Europe, which lost hundreds of vacationers to the tsunami. Powerful winds and heavy rain swept across northern Europe overnight from Britain to Russia, leaving at least 13 dead, inundating areas of Britain and suspending key air and sea transport.

WRITTEN WITH AGENCY REPORTS

PM's 6-POINT SCIENCE PROGRAMME

Scientists put on notice

Surajit Dasgupta & Anil Rana in Ahmedabad

Jan. 3. — In a virtual wake-up call, the Prime Minister told scientists today that they could not remain "silent witnesses" to such disasters as tsunami. Inaugurating the 92nd session of the Indian Science Congress here, Dr Manmohan Singh said scientists must enhance their capability to predict.

"Science and technology must play a greater role in our strategy to address the problems of mitigation and management of the impact of natural disasters. We must be prepared to meet emergencies arising from floods, cyclones, earthquakes, drought, landslides and avalanche."

The Prime Minister appealed to the science community to rev up its efforts to fight disease. He committed the government to six programmes: 1) Development of basic and applied sciences with equal impetus given to both; 2) Rebuilding the science-base in universities by inculcating the latest information into the curriculum; 3) Promotion of public-private partnerships to improve project fundings; 4) Getting institutions rid of bureaucracy and red-tapism; 5) Restructuring science and technology support systems; and 6) Making science an attractive career option.

Dr Singh said: "Our pre-disaster preparedness is as important as our ability to integrate and manage the post-disaster situation. Confronted by the colossal human tragedy in our part of the world, the question has been asked if we could have made better use of modern science and technology to alleviate, if not prevent, human suffering. While the government is prepared to fund the needed research and investment in required technologies, we cannot reinvent the wheel nor be oblivious of the fact that there are contending claims on our limited resources."

The Prime Minister said if the technology is available, this must be used and if there were systems already in place, then technology must link them.

Mr Kapil Sibal, science and technology minister, announced that a tsunami warning system would be installed in the Arabian Sea and the Bay of Bengal within two years.

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