

'Celling' an idea

On April 18, children from a small town flocked to a Mumbai clinic to bank their tooth stem cells, signalling a trend

Pratibha Umashankar

When Dr Kedar Gadgil of Store Your Cells and Director of Dhruv Polyclinic, Mulund, Mumbai, received enquiries from Jalgaon, a small town in Maharashtra, for extracting and banking milk tooth stem cells of 20 children, he was surprised. "This was the first block booking since we launched Store Your Cells, India's first dental stem cell banking service in May 2010 at our polyclinic," he says. "We had to organise a bus for them. I was amazed at the parents' awareness of the concept. They had done their homework before zeroing down on us. They were giving their children protection against a potential accident or ailment in the future. And they were not even very wealthy!"

Dental stem cell banking is a revolutionary concept discovered in 2004-2005 in the US. The world's first commercial dental cell bank, BioEDEN, started there in 2006-2007. Since then, it has gained ground around the world.

"The moment I learnt about the concept, I wanted to set up the service in India," says Dr Gadgil. "We have operations covering major cities in the country. As far as I know, at present, there is only one other such facility in India, also based in Mumbai."



Dr Kedar Gadgil

The rationale behind preserving stem cells is they can form different types of cells and have immense potential in repairing a damaged organ

Dr Gadgil, a dentist who has also specialised in Oral Maxillofacial Surgery, is a medical entrepreneur, who straddles three continents. He runs a successful implant dental clinic in London, visits his clinic in Mumbai once every two months and has his Store Your Cells lab in the US. "The cells are stored in the US because stem cell banking is a highly specialised area and there is no regulatory body in place yet controlling it in India; and I don't want to start a lab here until the sector is governed by a watchdog," says the doctor.

Answering the questions: Why dental stem cells and why milk teeth? Dr Gadgil explains: "Stem cells are of two types: Haematopoietic stem cells, which form blood cells and found in the umbilical cord blood and Mesenchymal stem cells from teeth — milk teeth, wisdom teeth or teeth extracted for corrective orthodontic treatment of youngsters. A source for both kinds is bone marrow — one of the hardest areas to get stem cells from. The best source, of course, is embryonic stem cells. However, it is illegal and unethical to collect them. Fortunately, collecting dental stem cells is easy and painless. But the tooth should be absolutely healthy — free of cavities, infection or gum disease. Therefore, younger the tooth the better. That's why milk teeth are ideal. And with 20 milk teeth, you have 20 chances."

The modus operandi is simple, but time-sensitive. "Once a milk tooth is wobbly, parents can bring the child to any of our centres," says

HOW MUCH DOES IT COST?

PLAN 1

◆ **ANNUAL STORAGE:** Rs75,000 at the time of enrolment and Rs5,000 for each subsequent year's storage. This includes consultations, enrolment, extraction, logistics, processing and one year's storage

PLAN 2

◆ **LONG-TERM STORAGE:** Rs150,000 — all the above services and 20 years' storage

Dr Gadgil. He elaborates: "We check the tooth to make sure it's healthy and a new one is growing. Then the wobbly tooth is extracted and has to reach the lab within 48 hours. So, it is sent in a temperature-controlled environment through medical courier service to our lab in the US. There the tissue is removed from the tooth and stem cells are extracted. The tooth contains a tissue called the pulp. We offer two levels of service — whole tissue service and cultured cell service. In the whole tissue service, the whole pulp is processed and stored without breaking it down into cells. In the cultured cell service, the pulp is broken down to obtain stem cells. The cells are checked for their quality and stored if they are perfectly healthy. Cryopreservation is used for both."

The reason for two types of service is to satisfy two divergent schools of thought. One believes that the tissue should be minimally manipulated. Hence the whole tissue service — the cells are not broken down and cultured until they are needed. So, you don't play God, unless you have to. According to the other school, only breaking down the tissue can guarantee stem cells, that too healthy ones, which are ready for use. "I recommend a combined service," says Dr Gadgil.

The rationale behind preserving stem cells is that they can form different types of cells and play a role in regenerative medicine in terms of application. "This has immense potential in repairing any damaged organ, for example, due to an accident (trauma) or say, bone cancer," says Dr Gadgil. Wonderful though the concept sounds, it's not without its share of loopholes. Sceptics have rubbished it as selling a premature idea without concrete evidence and no possible return.

Dr Gadgil disagrees: I'm optimistic because, we have the example of a successful clinical trial using dental stem cells to repair the mandible (jaw bone.) And a tooth has been grown in a rat. Research is on to see if stem cells can regenerate cells which secrete insulin to help cure diabetes. I know there are a lot 'ifs'. But I'm convinced it will happen. Then the floodgates will open. By then, you may be too old to get dental stem cells extracted."

This is why Dr Gadgil thinks the foresight and courage shown by the Jalgaon group is amazing. While this may not lead to stem cell tourism, the doctor admits that his cell has started ringing more often. Pun intended.

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WHEEL OF TIME



US Ambassador to India Timothy J. Roemer tries his hand on a spinning wheel at the Sabarmati Ashram in Ahmedabad, Gujarat, on Tuesday. The ashram was home to the Father of the Nation Mahatma Gandhi for years. Roemer said that he was honoured to visit the home of Gandhi and delighted to be in the state from where over 20 per cent of the Indian-American population in his country came from. — IANS

Four Andhra students killed in US road accident

P.S. Jayaram

HYDERABAD — Tragedy struck four families in Andhra Pradesh when four graduate students from the state were killed in a highway accident in the United States, while a fifth was battling for his life in a hospital.

The four students who were killed in the car crash near St Louis in Missouri on Sunday were identified as Srupen Reddy, Srikanth Ravi, Chitturi Sriharsha and Dheeraj Gudlawar, all in their early twenties. Bottu Murali, a native of Chittoor district, was driving the car and was rushed to the University Hospital in Columbia where his condition is said to be serious. All were post-graduate students of Missouri University of Science and Technology, sources said.

According to information reaching Hyderabad, the accident occurred at around 10.40am (US time) when the students were returning to St Louis from Illinois. Murali apparently lost control of the car and the vehicle landed on its side before being slammed by an oncoming vehicle. Such was the impact that the four students died on the spot.

What made the tragedy even more poignant was the fact that two of the students, Murali and Srupen Reddy, had graduated on Friday with Master's Degrees in Electrical Engineering and Information Science and Technology respectively. Dheeraj was a graduate student of Information Science and Technology while Harsha was a graduate student in computer science. Srikanth was into manufacturing engineering.

Chief Minister N Kiran Kumar Reddy, expressing shock and grief over the ghastly road accident, directed the Principal Secretary (Political) R M Gonela and other senior officials of the General Administration Department to take up the matter with US authorities immediately and ensure that the bodies are sent to their respective places at the earliest and to provide adequate medical assistance to the injured. "We are in touch with the Ministry of External Affairs. We are yet to get a response from them the US authorities. We are expecting a response from them any time," Gonela said.

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Kerala orders closure of chemical company

Endosulfan-manufacturing central public sector firm Hindustan Insecticides failed to comply with rules

T.K. Devasia

TRIVANDRUM — The Kerala Pollution Control Board on Tuesday ordered the closure of the central public sector firm Hindustan Insecticides Ltd (HIL) at Cochin for failure to comply with its directions on the disposal of sludge containing endosulfan chemicals.

HIL, which is the major manufacturer and exporter of endosulfan in the country, was a target of protests ever since the State launched a campaign for a blanket ban on the use of the pesticide. The PCB order came amidst efforts by the state government to get the company stop the production of endosulfan.

Sources at the PCB said they had resorted to the drastic action after HIL management ignored a show-cause no-

tice directing the company to remove the sludge to a safe place by April 30. The company was found dumping the sludge in a lagoon, the arteries of which are linked to various rivers.

A team of officials from the PCB had visited the company, which employs over 300 workers, on April 18, 2011 and found that the management had not taken any "earnest measure" for removing the sludge from the lagoon for the last one year.

The PCB had earlier directed the company to shift the sludge to a common treatment, storage and disposal facility at Ambalamedu. As the company had failed to do so, the PCB issued the show cause notice.

The notice accused HIL of violating the provisions under the Water (Prevention and Control of Pollution) Act, 1974 and the Environment (Protection) Act, 1986. The HIL was given permission by PCB to function till June 30, 2012 on strict conditions.

The company had failed to meet many of these conditions, prompting the PCB to intervene. The PCB sources said that they had so far issued 64 no-

ties to the PSU so far for violation of environmental norms.

The Kerala government has been seeking legal ways to put an end to production of endosulfan in the wake of Stockholm Convention decision to face out the pesticide due to its hazardous effects on human health and environment.

However, the government feared that the federal government, under which the HIL functioned, may not support the move as the convention had exempted 23 crops from the ban and the HIL was the major producer of endosulfan in the country. The company is now producing 1,600 tons of endosulfan a year. As endosulfan is banned in Kerala, the company is selling its product in other states in the country and exporting to foreign countries.

The employees of the HIL have been opposing the move saying that the stoppage of endosulfan production would render them jobless. However, the political parties said that the government could protect the workers by diversifying into bio-friendly pesticides.

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65,000 from across India want to buy a dream home in Himachal Pradesh

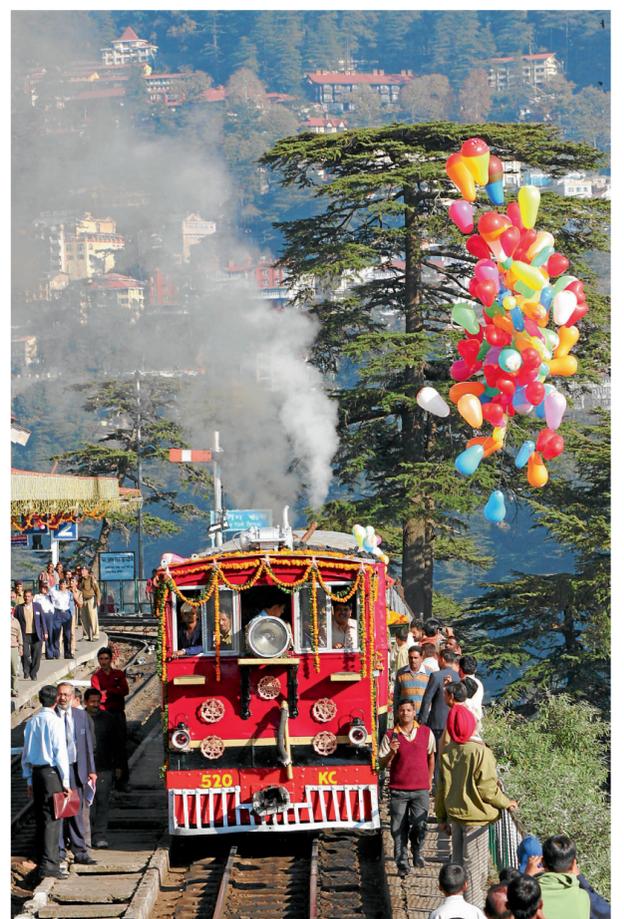
SHIMLA — Over 65,000 people from across the country want to buy a home in hilly Himachal Pradesh, with around 8,000 of them looking for a place in the grand old tourist destination of Shimla alone, officials say, citing a survey.

"Over 65,000 people from across the country have expressed their desire to buy a flat in the state. Shimla has got the largest number of applications of 8,000," Ganesh Dutt, vice-chairman of the Himachal Pradesh Urban Development Authority (HIMUDA), said.

This came to light in a demand survey conducted by the state-run authority. The last date for applying for the demand survey was on April 30. He said 40,000 people were keen to have a house in 12 district headquarters and the remaining wanted homes at the sub-divisional areas. The picturesque hill station of Kasauli in Solan district has emerged as the second most preferred destination. As many as 4,000 people showed interest in it.

The town has a major location advantage due to its proximity to Chandigarh, Punjab and Haryana. It's also closer to the state's industrial hub of Baddi, Barotiwala and Nalagarh.

After Kasauli, Theog (2,200), some 45 km from Shimla, Baddi (2,500) in Solan district and Palampur (3,000), known for its tea estates in Kangra district, have also got good response. After the demand survey, HIMUDA would identify and start acquiring land for flats, Dutt said. Under Himachal Pradesh land laws, only the state's permanent residents can buy land in the state. Others who want to purchase land for non-agricultural purposes have to seek relaxation under Section 118 of the tenancy and land reforms law from the government. But buying a house from HIMUDA is the best option as there is no need to get government permission, which is mandatory in case of purchase from a private realtor. — IANS



Around 8,000 people are looking for a place in the grand old tourist destination of Shimla. — AFP file

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