

## **Umbilical cord bank takes lead in research on stem cells**

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Singapore - A very different sort of banking has emerged in Singapore. Instead of money and other monetary instruments stored in conventional banks, clients can now store umbilical cord blood. Private cord blood banking companies such as Singapore-based CordLife Pte are cashing in on research that could combat life-threatening blood diseases such as leukemia.

Banking with private cord blood banking companies could reap rich dividends as the umbilical cord blood which contains precious stem cells that can be used to treat blood diseases.

CordLife founder and Chief Executive Officer Steven Fang emphasized this point at the launch of the company's new research-and-development and stem cell processing and storage facility in Singapore on Feb 26.

As a stem cell technology and cord blood banking service provider, CordLife would store the umbilical cord stem cells for a processing fee of S\$2,500 (US\$1,360). An annual storage fee of S\$250 would be charged subsequently.

Since the first umbilical cord blood stem cell transplant in 1988, the number of worldwide life saving operations has reached over 1,500 according to CordLife.

### **Cancer Cure**

In Singapore, cord blood stem cell transplants have already recorded some successes. The most recent being the two patients who were successfully cured of cancer late last year by doctors at the Singapore General Hospital (SGH).

Using related cord blood the doctors managed to eradicate the disease without destroying the patients's bone marrow with chemotherapy. This was the first success of its kind in the world.

While one cord blood sample was imported from the U.S., the other was taken from Singapore's public cord blood registry at the SGH, which is also the largest cord blood registry in East Asia with 1,000 samples. Singapore was the first country in the region to set up a public cord blood collection program in 1997. The samples are donated for public use unlike CordLife services, which reserve the samples for the clients solely.

CordLife is currently working with the Singapore Ministry of Health to meet its regulatory requirements for local cord blood banks.

Upon approval, CordLife will begin processing samples at its Singapore facility. The company also currently maintains two other processing facilities in Malaysia and China.

The company's laboratory has two main areas. One area handles the processing of clients's blood samples. The second area is known as the Cryo-facility, where storage units maintain temperatures of  $-196\frac{1}{4}^{\circ}\text{C}$  ( $-320.8^{\circ}\text{F}$ ) ensuring the blood samples are cryogenically frozen, theoretically enabling indefinite storage. This facility is able to house up to 10,000 samples.

### **New Projects**

CordLife has also embarked upon various pioneering stem cell R&D projects. Research includes stem cell expansion, which aims to increase the number of stem cells by placing them in a habitat that mimics closely their natural environment.

"We are expecting to see results of this technology within the next six months, upon which we would file for a full patent in our proprietary technology. Clinical trials will proceed after that," said Dr Ang Cheng Eng, R&D principal investigator for CordLife.

Long-term R&D plans for the company involve exploring new clinical applications for stem cell treatments such as diabetes, Alzheimer's disease, Parkinson's and genetic cell therapy.

Singapore-based UOB Venture Management Pte has already committed S\$2.5 million. The second round of fund raising to finance its regional expansion is under way.

"In Singapore, more than 60 families including expatriates have chosen to bank with us," Fang said. The company expects an average of 350 new clients a month. In the next six months, CordLife will be targeting other markets such as Taiwan, South Korea, Thailand, Indonesia and the Philippines.

### **Worldwide operations**

At present, CordLife stores around 120 cord samples in banks all over the world. Singaporean clients account for 45 deposits.

The company has chosen to shun embryonic stem cell research and is instead focusing its efforts on discovering less controversial sources of stem cells.

Stem cells have the potential to grow into any type tissue. Therefore, many researchers have high hopes that they could be used to regrow damaged tissue. The main controversy is the use of stem cells from aborted fetuses or specially cloned embryos.

"We want to offer a non-controversial service that doesn't go into ethics or religion," said Fang, who happens to be a Christian. "Besides, embryonic stem cell research is nowhere near commercialization. There is still another 8 to 15 years at best before anything applicable surfaces whereas cord blood banking is ready today."

Stem cells can be found throughout the body. The aim is to find an alternative high stem yield source. One potential source that CordLife is investigating further is fat tissue, which can be derived from liposuction operations. Other sources include peripheral blood, skin tissue and placenta.

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