

# THE GUARDIAN

## Growing bigger, Growing better

In February 2003, CordLife significantly expanded its office space at the Camden Medical Centre. CordLife now occupies more than double its original 2,500 sq ft unit.

The core of the CordLife remains its state of the art laboratory and cord blood banking facilities. The additional corporate space is very welcome as the head count in the company has expanded aggressively; from three in 2001 to its current headcount of 30 in Singapore alone.

CordLife's growth within Singapore is mirrored by its regional growth, as CordLife works towards achieving its vision of becoming a leading stem cell biotechnology company, offering highest quality cellular banking facilities and practices, as well as pursuing R&D and regenerative medicine throughout Asia and beyond. CordLife now has a presence in:

- **Singapore** – Corporate headquarters established in May 2001, and its fully licensed and operational laboratory set up in February 2002
- **Switzerland** – CordLife has established a representative office, in May 2001
- **Malaysia** – CordLife initiated its presence in Kuala Lumpur through its sister company, StemLife, set up in January 2002
- **China** – CordLife has a facility in Guangzhou, set up in April 2002
- **Australia** – CordLife has just set up an office in Melbourne

In addition, CordLife is actively reaching out to new territories, including the Philippines, Thailand, Indonesia, and more cities in China.



# Arthur Speaks...

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As the Country Head of Singapore, I manage CordLife's umbilical cord blood banking services in Singapore. With our experienced sales team, we have been able to reach out to all the hospitals in Singapore, to educate expectant parents on umbilical cord blood banking and stem cells. CordLife is very fortunate to have received strong support from various clinicians and doctors, for our educational efforts.

This is a very exciting time for Singapore as we move forward into the era of biotechnological advances. Singapore is positioning itself to become a reputable hub for biomedical sciences, with the development of the Biopolis being slated for completion by mid 2003. Singapore is also developing a leadership role in stem cell research, which is seen as a new frontier for therapeutic medicine.

Over the last few months, there has been extensive coverage in the news in this arena, most specifically in the field of stem cell R&D, with new applications, such as stem cell treatments for the heart, and other latest biotechnological developments for stem cell regenerative therapies. This has led to a greater interest in this area, amongst expectant parents, scientists, and the general public not only in Singapore, but throughout the world.

If you are interested in learning more about this field of stem cell biology, please note the times and dates of "Banking on Cells", CordLife's educational talks on the facing page.

On behalf of my team, we look forward to better serving you in the months and years ahead.

*Arthur Toh  
Country Head  
Singapore*





# Banking On Cells –

## A talk on stem cells and how they affect you

Due to the increasing interest in stem cells and umbilical cord blood banking, CordLife has increased the frequency of its educational talks to biweekly sessions. During these talks, trained scientists will explain more on stem cells, their applications and the latest developments in this promising area.

Do contact Grace to let us know you'll be joining us. Call us at **6238 0808**, or email us at [gchan@cordlife.com](mailto:gchan@cordlife.com)

The schedule of upcoming talks is:

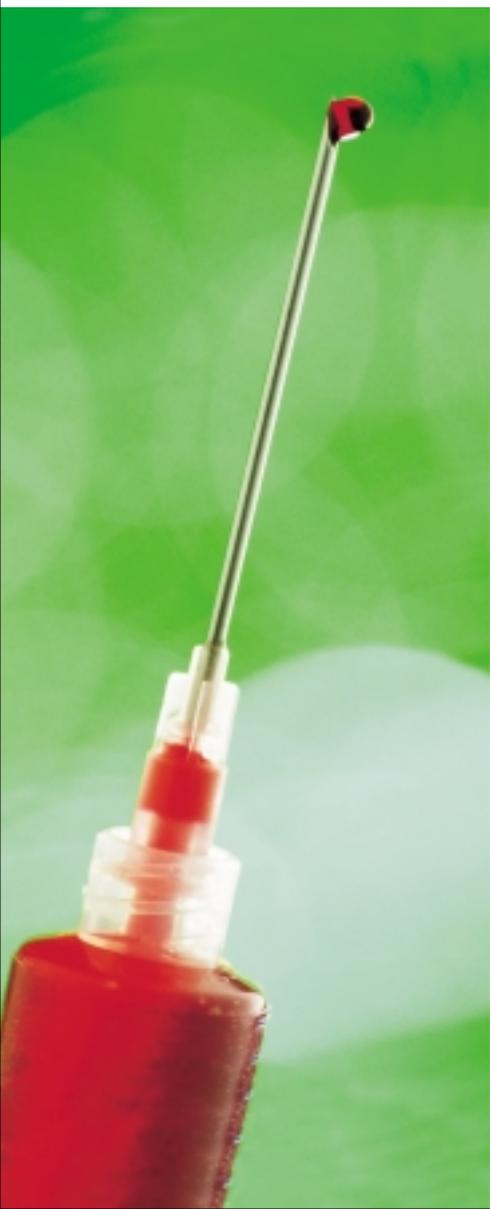
Date	Saturdays	Wednesdays
	5 April, 10 May, 7 June	16 April, 21 May, 18 June
Time	10.30am – 12 noon	6.30pm – 8 pm



## Refer a Friend!

Each time you refer a friend that banks with CordLife, you will get \$100 off your next annual storage fee. Please call us at **6238 1823** or drop us an email at [referafriend@cordlife.com](mailto:referafriend@cordlife.com). Once your friend signs up with CordLife, we will deduct \$100 from your next annual storage fee. So start referring and share the benefits of cord blood banking with your friends and relatives!

# Umbilical Cord Stem Cell Expansion



The past decade has witnessed a rapid expansion in the therapeutic application of umbilical cord blood cells. Following the first successful transfusion in France in 1988 where a child with Fanconi anemia was treated using HLA-matched cord blood cells from a newborn sibling, a variety of diseases and syndromes, including: leukemia, autoimmune diseases, sickle cell anemia and, as experienced recently in Singapore as well as in studies world-wide, beta-thalassaemia major have been successfully treated using umbilical cord blood. The umbilical cord blood, as does bone marrow or peripheral blood, contains progenitor cells some of which are called hematopoietic stem cells. These stem cells are able to reconstitute the complete blood and immune system of a person.

Furthermore, umbilical cord blood (UCB) stem cells offer a variety of advantages over the use of traditional bone marrow stem cells for transplantation, including but not limited to (1) the isolation of umbilical cord blood is risk free and painless to child and mother, (2) GvHD (graft-versus-host disease) is less frequent and less severe in cord blood cell transplantation, (3) lower requirement for HLA-matching between a donor and recipient, and (4) low risk of infectious disease transmission.

While the advantages of umbilical cord blood cells in transplantation protocols are significant, certain issues still require attention. One critical limiting factor is that the application of umbilical cord blood cells is dependent on the amount of blood collected. Collection volume often correlates to the body weight of the mother, but also correlates to the collection



experience of the doctor obtaining the cord sample. But most importantly, there is a direct correlation between the amount of blood and the number of progenitor stem cells that can be obtained from a single umbilical cord collection. Why is this crucial? Because the success of a transplant requires a large number of progenitor stem cells.

Based on a donor group study, a total collection is, on average, approximately a 60 ml volume. However, we, and others report umbilical cord blood collections over the 110 ml range. Yet, the most important factor is the number of progenitor stem cells in the blood that can reconstitute the blood and immune system of a patient.

The average number of progenitor cells, evaluated by the 'nucleated cell' number, in an average 60 ml volume is approximately 600 million. If the transplant surgeon requires 150 million cells per 10 kg weight of a patient needing a transplant, the patient would have to be only 40 kg or less to realize maximum benefit of these stem cells. This limits the average use of an umbilical cord blood sample to a pediatric setting. However, there is need for stem cell transplantation in the adult patient community.

To address these issues, clinicians are attempting various protocols, some which have

been very novel and highly successful when applying cord blood in transplantation to address some diseases. However, laboratory scientists around the world are also looking at ways to expand the number of stem or progenitor cells that are harvested from an umbilical cord blood collection. It has been found that cord blood nucleated cells can be amplified without losing their 'youthfulness' (i.e. potential for indefinite lifespan and maintenance of their unique factors.)

Different laboratories are attempting various techniques to encourage these stem cells to increase in number in a flask or Petri dish. There have been some significant successes claimed by laboratories and several stem cell expansion protocols are already in human clinical trials. Therefore, the ability to expand the number of stem cells present within an umbilical cord blood sample has become a real possibility.

Stem cells are a very precious resource. One of the main stumbling blocks remains the availability of stem cells. As outlined above, there are many promising approaches being undertaken to expand the number of stem cells. In the years' ahead, one or more techniques will succeed, giving hope that one day, the stem cells from one umbilical cord collection may be expanded and then utilized for a variety of different therapies.

# Stem cell transplants

## prevent development of diabetes in mice



Researchers from the Stanford University Medical Centre in California reported early this year that haematopoietic stem cell (HSC) transplantations may prevent the development of diabetes. Georg F. Beilhack and colleagues at the centre investigated the effects of allogeneic HSC grafts in non-obese diabetic (NOD) mice and found that stem cell treatments prevented or delayed the onset of hyperglycemia in the study animals. They reported their findings in the January 2003 edition of *Diabetes*.

The researchers were conducting a study using major histocompatibility complex (MHC)-mismatched HSC allografts in NOD mice. Unlike mice treated with bone marrow grafts, these HSC recipients had an intact immune system and carried significant quantities of NOD T cells in them after the transplantation. The study showed that despite the continued presence of NOD T cells, the allogeneic HSC recipients did not develop hyperglycemia and their pancreatic islet lesions regressed.

"These data demonstrate for the first time that purified HSC grafts block development of autoimmune diabetes," Beilhack and colleagues concluded, "and illuminate how HSC grafts alter thymic and peripheral T-cell responses against auto- and alloantigens."

### Key points reported in this study include:

- Hematopoietic stem cell (HSC) transplantation protects animals against diabetes
- HSC allografts prevented the onset of hyperglycemia in nonobese diabetic (NOD) mice
- Moreover, transplantation of both allogeneic HSCs and donor-matched islet cells cured overt diabetes in these animals

*Article adapted from Diabetes Jan 03*

# Cloth Diapers: the Better Choice

— by Jane Lau

My baby uses cloth-diapers. However unlike mothers of the past, I'm not bogged down with constantly folding, pinning and changing nappies. This is because modern cloth diapers are easy to clean, as absorbent as disposables, snap close, don't require folding and have adjustable sizes. Furthermore, modern cloth diapers are the best choice for your baby, as they are safer. This is why I use them:

**Cloth is Safer:** Cloth Diapers do NOT contain harmful chemicals, which affect your baby's sensitive skin. The chemicals in disposable diapers may cause redness and itching and can be toxic if inhaled or ingested.

**Reduce Diaper Rash:** Cloth Diapers are made from cotton, making them breathable and allowing air to reach your baby's delicate skin. This reduces the chance of nappy rash and other infections.

**Save Money:** Even with the cost of detergent and utilities, cloth diapers can save you hundreds and more for your first child, and the savings are greater for subsequent children.

**Early Potty Training:** Most cloth-diapered children potty train 6 months earlier than children wearing disposables since they can tell when they are wet.

**Environmentally Friendly:** Each baby uses 6000 disposable diapers or more till toilet trained. Even though Singapore incinerates most waste, the burnt ash still adds to our landfill, which is estimated to last only another 20-30 years only.

Given all these reasons, I believe cloth diapering is a better choice not just for baby, but for everyone. Try it!



*Jane Lau is a stay at home mom to Luke (14 months) & Leandra (4 years) (above). She runs a home-based business ([www.parenthings.com](http://www.parenthings.com)) selling cloth diapers and other environmentally friendly products. Contact her at [info@parenthings.com](mailto:info@parenthings.com)*



## About CordLife

CordLife Pte Ltd is a Singapore registered company in the business of stem cell banking service, R&D and regenerative biomedical therapeutics. The company is committed to providing the highest quality stem cell treatment options for cancer, blood/genetic diseases, immune deficiencies, neurological diseases and tissue regeneration.

## Contact Us!

Should you wish to contribute any articles, comments or pictures to The Guardian, please contact our editor, Yiu Lin ([yiulin@cordlife.com](mailto:yiulin@cordlife.com)).

Should you wish to be removed from The Guardian mail distribution list, or to inform us of any change in contact address, please contact Grace ([gchan@cordlife.com](mailto:gchan@cordlife.com)).

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