

## A Message from the Managing Director

Dear Valued Readers,

All of us at CryoCord certainly hope that you have had a good 2009 as we have had. 2009 is the year that saw many firsts for us, the highlight being the launch of a whole range of stem cell banking solutions that caters for everyone in the family – focusing on Mesenchymal Stem Cells Storage (MSCs) in particular.

In keeping up with global trends where there are hundreds of clinical research and trials being done on MSCs as it has been found to have great beneficial properties, we are taking the lead in the industry in Malaysia by bringing the benefits of the developments to our own doorsteps.

To date, it has been found that MSCs have shown potential in various treatments based on evidence in various medical researches conducted by experts throughout the world. We believe it is a natural evolution in our education of stem cells.

We are confident that the evolution in stem cells research concerning MSCs will have a global impact in the near future and we are pleased to be playing our part in the development of the industry with our initiatives. Merry Christmas and Happy New Year. See you in 2010.

Sincerely,

*James Then*  
Managing Director

## CryoCord Updates

related to CordBlood, CordMSCs, AdiMSCs, MarrowMSCs and AdultPBSCs

### A Whole New Look



CryoCord is pleased to announce that our website recently underwent a makeover to better reflect our identity and to make online browsing much easier and informative. Viewers can also learn about all our services through the website at:

[www.cryocord.com.my](http://www.cryocord.com.my)

### CryoCord Community Transplant Program

Every so often businesses will take priority on revenues and profits over what really matters: life, and helping those in need. As such, we would like to take a step back to remind readers that there is a program in place - the CryoCord Community Transplant Program - that offers enrollment for cord blood stem cells storage at no cost to expecting mothers whose immediate family members are suffering from blood disorders such as leukemia, thalassemia or any other disease that can be treated using cord blood stem cells. It is one of the many ways we keep in touch with the things that make our community a caring one.

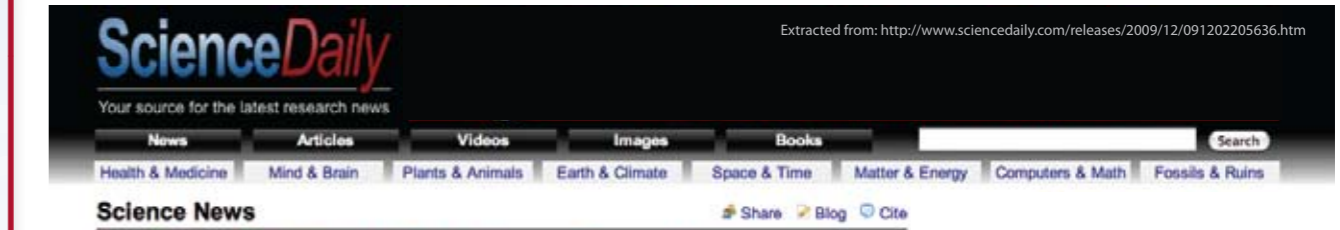
### All Our Transportations Kit Are Equipped With Temperature Loggers

In an unprecedented move in Malaysia, CryoCord has taken the lead in introducing temperature loggers to monitor all samples' temperatures during transportation from the point of harvest to the laboratory for processing. According to National Standards for Cord Blood Banking and Transplantation (Clause 7.7.3.1): "The shipping container shall maintain a designated temperature range to protect cell viability during CBU transport as documented by prior validation of the shipping container, or by a continuous recording of the temperature of the shipping container, or another method to document maintenance of temperature within the accepted range".



## Stem Cells in the Media

related to CordBlood, CordMSCs and MarrowMSCs



### Adult Stem Cells May Help Repair Hearts Damaged by Heart Attack, Study Suggests

ScienceDaily (Dec. 3, 2009) — Adult stem cells may help repair heart tissue damaged by heart attack according to the findings of a new study to be published in the December 8 issue of the Journal of the American College of Cardiology. Results from the Phase I study show stem cells from donor bone marrow appear to help heart attack patients recover better by growing new blood vessels to bring more oxygen to the heart.

Rush University Medical Center was the only Illinois site and one of 10 cardiac centers across the country that participated in the 53-patient, double-blind, placebo-controlled Phase I trial. Rush is now currently enrolling patients for the second phase of the study.

Researchers say it is the strongest evidence thus far indicating that adult stem cells can actually differentiate, or turn into heart cells to repair damage. Until now, it has been believed that only embryonic stem cells could differentiate into heart or other organ cells.

"The results point to a promising new treatment for heart attack patients that could reduce mortality and lessen the need for heart transplants," said Dr. Gary Schaal, head of the Rush Cardiac Catheterization Laboratory and study principal investigator at Rush.

In phase I of the study, a group of 53 patients who had heart attacks in the previous ten days received adult mesenchymal stem cells and were kept under close study for two years.

The mesenchymal stem cells (MSC) were harvested from the bone marrow of healthy adult donors. These cells have the potential to develop into mature heart cells and new blood vessels. Similar to Blood Type O, mesenchymal stem cells have the advantage that they can be taken from the bone marrow of an unrelated donor without needing to be matched by blood type.

After the stem cells were extracted, they were purified by drug manufacturer Osiris Therapeutics into a formulation for intravenous delivery called Prochymal. Patients were administered an infusion of either Prochymal or placebo as an injection into a vein in the arm or leg. To prevent bias, neither the patient nor the physician knew who received the stem cell treatment and who received the placebo.

In the study, patients who received the adult stem cells were compared to similar patients who received inert placebo injections. Both were followed by MRI and echocardiogram. After six months, patients who received the adult stem cells were four times as likely to have improved overall condition, were able to pump more blood with each heartbeat than untreated patients, had only one-quarter as many dangerous heart arrhythmias, and suffered no toxicity or other serious adverse side effects from the treatment. "It is suspected that these stem cells may take part in the growth of new blood vessels to bring more oxygen to the heart and help reduce the scarring from a heart attack," said Schaal.

Echocardiograms showed patients had improved heart function, particularly in those patients with large amounts of cardiac damage. Patients also have improvements in lung function.

According to Schaal, one reason the study results are so promising is that these stem cells can be used without tissue typing and do not trigger an immune response, and are available for every patient.

A unique benefit of the stem cell product is that it is given to patients through a standard intravenous (IV) line which is simple and easy for the patient compared to other therapies that require delivery to the site of the disease through catheterization or open surgical procedures.

Adult stem cells are designed by nature to perform tissue repair in a mature adult. It is believed that these cells can be used in patients unrelated to the donor, without rejection, eliminating the need for donor matching and recipient immune suppression. Once transplanted, the cells promote healing of damaged or diseased tissues.

"It is possible that in other hospitals might be able to keep frozen adult stem cells on hand for speedy use in treating heart attacks," said Schaal.

"This study suggests that adult bone marrow derived stem cells are more flexible than previously thought," said Schaal. "If the benefits and safety are confirmed in the ongoing Phase I trial, we may soon have a remarkable new therapy for patients with a large heart."

Rush is currently seeking participants for the second phase of the study. For more information about the study, please contact Amy Graf at (312) 942- 8144.

### Did you know?

Stem cells are not just stem cells. There are different types of stem cells. Research in the stem cell industry identifies 2 different kinds of stem cells that are applicable in treatment today: Hematopoietic Stem Cells (HSCs) and Mesenchymal Stem Cells (MSCs).

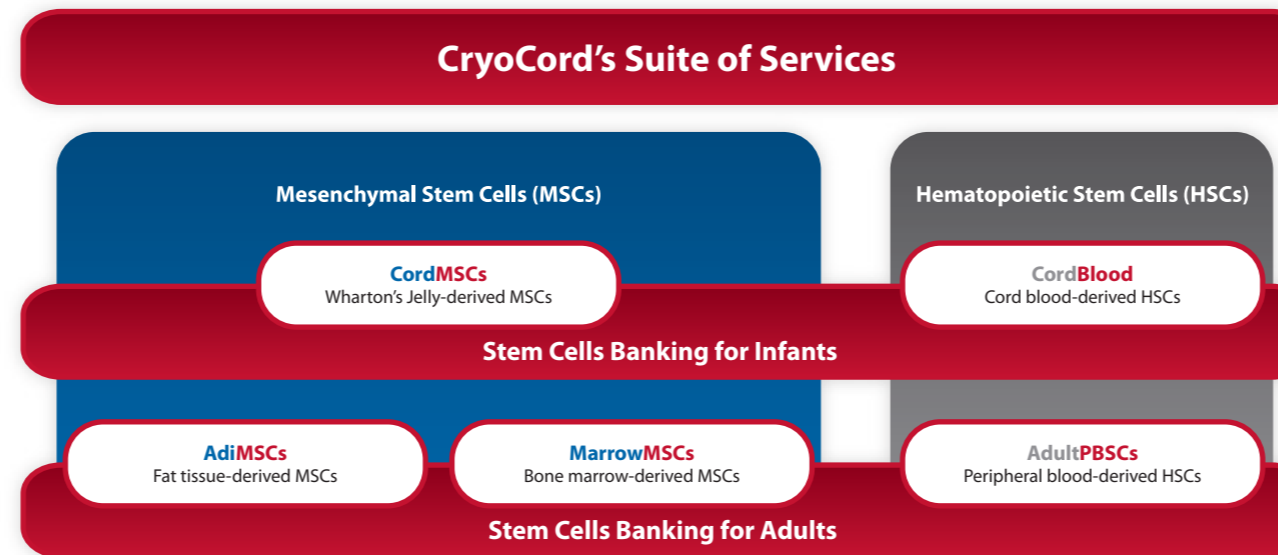
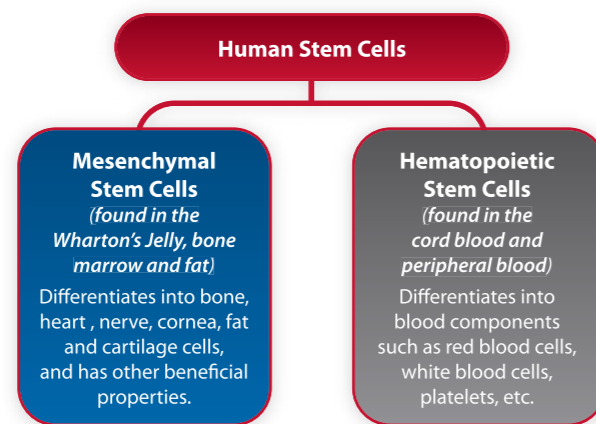
### Mesenchymal Stem Cells

MSCs are also multipotent stem cells that has the potential to differentiate into a wide range of cells and tissues such as bone, heart, nerve, cornea, fat and cartilage. They can be harvested from the Wharton's Jelly, bone marrow and fat.

### Hematopoietic Stem Cells

HSCs are multipotent stem cells that has the potential to differentiate mainly into blood components such as red blood cells, white blood cells, platelets, etc. They can be harvested from cord blood and peripheral blood.

Malaysians have had the opportunity to store their newborn's cord blood stem cells for some time now. With CryoCord's lead in offering more options to store more than just cord blood stem cells, you have the opportunity to have more security for the whole family.



"Unrelated umbilical cord blood should be actively considered for pediatric myelodysplastic syndrome (MDS) patients lacking matched related or unrelated donors."

Studies show that unrelated umbilical cord blood transplants for MDS in children result in a three-year event-free survival of 61%. The data is comparable to those achieved with matched sibling transplants, and should be used as early as possible in the disease course of MDS when no related or unrelated donor is available.

Parikh SH, Mendizabal A, Martin A, et al. Unrelated donor umbilical cord blood transplantation in pediatric myelodysplastic syndrome: a single center experience. Biology of Blood and Marrow Transplantation. 2009;15:948-955.



"MSC-like cells can be isolated from UCB, but at low efficiencies, and they exhibit a variety of morphologies, growth rates and differentiation potentials and can transform in culture."

MSCs can be isolated from cord blood but at a very low success rate, and if successful, does not seem to be consistent in behavior. Cord blood is not a viable source for MSCs.

Manca MF, et al. Characterization of mesenchymal stromal cells derived from full-term umbilical cord blood. Cytotherapy. 2008;10(1):5-6.

CordBlood

CordMSCs

AdiMSCs

MarrowMSCs

AdultPBSCs

amnioPlas<sup>+</sup>