

LifeCell – Daily News Update

June 8, 2009

Key Industry News:

Publication	timesofindia.indiatimes.com
Headline	Stem cell surgery for brain injury
Gist of the article	<p>The first successful stem cell therapy for traumatic brain injury in the country was conducted by doctors at BGS Global Hospitals.</p> <p>Through this therapy, bone marrow was transplanted directly into the brain. N K Venkataramana, chief neurosurgeon of BGS Hospitals, confirmed that this is the first such attempt in India and second in the world. "China made the first attempt."</p> <p>The therapy was done on Madhumalika, 27, who was admitted to BGS Global Hospitals following a road accident on December 14 last year. She suffered from 'diffuse axonal brain injury' -- a severe form of brain injury where the patient remains unconscious for a variable period. The patient needs to be assisted in his or her daily activities. In her case, she remained in a coma for more than three months.</p> <p>Her mother had to resign from work and her father opted for the voluntary retirement scheme to look after their only daughter. "We had no hope of getting her back after the fatal injury. Also, we were unsure of the effects of the therapy on her. But we had to take a chance," her father said.</p> <p>In the surgery done in March, four million stem cells per body weight, which were prepared at Stempeutics Research Pvt Ltd, were injected directly into her brain.</p> <p>After a month of the transplant, she showed considerable improvement. She became conscious, started talking and could move her limbs. She was also able to recognize family members and friends. But the prolonged stay in bed resulted in stiffness of the joints, for which she is undergoing physiotherapy.</p> <p>Venkataramana said the belief that brain injuries aren't curable has been proved wrong. "The need to help accident victims led us to work on stem cell therapy," he added.</p> <p>"Since 2004, there has been a pressing need to help the rising number of people who were disabled following road accidents. Stem cell therapy was</p>

	one of the means to face the situation," he explained. "We're planning to carry out a pilot study in treating head injuries with stem cells."
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Publication	seekingalpha.com
Headline	Cord Blood Stocks: Seven Ways to Invest
Gist of the article	<p>Cord blood has been in the news a lot recently. A Florida hospital is waiving the fee for the donation of cord blood. Five cord blood transfer centers in Spain have joined a study for the treatment of lymphoma and leukemia. And a cord blood bank in Texas has added Midland Memorial Hospital to its collection network.</p> <p>Cord blood is blood that comes from umbilical cords, and contains an extensive amount of hematopoietic stem cells. The blood is kept in depositories called blood banks. Cord blood stem cells are considered far superior to stem cells from bone marrow. Many parents have their newborn's cord blood preserved in the event it may be needed at some point in the future for treatment of their child's or the child's sibling's cancer or genetic disease. Over 75 diseases have been treated with cord blood. For a lot more detail on cord blood and how it is collected, stored, and used, go to CordBloodStocks.com.</p> <p>Even Richard Branson, of Virgin Records and Virgin Atlantic Airways fame, is in the cord blood business. He set up Virgin Health, a cord blood bank.</p> <p>There are a couple ways to invest in the cord blood industry, the cord blood banks and the companies that use cord blood to develop cures. Here are several stocks that participate in the cord blood business. Please be aware that many of these companies have low market caps and are extremely speculative.</p> <p>Cord Blood America Inc. (CBAI.OB) One of the cord blood bankers, this Los Angeles company is involved in the collection, testing, processing, and preservation of the blood from umbilical cords for use in future stem cell therapy. They own the Cord Partners umbilical cord blood banking company. They have recently generated negative earnings. This is an extremely low cap stock and should therefore be considered extremely speculative.</p> <p>ThermoGenesis (KOOL) This California company designs, makes, and sells automated blood processing systems for the manufacture, preservation, and delivery of cell therapies. They are involved in a joint venture with GE Healthcare, a unit of General Electric Company (GE) to distribute the AXP (TM) AutoXpress Platform, a closed and automated system for harvesting mononuclear cells from cord blood. They have a price sales ratio of 1.4. They</p>

	<p>have recently generated negative earnings. This is an extremely low cap stock and should therefore be considered extremely speculative.</p> <p>Cryo-Cell International (CCEL.OB) This is a Florida based cord blood stem cell bank, specializing in the family market. The stock has a P/E ratio of 665. This is an extremely low cap stock and should therefore be considered extremely speculative.</p> <p>PerkinElmer, Inc. (PKI) owns ViaCell, a Cambridge, Massachusetts company which sells ViaCord, a product which is used to preserve baby's umbilical cord blood. They also research and other therapeutic uses of umbilical cord blood-derived and adult-derived stem cells. The stock has a P/E of 17 and a yield of 1.7%.</p> <p>Celgene (CELG) This New Jersey company is involved in the discovery, production, and marketing of therapies designed to treat cancer and immune-inflammatory-related diseases. They own LifeBank USA, a cord blood bank. The P/E is 74.</p> <p>Baxter International Inc. (BAX) makes blood collection bags for umbilical cord blood and develop adult stem-cell therapies. They also own a patent for assembling and methods to process cord blood in a sterile fashion to avoid exposure to bacterial contamination and to meter the introduction of cryopreservation solution into cord blood at a desired rate, thereby avoiding damage or trauma to the cord blood cells. The stock has a P/E ratio of 14 and pays a yield of 2.1%.</p>
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Publication	winnipegfreepress.com
Headline	<u>Umbilical-cord blood a lifeline</u>
Gist of the article	<p>A Manitoba adult with a potentially fatal blood disease will be thrown a unique lifeline this winter -- two tablespoons of blood from a newborn's umbilical cord.</p> <p>Dr. Donna Wall, director of the Manitoba Blood and Marrow Transplant Program, said umbilical-cord blood is rich in stem cells and could give the desperately ill patient more than a 50 per cent chance of recovery. The patient will be the first Manitoba adult to receive a stem-cell transplant from an umbilical cord, or what medical experts commonly refer to as "cord blood."</p> <p>Wall said local transplant surgeons have infused cord blood into more than five children to treat illnesses such as leukemia in the last few years, and are now experienced enough to try the technique on adults. Due to privacy concerns, she wouldn't say what the patient's illness is, but said cord blood is generally used to treat leukemia, immune deficiencies and metabolic disorders.</p> <p>"The people we treat are desperately ill and the majority of people we treat would not be around in the next year without a transplant," Wall said. "We</p>

change a desperate situation into better than a 50-50 chance of a cure." Stem cells are immature cells that can develop into any healthy cell present in the bloodstream, such as white or red blood cells. They're also found in bone marrow. But experts such as Wall say it's harder to find a bone-marrow or blood donor, as the immune type has to be an exact match.

Wall said immune systems are like fingerprints, and matches are extremely rare if a patient can't find a match among their relatives. Immune types are inherited from parents, and there's only a one in four chance a patient has the same immune type as a sibling. Outside the family, a match can be even harder to find, particularly for people of certain ethnic backgrounds where there is a shortage of donors.

But Wall said the body can tolerate cord-blood stem cells that aren't an exact match.

"This is a huge benefit for us in transplantation, because some people have very, very rare immune types, and even if we had everyone in the world typed up and willing to donate, they're basically unique," she said. "By using cord blood, we can use very mismatched products."

There is no umbilical-cord blood bank in Manitoba, and the placenta is discarded as medical waste post-delivery. Canada has no national cord-blood bank, except in Quebec, although Canadian Blood Services is trying to establish a countrywide network.

Sue Smith, executive director of CBS's One Match stem-cell and marrow network, said CBS has submitted a proposal to every province and is awaiting a reply from deputy ministers.

Wall said a national cord-blood bank would give new immigrants and aboriginals with life-threatening blood disorders a better shot at recovery, as the country could build up a supply of donations from small communities.

Wall, who used to practise in the U.S., said before she did cord-blood transplants, less than half of her African- American and Hispanic patients could find a stem-cell match. Afterwards, she said she was able to find donors for nearly all her patients.

Elsewhere in the world where cord-blood banks exist, a cup of blood from a healthy baby's umbilical cord is collected after delivery. The mother has to agree to donate cord blood, and a detailed medical history is taken. Once the blood is collected, it's screened for any infectious agents, tested for potency, frozen, and kept in liquid nitrogen.

Wall said the stem cells can remain potent for several decades.

Manitoba has imported cord blood from worldwide banks in the handful of transplants done here.

Before the transplant, Wall said doctors have to ensure the patient is clear of any infections and the blood disease is under good control. The patient will receive chemotherapy or radiation therapy the week before treatment to reduce the chance their body will reject foreign stem cells, Wall said, and to increase the likelihood of success.

A Popsicle-size cylinder of the frozen cord blood is thawed in a laboratory before it is transfused into the patient. Wall said the entire process is simple, painless, and takes only 30 minutes.

	She said the adult patient awaiting transplant won't be the last. Transplant experts are already searching out cord-blood options for other patients in need.
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Publication	naplesnews.com
Headline	<u>Guest commentary: Another look at stem-cell research</u>
Gist of the article	<p>Following the furor raised by President Barack Obama's commencement address at the University of Notre Dame, perhaps it's time to again examine the necessity for human embryonic stem-cell research and review the reasons it must be continued and expanded rather than condemned.</p> <p>Embryonic stem-cells hold promise because of their ability to develop into any of the over 200 body cells as well as to replace cells and tissue destroyed by disease. This has incredible potential for aiding the understanding and treatment of innumerable diseases and even birth defects. Testing of new medications for safety could be performed in labs using lines of embryonic stem cells. Diabetes, heart disease and spinal-cord injuries are just a few of the conditions that potentially could be treated.</p> <p>These cells could help us understand the complex events that occur during human development, such as identification of the factors involved in the cellular decision-making process that results in cell specialization.</p> <p>Turning genes on and off is central to this process, but we do not know much about these "decision-making" genes or what turns them on or off. Some of our most serious medical conditions, such as cancer and birth defects, are due to abnormal cell specialization and cell division.</p> <p>And finally, what some have labeled "low hanging fruit," because it will most likely be utilized first. It involves producing a disease base using "somatic-cell nuclear transfer" from a patient with say Parkinson's disease. Now, in a petri dish you have growing a disease-based line. What a powerful tool to study and understand the disease process at the cellular and even molecular levels. Later one could try different chemicals in the dish to determine if they could affect the disease. Only the effective drugs would go on to animal and, finally, human testing.</p> <p>Keep in mind the pre-embryo from which stem cells are extracted is not implanted and growing in a woman's uterus, so it will never, ever become a fetus or a child. If it came from an in-vitro fertilization clinic, it will remain frozen or eventually be destroyed. It has no recognizable human features or form. It is, rather, a blastocyst, a frozen tiny cluster of cells in a petri dish, that can easily fit into President Franklin D. Roosevelt's eye on the face of a dime. A 4-day-old human embryo is a collection of 150 cells. There are, for the sake of comparison, more than 100,000 cells in the brain of a fly. The embryos that are destroyed in stem-cell research do not have brains, or even neurons. Consequently, there is no reason to believe they can suffer their</p>

destruction in any way.

It has been pointed out that incorrect terminology is often responsible for a lot of the controversy. Fertilization and conception are not synonymous and do not occur at the same time. Fertilization of an egg may occur naturally in the fallopian tube (in vivo) or in a piece of glass equipment by scientific means (in vitro). Conception occurs when a fertilized egg implants itself in a suitable uterine lining and begins to draw nourishment. A pregnancy does not actually begin until the process of conception is complete. Thus, we correctly use the term "in-vitro fertilization" but not "in-vitro conception."

What about adult stem cells? Adult stem cells reprogrammed to accomplish the same goals as embryonic ones still have not been shown to fully have that ability. If/when that occurs, and it most likely will in another decade or less, embryonic research will no longer be needed. Until then, however, embryonic stem-cell studies remain essential.

Most organ transplants are made from patients who are brain dead, even though they still have beating hearts and a blood pressure is obtainable. They have suffered complete loss of all brain function, and this makes them clinically and legally dead. A blastocyst has yet to develop any organs of any type, let alone a heart or brain.

Next question: Is the potential to become a person the same as being a person? A human embryo certainly is human in the biological sense that it did not originate from a different animal species. If a fertilized human egg has the potential to become a person even though not implanted into a uterus, what about other cells that also have such a potential? Doesn't every sperm and ovum have such a potential under the right circumstances? As shown with the cloning of Dolly, the sheep, even a human skin cell has the potential to develop into a person.