

FAQ: Stem Cells General Questions

Quick Q and A:

What is a Stem Cell (SC)? A stem cell is a cell that can renew itself and become other types of cells in the body.

This ability to change into other types of tissue is known as “plasticity”.

What is a cord blood? Cord blood is collected for the baby’s Umbilical Cord after birth.

Beike Bio-Tech has performed thousands of these types of collections.

All cord blood is tested for infections and possible abnormalities prior to use.

Are stem cell transplants from cord blood safe? Yes, in fact doctors have been using these types of stem cells for

over 40 years. The National institute of Health (NIH) has stated that they have seen no cases of cancer or other health

issues in relation to this type of transplant.

How soon will I see results? Some patients have noticed improvement within 24 hours. Since this is too soon for the

cells to have engrafted we believe these immediate results occur from the Neural Growth Factors used during the

transplant process.

What should be done to prepare for a Stem Cell Transplant (SCT)? We advise that you undergo no drastic changes

in medication 1 month prior to treatment, surgery should not be done at least one month prior to treatment and it is

advised that you not receive immunizations at least one month prior to treatment.

What are the side effects of a SCT? The side effects are very minimal. Most common is a slight elevation in

temperature lasting 12 to 24 hours. Some patients also experience mild to moderate headaches.

Many recipients also experience some level of fatigue for a day or two.

What is the FDA's position on Umbilical Cord Blood Stem Cells? The FDA has approved the use of these cells for

over 80 conditions. Unfortunately approval for many illnesses and conditions has been slow to come which is why

so many are opting to go outside the US for treatment.

Can you guarantee this treatment will work? No, there are simply no guarantees. People respond differently to

treatment as there are so many variables to consider. There are however consistencies within all of our patients in

regard to improvements.

Can I use my own cord blood or that of my own child's?

No:

You can not transport blood products into the country.

They have been frozen which lowers the viability of the cells. Our products are all processed fresh and never frozen.

There is no quality control on a product from another lab.

Can you please explain what is the Nerve Growth factor and the importance of this in Stem Cell Therapy?

Nerve growth factors in regards to those used in China are taken from the cord serum and encourage the growth and repair of neurons as well as enhancing the

potential of the umbilical stem cells which are infused.

Can you please also explain the significance of the Cord Serum?

It is full of many types of growth factors and a wide array of stem cells.

The Lengthy Version:

Do cord blood cells need to be DNA matched and embryonic/fetal stem cells not? It is a misconception that embryonic

and fetal cells do not have a fingerprint and can change into any type of cell while umbilical stem cells do have fingerprints

and can not transform. It is incorrect to say that this leads to rejection issues with umbilical stem cells as it does not.

As for references made to such things as "DNA" and/or "fingerprints" neither really applies to either type in their true and

pure forms. It isn't DNA variations per se, but surface antigens, often referred to as "markers", that signal "self" from "other".

"Self" being the bodies own matter and "other" being a foreign substance. The consensus of studies published in scientific

literature is that human umbilical cord stem cells (hUCSCs) provoke little in the way of adverse reactions due to antigenic

recognition by the recipient. Meaning that because they lack markers and the body sees them as "self".

This is why anti-rejection medication is not needed when doing a SCT with hUCSCs in the manner that is done by Beike.

How do you make sure that the stem cells you are using are a match for the patient and will not be rejected?

Umbilical Cord Stem Cells, aka UCSC's, do not require matching. In the life span of a stem cell umbilical cord derived stem cells are considered to be the youngest or least

mature of all the stem cell types. These UCSC's (Umbilical Cord Stem Cells) simply lack the exterior surface antigens (protein markers) which would indicate to the hosts body that the cell is "other" thus the recipients immune system sees it as "self". Upon being transfused into the body the UCSC's will of course be noted by the hosts immune system which will respond by releasing white blood cells, aka WBC's, in effect sending these white blood cells out into the body to do a search for foreign substances. Upon encountering the stem cells the white blood cell (WBC) will literally bounce around the exterior of the stem cell checking it for very specific proteins which are attached to the cell's exterior cell body. These proteins are considered a type of antigen marker. When the WBC can not locate the "foreign" antigen markers it reads the new stem cell as "self". This allows the host's body to receive the Umbilical Cord Stem Cells with no fear of rejection and thus no matching is required and "rejection" is not an issue.

What are stem cells? Stem cells are unspecialized cells that have two important characteristics that distinguish them from

other cells in the body. First, they can replenish their numbers for long periods through cell division. Second, after receiving

certain chemical signals, they can differentiate, or transform into specialized cells with specific functions, such as a heart cell

or nerve cell.

Stem cells can be classified by the extent to which they can differentiate into different cell types:

Totipotent stem cells can differentiate into any cell type in the body plus the placenta, which nourishes the embryo.

A fertilized egg is a type of totipotent stem cell. Cells produced in the first few divisions of the fertilized egg are also totipotent.

Pluripotent stem cells are descendants of the totipotent stem cells of the embryo. These cells, which develop about four

days after fertilization can differentiate into any cell type, except for totipotent stem cells and the cells of the placenta.

Multipotent stem cells are descendants of pluripotent stem cells and antecedents of specialized cells in particular tissues.

For example, hematopoietic stem cells, which are found primarily in the bone marrow, give rise to all of the cells found in the

blood, including red blood cells, white blood cells, and platelets. Another example is neural stem cells, which can differentiate

into nerve cells and neural support cells called glia.

Progenitor cells (or unipotent stem cells) can produce only one cell type. For example, erythroid progenitor cells differentiate

into only red blood cells.

At the end of the long chain of cell divisions are terminally differentiated cells, such as a liver cell or lung cell, which

are permanently committed to specific functions. These cells stay committed to their functions for the life of the organism

or until a tumor develops. In the case of a tumor, the cells dedifferentiate, or return to a less mature state.

The term adult stem cell refers to any cell which is found in a developed organism (such as an umbilical cord) that has two properties: the ability to divide and create another cell like itself and also divide and create a cell more differentiated than itself. Also known as somatic (from Greek Σωματικός, "of the body") stem cells and germline (giving rise to gametes) stem cells, they can be found in children, as well as adults. Pluripotent adult stem cells are rare and generally small in number but can be found in a number of tissues including umbilical cord blood.[Most adult stem cells are lineage-restricted, multipotent and are generally referred to by their tissue origin such as a Mesenchymal stem cell, adipose-derived stem cell, or endothelial stem cell etc.

What is cell therapy? Cell therapy can be defined as a group of new techniques, or technologies, that rely on replacing diseased

or dysfunctional cells with healthy, functioning ones. These new techniques are being applied to a wide range of human

diseases, including many types of cancer, neurological diseases such as Parkinson's and Lou Gehrig's Disease,

spinal cord injuries, and Diabetes. Replacing dead cells in the retina with new ones may someday cure even presently

incurable eye diseases such as glaucoma and macular degeneration. To understand how cell therapy works, it helps to

understand the role of cells in the body.

Why are stem cells important from a medical perspective?

For decades, researchers have been studying the biology of stem cells to figure out how development works and to find new

ways of treating health problems. Because stem cells can give rise to any tissue found in the body, they provide nearly

limitless potential for medical applications. Current studies are researching how stem cells may be used to prevent or cure

diseases and injuries such as Parkinson's disease, type 1 diabetes, heart disease, spinal cord injury, Duchene's

muscular dystrophy, Alzheimer's disease, strokes, burns, osteoarthritis, rheumatoid arthritis, vision, and hearing loss.

Stem cells could also be used someday to replace or repair tissue damaged by disease or injury.

Can you please compare your program to others say Mexico for example?

- * You could look at it from the standpoint of the cost per stem cell.

- * In Mexico it is 5K per vial of 1.8 million cells which is 360 stem cells per US dollar.

- * In China you are getting 60 million cells for 19.5K which is 3077 stem cells per US dollar.

- * Other items to consider would be some of the following;

- * In China you also get the nerve growth factor > Free of charge (not available in Mexico)

- * In China you also get the cord serum > Free of charge

- * (Mexico charges 3K for one transfusion of this and only allows adults to have it).

- * In China you can have your cells two ways; IV and/or via Lumbar Puncture which allows the cells to mix with the CSF thus bathing the brain in the stem cells (in Mexico it is SQ injections into the abdomen or IV for older kids and adults if they can get an IV access line placed by the nurse working in the office that day).

- * In China you get rehab and therapy included at no extra cost (no therapy is available in Mexico).

- * China has a length of stay which is 20 days at the least in the hospital which includes complete care including an evaluation and post transplant care.

- * In Mexico you are in and out in less than 3 hours with no follow up care or observation.

- * In Mexico they buy their cells from an outside source and thus are limited to what they can provide. They used to only give one or two vials but have over the past few years realized that a higher cell count is needed for better results so now they offer more vials

per treatment but their per cell price is very high. If they could they would do it more the way China does unfortunately they do not have the resources to do so.

Since the stem cells are still an implant could not any implant be rejected?

Technically we are not "implanting" the stem cells. We have two delivery methods; one is an "infusion" of the cells, growth factors and cord serum into the blood stream and the other is an "injection" of the cells and growth factors into the spinal canal where they then mix with the SCF (Cerebral Spinal Fluid).

* We do not infuse or inject any Red Blood Cells.

What creates rejection by the host body is the reaction between the host's immune system and a foreign substance. When any foreign substance is placed into the body our immune systems are activated by a slight elevation in body temperature. Once activated the body alerts a very specific type of white blood cell (WBC). This type of cell will seek out the newly introduced stem cells. Its job is to determine whether the stem cell is a foreign substance. This determination process is commonly referred to as determining "self" from "other".

The WBC's will literally bounce around the exterior surface of the stem cell. It is physically checking it for very specific protein markers known as "antigens". These proteins located on the surface of the cell are like a secret code and if the WBC does not see the right code it will determine the stem cell to be "self" and thus leave it alone to go about its business. Umbilical Cord Stem Cells lack the antigens that would identify them to the WBC as a foreign cell or as being "other". The body's immune system sees them as being "self" and no rejection occurs.

Is it true that umbilical cord derived stem cells have a genetic finger print and this leads to rejection issues?

No, this is not true. References made to "DNA" and/or "fingerprints" does not apply to this type of stem cell.

It isn't DNA variations per se, but surface antigens, often referred to as "markers", that signal "self" from "other".

"Self" being the body's own matter and "other" being a foreign substance. The consensus of studies published in scientific literature is that human umbilical cord stem cells (hUCSCs) provoke little in the way of adverse reactions due to antigenic recognition by the recipient. Meaning that they lack markers and the body sees them as "self".

This is why anti-rejection medication is not needed when doing a SCT with hUCSCs.

Grafting vs. Host Disease (GVHD)

GVHD is one of the most common and life threatening side effects of a stem cell/bone marrow transplant. GVHD occurs when the transplanted stem cells recognize the recipient's body as foreign, and "reject" it. Cord blood transplants have had a noticeable lack of GVHD because the stem cells from the donor do not need to match the recipient as with bone marrow.

Do you use chemotherapy or immunosuppressant drugs?

No we never use these types of drugs in our treatment process as they are not needed since there are no issues with rejection.

Terminology to Know:

- Adult (or somatic) stem cell - An undifferentiated cell found in tissue that can renew itself and differentiate (with certain limitations) to give rise to all the specialized cell types of the tissue from which it originated. Rise to cell types other than those of the tissue from which they originate.
- Blastocyst - A preimplantation embryo of about 150 cells produced by cell division following fertilization.
- Culture medium - The liquid that covers cells in a culture dish and contains nutrients to feed the cells.
- Differentiation - The process whereby an undifferentiated embryonic cell acquires the features of a specialized cell such as a heart, liver, or muscle cell.
- Multipotent - Ability of a single stem cell to develop into more than one cell type of the body.
- Pluripotent - Ability of a single stem cell to give rise to all of the various cell types that make up the body.
- Surface markers - Proteins on the outside surface of a cell that are unique to certain cell types, which are visualized using antibodies or other detection methods.
- Undifferentiated - A cell that has not yet generated structures or manufactured proteins characteristic of a specialized cell type.

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Greetings,

My name is Dr. Monique West and I am a medical consultant used by Stem Cells China and Beike Biotech, your case has been forwarded to me because treatments with Umbilical Cord Stem Cells are my personal passion. I have been in the health field since the early 1990's and have been working with stem cell therapy since 2007. My home base is the United States in Colorado, when I am in the US but I have also travel to China as part of my job as well to have had my 5 year old daughter treated with stem cells.

I am including below brief introductions to English speaking educationally based yahoo groups. These groups contain a wealth of information pertaining to treatments with stem cells. I would encourage you to apply for membership (they are free) and all have extensive databases filled with resource materials. I will be following this email with several others designed to provide you with as much detailed information on our company, treatment, process and pricing. It is our goal to give you as much detailed information up front as possible.

Please feel free to contact me at westwellness@hotmail.com if and when you have further questions and/or require additional information. I would be most happy to help you in any way I can.

Go to fullsize image Umbilical Cord Stem Cells; other points of view

* Robert Moffit, Ph.D. Director of Health Policy Studies at The Heritage Foundation has said that there have been advances in umbilical cord blood and adult stem cell research but very little has been accomplished from the embryonic stem cell research over the past twenty years.

* John Davis, of the University of Toronto's Institute of Biomaterials and Biomedical Engineering has this to say about Mesenchymal Stem Cells "Unlike cord blood stem cells, which are blank slates and can develop into any tissue in the body, Mesenchymal cells are more developed and are considered specific building blocks for muscle, bone and connective tissue". He also expresses that they can in addition regulate the immune system and could also be used against autoimmune and inflammatory problems, such as Cohn's disease, juvenile diabetes, and rheumatoid arthritis.

* According to the American Academy of Pediatrics; "Hematopoietic cells have the most history in clinical application and have been proven successful"

* C. Bernard Cardwell founder of the company Stem Cell Authority has stated that with mesenchymal cells, "you're getting this cell at a point where it's almost considered embryonic" in its ability to differentiate into different tissues, said

"So far, more than 6,000 patients and 66 diseases have been successfully treated with stem cells from cord blood," Moffit said in 2005. "The clinical advantages of cord blood are promising. A recent study found a survival rate of around 70 percent among high-risk adults treated with cord blood. Results are even more promising with children, with clinical trials showing an 80 percent survival rate for children with immunodeficiency diseases. An article in the New England Journal of Medicine last year showed a 90 percent success rate in treating a disease called Hurler syndrome that affects the brain."

Beike's cells

We utilize Umbilical Cord Stem Cells and "self" Autologous Bone Marrow Stem Cells only.

Our Umbilical Cord Stem Cell transfusions consist of three subsets of stem cells known as CD34+, CD133 and Mesenchymal stem cells. CD34+ and CD133 have been shown in numerous studies to be prone towards becoming white matter which is what neural cells and myelin are made of. Mesenchymals have been found to be inclined to become numerous types of cells including but not limited to chondrocytes (a type of cell critical to tissue renewal particularly cartilage), liver cells, kidney cells and neurons. Lab tests have also indicated that when Mesenchymal stem cells are combined with other cells such as CD34+ and CD133 they will boost the process of the transformation of other types of stem cells into becoming what they already have a tendency for such as white matter. These Mesenchymals also appear to be able to conduct repairs in relation to vascular disorders within the brain, ocular areas and throughout the body including but not limited to the heart, kidney and pancreas.

Our bone marrow transplants utilize the patients own bone marrow. From this we culture out 3 subsets of stem cells in two separate culturings. The first culture yields both Hematopoietic Cells (MNC) and Endothelial Progenitor Cells (EPC). The second culture yields pure Mesenchymal stem cells. Further information on this will be provided to you in a separate email following this one should the procedure be applicable to your diagnosis and appropriate given the patients age,

If you have not been to our Stem Cells China web site you can view it at www.stemcellschina.com

You can also learn more about Beike Bio-tech and stem cell processing at http://www.beikebiotech.com/index.php?option=com_frontpage&Itemid=1

The International Society of Stem Cell Research has stated that "Mesenchymal cells have proven easier to maintain, grow and manipulate in a lab".

Go to fullsize image Our Treatment Approach is Holistic.

Our treatment approach is a holistic one. We do not only provide patients with stem cell transplants but we also put each patient into a complete custom tailored rehabilitation program. This is a complementary multi faceted program. Typically the treatment includes several stem cell transfusions of 10 to 15 million stem cells each over a 20 to 30 day period with rehabilitation approximately 6 days per week (Sundays off). With each Stem Cell Transplant we also give the patients a transfusion of Neural Growth Factors and Cord Serum to encourage the stem cells to find their targets and transform into new neurons. The stem cells are transfused into the patients via the bloodstream via Intravenous Transfusions and into the Cerebral Spinal Fluid via a lumbar procedure region where the cells and growth factors are directly injected into the spinal canal.

In addition we also offer our adult clients the opportunity to have a Bone Marrow Transplant during their stay. This involves removing the patients own bone marrow, culturing, expanding and purifying the stem cells from it and then transfusing it back into the patient.

Our complementary rehabilitation program consists of a tailored mix of Physical Therapy, Occupational Therapy, Speech Therapy, Acupuncture, Electronic Muscle Stimulation (EMS), Functional Manipulation, ADL (Activities of Daily Life) education and Chinese massage. Each client receives a full evaluation by the rehabilitation doctors and specialists upon arrival to the hospital and a custom program is worked out just for you. Not all of these therapies are right for all patients. During your on-site evaluation you and the rehabilitation specialists will determine together what the right mix will be. It is this holistic approach combined with the incredible power of the Stem Cells, Serum and Neural Growth Factors that gives our clients the best chance for improvements. We have since 2005 treated over 2500 clients, performed over 10,000 procedures, have a zero infection rate, hold a zero surgical complication rate and an across the board 86% improvement percentage with our patients and that in and of it's self speaks volumes.

I am here to provide you with treatment information answer your questions and can facilitate your process of obtaining Beike's unique cellular therapy. Please let me know if there is anything else I can assist you with.

You can reach me at westwellness@hotmail.com

In Health ... Dr. MOnique West

Cellular Tid Bit: Cord blood stem cells are derived from a newborn baby's umbilical cord blood and have the advantage over bone marrow and peripheral blood stem cells since "they are immunologically 'younger' and appear to be more versatile," said a Feb. 20, 2008 Medical News Today article. Cord blood stem cells, the article continued, "are able to differentiate into nearly all cell types in the body" and "offer important advantages, including the fact that "there is no controversy involved in their collection."

Stem Cell Safety is an educationally based group aimed at providing information about Umbilical Cord Stem Cell treatments abroad (outside the borders of the United States). Members of this group include ordinary individuals with a variety of medical issues seeking treatments with Umbilical Cord Stem Cells. Also included are many who have already traveled aboard for treatment. This group provides a place of accurate information for those seeking treatment and a chance for them to talk openly with others who have already received stem cell transplants. It is open to adults, children and parents seeking treatment. Our goal and hope is that we can create a community of support for those entering onto a newly cleared path of treatment options.

To join click here: <http://health.groups.yahoo.com/group/stemcellsafety/?yguid=185397831>

China Stem Cells is a service created by Stem Cells China Limited a company dedicated to offering the latest news, information and facts about stem cells research and medical treatment in China. The Stem Cells China's team compiles information gathered from various sources to give you up-to-date developments, from the latest research findings and success stories to the latest debates and discourse on stem cells treatment primarily in China, and throughout the world.

To join click here: <http://health.groups.yahoo.com/group/chinastemcells/>

Brain Injury; Alternatives 4 Kids provides support and information for parents of children suffering from Brain Injury and related diagnosis. The causes are many yet the results are the same. Our children all suffer from varying degrees of brain injury. Many of the multiple subsequent diagnoses are also the same. Parents often find their children

labeled with such things as; Cerebral Palsy, Cortical Visual Impairment, Epilepsy, Infantile Spasms and others. This group is for those that care for these unique children such as parents and/or direct caregivers. We, who do, all walk this difficult path which is all too often a painful and confusing one. We become isolated by our pain and sorrow, so let us help our children by helping each other.

To join click here: <http://health.groups.yahoo.com/group/BIA4KIDS/>

Optic Nerve Treatment Time is an educational & information group for parents, families, children & adults with Optic Nerve disorders. The basis of this group is this for many is a progressive disorder. That for which treatment is possible for some & for children given early interventions it can be prevented & vision improved. This group was designed to allow interested parties to communicate with those that have already received treatment.

To join click here: <http://health.groups.yahoo.com/group/OpticNerve-TreatmentTime/?yguid=292569436>

To see inside what lies behind the closed doors of the world of Stem Cells.

Have you ever wondered about those professionals you might be working with and what they are like? Mrs. Ross-Vaden is the Vice President of Beike's Foreign Patient Division. Part of her job is to manage and monitor all cases of patients coming into China for treatment. She has begun to chronicle her work and her private thoughts on working in the field of stem cells. Kirshner has graciously allowed via her blog for patients, family members and caregivers to take a look inside her own journey, her work and some of her personal feelings and insights. It allows readers a unique and rare look at a world previously hidden from view.

To connect to her blog click on this link: <http://stemcellgirl.blogspot.com/>

While viewing her blog you will also have the opportunity to sign up for automatic updates each time she posts an entry. You will find this option at the bottom of the page under "Subscribe to: Posts (Atoms)". Click on this line and then click on "Subscribe to this feed". This will bring up a content box and you will then click on "subscribe" and at that point you have successfully signed up to receive email alerts each time Mrs. Ross-Vaden updates her blog with new content. Enjoy...

Go to fullsize image Firm uses stem cells to develop treatments not available in U.S.

By DOUGLAS JORDAN

Beike Biotech is a China-based company that has made national news in this country for its innovative new treatments offering hope to patients previously considered beyond the capability of a medical cure. Many American patients have gone overseas to Beike for treatments not available in the U.S.

Those treatments involve the use of stem cells, which can potentially be used to repair and replace damaged human tissue. Stem cell research and treatment is legally limited in this country due to political and philosophical debate.

However, most of the debate revolves around the use of embryonic stem cells, which are obtained from human embryos and often result in the loss of the donor embryo. Beike uses stem cells obtained from the blood of umbilical cords from live births, material that has historically been discarded as medical waste.

"By using cord stem cells, it takes the controversy out of the process," said Carol Petersen, whose grandson, Cameron, received the treatment in September. "I'm an advocate for this now, and I think we need to build a government-funded, for the public, cord blood bank."

Petersen said that Cameron's treatment was "extremely successful" and that the results were better than she had anticipated.

"He could not see at all before this procedure," she said. "Now, he sees and recognizes faces, and responds to visual stimulation from up to two feet away.

"We won't know the full extent of the improvement until he is old enough to communicate better, but it's clear that it's a miraculous difference."

In addition to ONH, Beike has used stem cells to treat other conditions, such as Alzheimer's, ataxia, autism, ALS, brain trauma, cerebral infarction, cerebral hemorrhage, cerebral palsy, Guillain-Barre, encephalopathy and spinal cord injury.

Some in the U.S. medical community have been skeptical about the new treatments. However, Kirshner Ross-Vaden, vice president of foreign patient relations for Beike Biotech, said that 86 out of 100 foreign patients with spinal cord injury have improved, such as regaining control of bowel movements and being able to sense hot and cold.

"The doctors who actually have experience in this field, and who know something about what stem cells can do, have been very supportive," Ross-Vaden said. "Because what we do is new, it's bound to arouse some criticism, and there's nothing wrong with that."

Dr. Shalesh Kaushal is a professor of ophthalmology at the University of Florida's Vitreoretinal Service and director of the UF Retina Service. He has worked extensively with research involving stem cells taken from bone marrow.

"From what I've seen so far of what Beike Biotech is doing, I would say that I am cautiously optimistic," Kaushal said. "There appears to be no overt danger to the patient from this procedure, and stem cells have shown an ability to rejuvenate or regenerate tissue."

Kaushal also said that umbilical cord blood banks are becoming more prevalent in the U.S., and that many doctors advocate that parents save their children's cord blood in these banks.

He said that foreign medicine is not backward, as some people in this country seem to think.

"Many of them are better clinicians than those trained in the U.S.," he said. "Because they simply see more patients. If you have a billion people in your country, how can you not have more experience?"

Dr. David Klein, a Port Charlotte ophthalmologist who has also studied the procedure, said what he's seen of Beike's work has been very good.

"From what I've seen, this is not some fly-by-night operation," he said. "There's a lot of good science behind what they're doing. I think they're on the brink of some wonderful things."

Beike was founded in 2005 with funding from Beijing University, Hong Kong University of Science and Technology and the City of Shenzhen. It is also supported by the China State National Fund. Beike supplies stem cells for treatment at 11 hospitals in China and one in Thailand.

There is no surgery involved in most of the treatments, which were pioneered in part by Ross-Vaden, who is a nurse and medical researcher. Stem cells, sometimes in the millions, are delivered through intravenous injections into the spinal cord fluid. In some cases of spinal cord injury, surgical injections are necessary.

As of Oct. 15, Beike had treated more than 2,000 patients with stem cell injections for diseases.

"Beike's greatest strength, and what differentiates it from other research groups, is that Beike specializes in clinical applications," Ross-Vaden said. "There are many people in countries around the world who could have a better quality of life and live longer with this technology, but they don't have the chance because of politics, religion and bureaucracy."

Ross-Vaden said China is the leader in stem cell research.

"The Chinese government is pouring billions of dollars into research," she said. "They court doctors from other countries to come to China."

While they do not track the exact number of Americans who leave the country for stem cell injections. Ross-Vaden estimates the number to be "hundreds per year and growing."

For people such as Petersen, and St. Augustine's Rylee Lovett, Beike offers hope.

Klein said that eventually this form of treatment should be available in the U.S.

"What you want to do is get away from the political debate and let the science take over," Klein said. "Because the bottom line is that the medical community is here to help people get better."

Creating Stem Cells_____

Stem cell

Stem cells have huge potential

Stem cells are thought to hold huge potential for treating a wide range of disease and disability.

Scientists around the world are working on techniques to refine stem cell therapy.

What are stem cells?

Most adult cells in the body have a particular purpose which cannot be changed.

For instance, a liver cell is developed to perform specific functions, and cannot be transformed to suddenly take on the role of a heart cell.

Stem cells are different. They are still at an early stage of development, and retain the potential to turn into many different types of cell.

Why are they so useful?

When a stem cell divides, each new cell has the potential to either remain a stem cell or become another type of cell with a more specialised function.

Scientists believe it should be possible to harness this ability to turn stem cells into a super "repair kit" for the body.

Theoretically, it should be possible to use stem cells to generate healthy tissue to replace that either damaged by trauma, or compromised by disease.

Among the conditions which scientists believe may eventually be treated by stem cell therapy are Parkinson's disease, Alzheimer's disease, heart disease, stroke, arthritis, diabetes, burns and spinal cord damage.

Stem cells may also provide a useful way to test the effects of experimental drugs.

It is also hoped that studying stem cells will provide vital clues about how the tissues of the body develop, and how disease takes hold.

Go to fullsize image Stem Cell Leader Beike Biotech

Press Release Body: November 7, 2007 - SHENZHEN, China – Beike Biotechnology, the leader in stem cell applications for medical treatment, has announced that it has formally established a world-class laboratory facility for the research of cell reprogramming and gene engineering, through a joint agreement with the Shenzhen Graduate School of China's renowned Tsinghua University. The lab will conduct research

on stem cells, the nuclear transfer and reprogramming of cells, monoclonal antibodies known as “magic bullets” for treating disease and other scientifically exciting cell engineering innovations. The aim of the lab is to establish a global research hub that will hopefully someday provide breakthroughs in the way medical science seeks to treat diseases like cancer, Parkinson’s, and many other debilitating ailments.

“We are already helping thousands of patients with our current umbilical cord stem cell treatments, but this ultra high-tech lab will bring us even closer to our goal of helping millions of patients improve their quality of life and will ensure that we have more advanced products in our pipeline four to five years out.” said Beike Biotech’s Chairman, Dr. Sean Hu. The 1,200 square meter laboratory will be housed in Beijing-based Tsinghua University’s special Shenzhen Graduate Campus located in this southern Chinese city that borders Hong Kong. Building on Beike’s years of experience in successfully using stem cells to treat humans with serious brain and nerve maladies, this designated “China Key Laboratory” marks the country’s entry into the current global race to find new stem cell therapies that can be applied medically. The USD \$4 million grant will be spent purely on equipment and comes from the Shenzhen Municipal Government as part of a US\$12 million grant given out in 2007 to encourage innovative technologies in Shenzhen.

Further grants from the government are expected to help cover the cost of running the lab and expansion. The lab is to be staffed by over 50 people, including 20 renowned Chinese Phd’s and well-known researchers like Dr. Zhang Hai, who has published articles widely in Western periodicals, for example, “Nature” of her breakthroughs in research of microRNA and other cell building blocks.

“Dr. Zhang Hai is a pioneer and our work with her will allow Beike to lead the world not only in clinical applications of stem cells but also in basic research. Outside of China, it is not easy to get a 20 Phd’s together in a first class lab focusing on stem cell research. We expect to have some breakthroughs come out of this and more publications in leading journals,” Dr. Sean Hu said.

Stem cells are the master cells that replenish all the body's tissues, from skin and blood to the brain and heart. They have proven capability to assist in nerve and organ regeneration, enable tissue repair and restoration, and are even thought to be able to effectively treat cardiovascular diseases and cancer. Beike currently has seen significant success using stem cells to treat a variety of nervous system disorders for Chinese and International patients alike. Many of these conditions are still deemed untreatable using conventional medical techniques and account for an estimated 60% of gross mortality worldwide. While not currently possible, scientists in labs like the one being established in Shenzhen are narrowing in on the technology that may soon allow for the reprogramming of human body cells. This would allow for the potential to regenerate nerve cells to heal spinal cord injuries, create one’s own pancreatic cells to stop diabetes, or possibly generate cells of any other tissue type to treat whatever ails patients. This makes the successful application of stem cells of vital significance to human health and the medical field.

About Beike Biotechnology Company Limited

<http://www.express-press-release.com/logo/beike%20logo.PNG>

Beike is a biotechnology company that was founded in July 2005 with capital from Beijing University, Hong Kong University of Science and Technology and Shenzhen City Hall when it commercialized stem cell technology that had been in research since 1999. As a private high-tech enterprise, it is dedicated to the clinical application of stem cell research. It is also supported with funds from the China State National Fund. The research and clinical work is a collaboration of Beijing University, Hong Kong University of Science and Technology, No. 3 Army Medical University, Zhongshan Medical University, Guiyang Medical College and Zhengzhou University.

About The Graduate School at Shenzhen, Tsinghua University

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The Graduate School of Tsinghua University in Shenzhen is an institute jointly established by Shenzhen City Hall and Tsinghua University to provide training for talent at the postgraduate level in science and technical innovation. As the only non-Beijing located educational facility run by Tsinghua University, the Graduate School of Tsinghua in Shenzhen is committed to the integration of teaching, research, and rapid commercialization of scientific discovery.

Go to fullsize image [Raise a Glass to Adult Stem Cells](#)

By Michael Fumento

I have frequently written on the gulf between the promise of embryonic stem cells (ESCs) and the reality of therapy from adult stem cells (ASCs) -- those already in our bodies and umbilical cord blood. ESCs get publicity; ASCs get results. The latest example: ASCs are now rebuilding human livers.

Until now, the only hope for persons with irreversible liver failure from such diseases as cirrhosis, which kills about 27,000 Americans yearly, was transplantation. This requires permanent use of immunosuppressive drugs which can lead to opportunistic infections and cancer. Most importantly, it requires a new liver. About a thousand Americans are now on a waiting list for one and many will die there.

But scientists from London's Imperial College report in *The New Scientist* that they have repaired patients' own damaged livers by using bone marrow adult stem cells collected from their own blood. Five were injected with a drug that stimulated their marrow to produce extra stem cells that were then injected into a blood vessel leading directly to the liver.

It worked. Both liver function and overall health of three out of five treated patients improved significantly within only two months of treatment. The two patients whose health did not improve were left no worse off.

The researchers said the marrow stem cells appeared to simply home in on damaged portions of the liver and affect repairs, just as ASCs previously have been shown to do with other organs thought unable to repair themselves such as hearts and brains.

Most recently, Korean researchers injected umbilical cord stem cells into the injured part of a paraplegic's spine, allowing her to walk again. In the September Cytotherapy, they described how Hwang-Mi Soon, paralyzed 19 years ago in an accident, first recovered feeling and then movement in her legs. Soon the 37-year-old woman could maintain an upright position.

At a press conference she demonstrated she could take steps with the help of a walking frame. Tests revealed clear "regeneration of the spinal cord at the injured site" and below it.

Other ASC researchers have claimed progress with paraplegics, but haven't yet published their findings in peer-reviewed publications.

The rebuilding of human liver tissue was first observed over five years ago

in autopsies of persons who had received bone marrow transplants for other reasons. Notwithstanding this, Science Magazine, an ESC research booster, later published a paper by Stanford University pathologist Irving Weissman insisting that in a rodent study an infusion of marrow stem cells "did not contribute appreciably to [such tissues] as brain, kidney, gut, liver, and muscle." Nobody noted that Weissman is probably the nation's most prominent ASC research critic.

Weissman smugly presented this single animal study as absolutely authoritative and the media bought it, leading to such headlines as UPI's "Promise of Adult Stem Cells Put in Doubt" and Scientific American's "Study Deals Blow to Abilities of Adult Stem Cells." I was the only writer to point out that a previous rodent study showed these cells did indeed rebuild livers and that one of the co-authors was (Oh, my!) Irving Weissman.

But as ASC miracles continue to pour down like manna from heaven, the media are finally catching on to ESC advocates who promise cures for every illness known and yet haven't even progressed to human clinical trials, right? And they're finally realizing that "little things" like ASCs rebuilding livers, spines, hearts, and brains are of interest to their readers, right?

Wrong.

It's still true that, as I wrote two years ago, "When an ESC hiccups it

makes page one, but reports of ASCs actually saving human lives are often ignored." A search of the Lexis-Nexis database reveals that the incredible liver breakthrough was picked up by two lesser British newspapers and UPI. BBC.com also mentioned it. That's it. No U.S. newspaper seems to have mentioned it.

Lexis-Nexis also indicates no English-language publication thought that such an incredible breakthrough as allowing a paraplegic to walk again was newsworthy -- at least not if it involved the politically incorrect kind of stem cell.

Therapeutic progress with adult stem cells will continue to come fast and furious. Just when the public will be allowed to hear about it is another thing entirely.

Go to fullsize imageEmbryonic stem cells help patents, not patients

JEAN SWENSON

A battle is raging between embryonic and adult stem cell research. What are stem cells and why should we care?

Stem cells, found in humans throughout their lifespan (including embryos), can divide and change into specialized cells. Researchers hope to use stem cells for human treatments, and we must decide which research deserves our financial support.

Embryonic stem cells (ESCs) used for research are extracted from 5- to 6-day-old embryos and then multiplied. Under normal conditions, ESCs would eventually develop into the fetus and baby. Sources of original ESCs include excess in vitro fertilization embryos and, potentially, cloned embryos created for research.

Nonembryonic stem cells found in human umbilical cord blood and throughout the human body are often referred to collectively as adult stem cells. They form specific cells to replace old or damaged cells. For example, bone marrow stem cells continually replenish needed blood cells. Obtaining ASCs is fairly easy and harmless.

ESCs are more "pluripotent" than most ASCs, meaning they can more readily become any type of cell during embryonic and fetal development.

Science and media's focus on "pluripotency" implies that pluripotent cells are necessary for human therapies. However, this ability to readily form any cell type is precisely why ESCs are not safe or effective for human treatments.

Because ESCs are designed for rapid, pluripotent growth in embryos, they are unstable and unpredictable when implanted in adults. In fact, ESCs often create teratomas or "monster tumors" containing different cell types such as hair, bone, and teeth.

Because ASCs are not as volatile as ESCs, they are better suited for human medical treatments. Patients need stable and reliable sources of stem cells that can repair and replace specific adult body cells in a controlled manner, which ASCs are designed to do.

In fact, ASCs are treating more than 65 human conditions, while ESCs have not yet successfully treated any (see www.stemcellresearch.org).

Thus, ASCs are criticized by ESC proponents for the very thing that makes them safe and effective for human treatments—slow, controlled growth toward replacing specific cells. And ESCs are praised for the very thing that makes them dangerous and ineffective for human treatments—rapid, pluripotent growth (that, therefore, is difficult to control).

Why, then, the push for ESC research when ASCs are clearly superior?

Follow the money.

Because complex safety problems must be overcome before ESCs are medically usable, ESC research provides greater research and patent potentials for scientists, research institutions, and biotech industry.

A 1980 law known as Bayh-Dole permits scientists to patent the results of publicly funded research. For example, researchers may form biotech companies to develop patents jointly held with their university, or they may sell their patents to biotech or pharmaceutical firms. Thus, a profitable relationship exists between industry and publicly funded

academic research.

A SC researcher Geoffrey Raisman of University College, London, stated in the Nov. 30 Guardian, "This is not the most popular way of attempting to heal spinal injuries. That would be to produce patented chemicals, which drug companies can make and sell.... We're producing a procedure where the patient is their own cure. You can't patent a patient's own cells."

California is trying to decide whether publicly funded universities should be required to share their findings or whether they can patent and sell them. Last year voters were promised that Proposition 71's \$3 billion in public funding toward stem cell research would accelerate cures and bring direct financial returns to the state.

However, at an October legislative hearing, state Sen. Deborah Ortiz said, "The public is not only waiting for cures, but is footing the bill for research... that may not benefit them. The important question is who owns the rights to research findings."

The fact that research and industry stand to gain financially through publicly funded ESC research whether or not any effective therapies are ever developed should raise red flags to those expecting cures from such research.

The choice is clear. Either we direct public funds toward improving human lives with treatments based on how our bodies naturally function. Or

we squander precious time and research dollars promoting basic embryonic science and biotech financial growth under the pretext of "looking" for cures.

Swenson, a quadriplegic as a result of a 1980 car accident, is an advocate for spinal cord research

Doctors: Adult stem cells, cord blood hold most promise

By Jim Shea

Correspondent

At the 18th bi-annual interfaith Breakfast for Life Oct. 26 at Rutgers University, New Brunswick, approximately 150 doctors, students, clergy, members of the professional community and other pro-life advocates heard from one of the leading experts on the topic of ethics and stem cell research.

Speaker Dr. David Prentice is a founding member of Do No Harm: The Coalition of Americans for Research Ethics and a fellow of the Wilberforce Forum Council for Biotechnology Policy, both in Washington, D.C., and an advisory board member for the Institute on Biotechnology and the Human Future, Chicago.

“We keep hearing about the promise of embryonic stem cells, but the claims are simply unsubstantiated,” he said. “At this point in time there is little evidence of the effectiveness of embryonic stem cells. Proponents have yet to take even one dish of embryonic stem cells and have these

cells change into one specific cell, i.e. a heart cell or brain cell. Based on experiments to date, it's not safe to even try and apply them to patients.

“The bottom line,” continued Dr. Prentice, “is that our real promise lies not in the use of embryonic stem cells but with adult stem cells. Adult stem cells are today already at work in patients. I can document, through published scientific papers, with over 65 human diseases, where patients are better already, having been effectively treated through adult stem cells.”

“Some scientists admit there are ethical concerns in the use of embryonic stem cells,” Dr. Prentice said. “But, these same scientists continue to ignore the success in patients and the use of adult stem cells. The debate is ongoing. We face a lot of challenges, but the key question remains, ‘What does it mean to be human, and what kind of values do we give to any human life, whether it be a little embryo, a fetus in the womb, a newborn or someone at the other end of their life with advanced Alzheimer’s?’

“We must value every human life,” he added. “We need to push ethical science. We have an ethical problem in one sense, to make sure that everyone knows the real facts about the stem cell debate. The ethical question is that you have to kill a human embryo, a young human life, in order to obtain an embryonic stem cell. What we are dealing with is a human being at its earliest stage of life. We need to make sure we know

the full facts and get out and talk about them with our friends, family and people at work. We have to write letters to the editor and to our legislators.”

Dr. Prentice also referred to a push in the U.S. Senate for a national cord blood bank, “Where we can do the kinds of magic we need to do in order to treat patients. There are thousands of patients already better, thanks to the use of cord blood alone.”

“Yesterday, (Oct. 18) Acting Gov. Richard Codey signed an executive order to establish a cord blood bank for umbilical cord blood,” said Marie Tasy, executive director of New Jersey Right to Life, adding to Dr. Prentice’s comments. “Umbilical cord blood is ethical stem cell research, and is already providing cures for people with sickle cell anemia and leukemia.”

Tasy also discussed issues that could be addressed by the legislature after the November election. “One would use \$150 million in funds to construct the New Jersey Stem Cell Institute in New Brunswick,” she said. “There are also two legislative measures that would place a question on the ballot to have voters approve millions of dollars in public bond money. One measure would use \$230 million and the other calls for \$500 million.”

Fellow guest speaker Dr. Gary Friedman, medical director of the Center for Regenerative Medicine, Morristown Memorial Hospital, and trustee for

the New Jersey Stem Cell Research and Education Foundation, agreed with Dr. Prentice's assessment. "As of 6 p.m. last night, there were over 141 approvals for human clinical trials, utilizing human umbilical cord stem cells," he said. "Going back 10 or 15 years, there were probably only five or 10 such cases. At the current rate, use of adult stem cells is exploding."

"What I have learned," Dr. Friedman said, "is that life is precious. I get to see people giving life to other people, day in, day out. People volunteer to donate their organs to a friend or family member. This shows the great giving capacity of human beings. We also understand, through the process of arranging for organ transplants, that we cannot forcibly take a life from another human being."

Those who attended the breakfast felt it provided them with vital information that often isn't discussed in regard to stem cell research.

"I didn't know how effective adult stem cell research was," said Nicole Czarnecki, a Rutgers University student. "I had no idea adult stem cells worked so well and that embryonic stem cells were not as effective."

Shannon Varga, a student from St. Peter the Apostle High School, New Brunswick, expressed gratitude for the opportunity to attend the breakfast.

“I’m so glad I came today, to find out the importance of adult stem cell research,” she said. “I’m convinced embryonic stem cell research is wrong.”

[Go to fullsize image Why Umbilical Cord Blood?](#)

The relationship between science, politics, and religion has often been difficult. Science has repeatedly shaken religious beliefs and political beliefs based on religion, at least in the Western tradition. The Copernican and Darwinian revolutions challenged our views of God's agency and forced people to re-examine their understanding of the universe and humanity's place in it. Today, we are in the midst of another scientific revolution that might change society through the applications of biological research while challenging our beliefs about the value of human life. The question is to what extent religion could, or should, influence science and politics and vice versa. It comes back to the old problem about where to draw the line between these realms. As Albert Einstein said: "For science can only ascertain what is, but not what should be, and outside of its domain, value judgments of all kinds remain necessary.

Religion, on the other hand, deals only with evaluations of human thought and action. It cannot justifiably speak of facts and relationships between facts" (Einstein A (1941) Conference on Science, Philosophy and Religion in Their Relation to the Democratic Way of Life, Inc., New York, U.S.A.).

No currently approved treatments have been obtained in the U.S.A. using embryonic stem cells. There are no human trials--despite all the hype and all the media. After 20 years of research, embryonic stem cells haven't been used to treat people because the cells are unproven and unsafe. They tend to produce tumors, cause transplant rejection, and form the wrong kind of cells.

Umbilical Cord Blood is found in the umbilicus, the cord that attaches the embryo / fetus to the mother. Until recently this was discarded after birth, as a waste product and was destroyed as useless material. More recent research is finding similar cells in skin, hair etc... It seems that the potential is almost endless only limited by the technical difficulty of extracting the cells from the material concerned.

Using waste material does not appear to present an ethical dilemma.

In this non-controversial arena, stem cells are being found and used from various parts of an adult's body and are often found to be efficient in some aspects of treatment.

Embryonic, or (fetal stem cells), are available only from an embryo. An embryo is a fertilized egg. In order to access these cells, the fetus/embryo has to die. Some say that this is killing an unborn child. This is what caused the hiatus in using such embryos in stem

cell research. At what point does the conjoining of an egg and sperm mean that there is now a new life? Thus the ethical issue.

What are human embryonic stem cells?

Some call them magic seeds, for their ability to replicate indefinitely and morph into any kind of tissue. Taken from human embryos only days old, stem cells are nature's blank slates, capable of developing into any of nearly 220 cell types that make up the human body. Scientists believe they will lead to cures for diseases once thought untreatable.

How can embryos be obtained?

The controversy begins at the source--the human embryos that must be destroyed to retrieve stem cells. Scientists can obtain these embryos in four ways, each with its own ethical challenges. The least morally problematic--using embryos left over from fertility treatments. Private groups are already attempting the others.

Some quotes as to why umbilical and other adult stem cells are preferred against embryonic:

United States Confederation of Catholic Bishops

Go to fullsize image Designer babies Not Needed

Dr. Peter Holland's has announced that in vitro fertilization and pre-implantation, genetic diagnosis are not necessary to create designer babies in order to find tissue matches for people who need stem cell therapy. He stated that if we focused more on collecting umbilical cord blood from the tens of thousands of births in our hospitals, and if these samples were stored in a public bank, there would then be a suitable match for almost everyone.

Lifesitenews.com 10 May

A group of scientists at the University of Toronto have found an abundant source of stem cells in umbilical cords. They have discovered what they are calling the "jack-pot" of stem cells in a mass of jelly found inside the umbilical cord. "We're very excited by this," said J.E. Davies, of U of T's Institute of Biomaterials and Biomedical Engineering.

The source, known as Wharton's Jelly, surrounds the three umbilical cord blood vessels connecting the fetus and mother. The Toronto researchers used umbilical cords donated from full-term pregnancies. The team hopes that this will spur parents to save their children's umbilical cords. Stem cells from umbilical cord blood have proven to be as versatile as stem cells derived from embryos. Davies said the stem cells could provide sources of treatment for diseases such as leukemia and lymphoma, which normally require bone marrow transplants.

The University of Toronto's findings are to be published in the journal "Stem Cells". You can anticipate using these as a source of cells to help re-grow that bone... or connective tissue in the knee... which has been damaged in an accident, "said Davies. Dr. Peter Holland's, a stem cell biologist from Cambridge University, has said that he cannot understand why scientist are pursuing embryonic stem cells that have so far failed to produce any cures. Dr. Holland's told LifeSiteNews.com. "If we focused more on collecting umbilical cord blood from most births and storing the samples in a public bank, there would be a suitable match for almost everyone. The designer babies would then not be needed as the cord blood banks could easily support the demand for cells for transplantation.

Go to fullsize image [What the Media Won't Tell You About Stem Cell Research](#)

Portions of an article by Dawn Vargo

New studies threaten to undermine everything you've been told about embryonic stem cell research. The following is a must read for anyone interested in the whole story on stem cell research.

The debate over stem cell research is raging across the nation and echoing through chambers of Congress and state legislatures. Most people have heard just enough to offer an opinion to friends and neighbors; yet, the information they receive is incomplete and often inaccurate.

Every new study on embryonic stem cells produces an onslaught of optimistic articles confidently proclaiming that with just a little more time and a lot more public money embryonic stem cells will provide cures for dozens of diseases and hope for millions of sick patients. Meanwhile, stories highlighting adult stem cell successes seem less optimistic and much less prominent. Casual observers might reasonably conclude that embryonic stem cells hold the most promise while adult stem cells are of secondary interest. They would be wrong.

Embryonic stem cells are often touted as the most promising research option because they are a "blank slate" capable of differentiating (changing and specializing) into all the cells of the body. Less well known is that adult stem cells have the same ability to change into every kind of cell, tissue, and organ in the body. Yes, you read that correctly: one of the main reasons embryonic stem cells are flaunted as the gold standard in research is their ability to change into every cell type. Yet, adult stem cells have the same capacity.

In other words, adult stem cells can do everything embryonic stem cells can do:

1. Adult stem cells are flexible: Like embryonic ones, they can change into every cell type of the body. Researchers often refer to this ability to specialize into every cell type as pluripotency.

2. Adult stem cells' flexibility show new potential to treat disease: Studies demonstrate that in addition to diseases already being treated with adult stem cells, the recently discovered and often ignored flexibility of adult stem cells offer additional possibilities to cure disease.

Contrary to the exclusive claims of embryonic stem cell proponents, the following compilation of research demonstrates the flexibility of adult stem cells to transform into a wide range of specialized cells – just like embryonic ones.

Terms to Know

Differentiate – a scientific word to describe how something changes and specializes. Normally used to describe how "young" cells change into mature cells with special functions.

Germ layer – within a developing embryo, there are three germ layers that provide the ability for the embryo to change into all the cells of the body. Embryonic stem cells have the ability to change into cells from all three germ layers – this means they can differentiate into every part of the body. There are three distinct germ layers in humans: endoderm (internal layer), mesoderm (middle layer), and ectoderm (external layer).

Conventional knowledge says that adult stem cells are not as promising as embryonic stem cells because they lack these embryonic germ layers that can form all of the body's 200+ cells (skin cells, muscle tissue, internal organs, etc). However, a growing body of research shows that adult stem cells have an "embryonic" ability to differentiate.

Adult stem cells – there is a wide variety of adult stem cells including bone marrow stem cells, nasal stem cells, mesenchymal stem cells, etc. These types of adult stem cells are normally identified by where they are located (bone marrow stem cells are found in bone marrow, blood stem cells in the blood, etc).

Flexible Stem Cells

The following summaries document the ability of adult stem cells to develop into cells outside of their original cell family.¹

Bone Marrow

- Bone marrow stem cells can make significant amounts of new lung tissue.⁵
- Bone marrow stem cells can change into epithelial cells when transplanted into the lung.⁶
- Bone marrow stem cells can be put into various tissues and organs. This research could provide a model for future lung stem cell work.⁷
- Bone marrow stem cells from men were implanted into women. They found that the women had brain cells with the Y chromosome. This shows that bone marrow stem cells can turn into brain cells.⁸
- A specific type of cells (multipotent adult progenitor cells – MAPCs) has been found in bone marrow. These can specialize into cells from all three germ layers. This study found that these cells can be isolated not only from bone marrow but also from brain and muscle tissue.⁹
- Stem cells from bone marrow have the capacity to develop into all cell types in the human body including those that make up the glands, digestive tract, hair, skin, nails, brain, nervous system, and muscle. ¹⁰
- Bone marrow stem cells can turn into nerve cells; contrary to previous belief, these bone marrow stem cells did not merely fuse with nerve cells, they changed into nerve cells without any cell fusion.¹¹
- Pluripotent (able to change into all cell types) bone marrow stem cells can change into insulin-secreting cells.¹²

- Researchers in Miami once again found that bone marrow stem cells can change into all cells of the body.¹³

- A single bone marrow stem cell can turn into marrow, blood, liver, lung, gastrointestinal tract, skin, heart, and skeletal muscle.¹⁴

Cord Blood

- Cord blood cells, a type of adult (also known as non-embryonic) stem cells that come from the umbilical cords of newborns, contain mesenchymal stem cells. These mesenchymal stem cells can change into skeletal muscle cells.¹⁶

- A special type of umbilical cord blood stem cells (called unrestricted somatic stem cells – USSCs) can change into all cells from all three germ layers. This means they can specialize into all of the cells in the body including brain, bone, cartilage, liver, heart, Kidney and blood cells.¹⁷

Mesenchymal

- A specific type of adult stem cells, human mesenchymal stem cells, have the ability to self-renew on a long-term basis. They also have the flexibility

Placenta

- A type of stem cells found in the placenta (amniotic epithelial cells) has the potential to change into all three germ layers.²⁹

Flexible Stem Cells for Treating Diseases

The recognition that adult stem cells possess the flexibility to change into all types of body cells has led to a variety of models to treat disease – treatments that are currently unattainable with embryonic stem cells.

Adult Stem Cell Treatments

Not only can adult stem cells change and specialize into all cell types, they also out-perform embryonic stem cells when it comes to treating disease. Research with adult stem cells is steadily producing positive results that demonstrate the ability to treat disease. The proven track record of adult stem cells provides a striking contrast to their embryonic counterparts which have never treated a single patient. For examples of adult stem cell treatments currently being used in human patients, see Adult Stem Cells: It's Not Pie-In-the-Sky

Bone Marrow Stem Cells to treat:

Diabetes

- Bone marrow stem cells transplanted into the pancreas can morph into insulin-producing beta islet cells. Insulin levels increased. This discovery may help treat people with Type 1 Diabetes by eliminating the need for daily injections of insulin.³²

- The discovery that bone marrow stem cells can change into insulin secreting cells is an important step toward curing diabetes.³³

Strokes and other neurodegenerative diseases

- MAPCs can change into neuron-like cells in mice that have experienced strokes.

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Cord Blood Stem Cells to treat:

Cerebral Palsy

- Injections of cord blood stem cells into 9-year-old twins with cerebral palsy increased their ability to speak, decreased their leg cramps and allowed them to sit up unassisted.⁴³

- Umbilical cord blood stem cells from humans can change into liver cells in rats with damaged livers. ⁴⁷

- Human cord blood stem cells can improve liver renewal by transforming into liver cells that can aid in regeneration.48

Diabetes

- Adult stem cells from the intestine were converted into insulin-producing beta cells in the pancreases of diabetic mice.50

Mesenchymal Stem Cells to treat:

Cornea damage

- Human mesenchymal stem cells were used to reconstruct damaged corneas.52

Lung Injuries

- Stem cells derived from bone marrow were found to be important for lung repair and protection against lung injury.53

Neurodegenerative Diseases

- Stem cells derived from bone marrow developed into neural cells that hold promise to treat patients with Parkinson's disease, amyotrophic lateral sclerosis (ALS), and spinal cord injuries 54

Mouth Stem Cells to treat:

Blindness

- 8 out of 9 patients that had mouth stem cells placed in their eyes (cornea) recovered their sight.55

Muscle Stem Cells to treat:

Heart Disease

- Muscle stem cells from thigh muscles were used to successfully treat four men with end-stage heart failure.⁵⁶

Incontinence

- Human muscle stem cells have been used to cure urinary incontinence in animal models; human trials are now in progress.⁵⁷

Multiple Sclerosis

- Adult neural stem cells were unexpectedly found to treat an MS-like disease by suppressing the immune attacks that damage the brain and spinal cord tissues.⁵⁸

These findings cast substantial doubt on claims that embryonic stem cells are the best investment for our time, money and resources. In fact, these studies shift the burden to embryonic stem cell researchers to prove that their research is important to finding treatments and cures for disease. Scientific research and current medical therapies unquestionably reveal that adult stem cells are most promising research option.

Go to fullsize image Experts: Adult stem cell research should be priority

by Tom Strode

WASHINGTON (BP)--Promising results using adult stem cells in patients demonstrate that such research, and not destructive embryonic experiments, should receive priority in funding, promoters of the non-controversial work say.

Patients, researchers and a bioethics specialist joined in a news conference in Washington to testify to the effectiveness of adult and other non-embryonic stem cell research. Their promotion of such experiments came the same day two members of the House of Representatives announced the introduction of legislation to give priority to adult stem cell research.

Reps. Dan Lipinski, D.-Ill., and Randy Forbes, R.-Va., introduced the Patients First Act, H.R. 2807.

Embryonic stem cells are considered "pluripotent," meaning they can develop into all of the different cell types in the body. Research using embryonic stem cells is opposed by most pro-life advocates, because extracting such cells results in the destruction of an

embryo. In addition, embryonic stem cell research (ESCR) has yet to treat any diseases in human beings and has been plagued by the development of tumors in lab animals.

Adult stem cells, also referred to as non-embryonic stem cells, typically have been regarded as "multipotent," meaning they can form many, though not all, of the body's cell types. In recent years, however, research has shown some adult cells have the same flexibility as embryonic cells. Extracting such cells does not harm the donor either.

"Even the scientific community unfortunately has tended to ignore the potential of adult stem cells, especially in relation to patients," said David Prentice, senior fellow for life sciences at the Family Research Council, in the July 26 news conference.

"There are at least two dozen examples of adult stem cells showing this flexibility but without some of the problems associated with embryonic type stem cells, problems with tumor genesis or getting the right type of cell for treatment," Prentice told reporters. "There are now thousands of patients whose health has improved, maybe not in all cases a cure, although in some it is.

"The bottom line is: If we're considering patients first, it's the adult stem cells that are really the most promising" now, he said.

"Pluripotent" stem cells have been found in amniotic fluid, placenta, testicular tissue, umbilical cord blood, nasal tissue and bone marrow, among other sources, Prentice said.

Research using non-embryonic stem cells has produced treatments for at least 73 ailments, according to Do No Harm, a coalition promoting ethics in research. There are about 1,400 clinical trials being conducted utilizing such cells, Prentice said.

Stephen Sprague, 58, of New York said at the news conference he was privileged to be "one of the very early, early examples of the power of adult stem cells in cord blood."

He was diagnosed with leukemia 12 years ago, but no bone marrow match was found, apparently dooming him to an early death. Instead, he has been cured for 10 years as a result of a treatment using stem cells from cord blood.

"Ten years ago, nobody ever thought this would work on an adult, particularly a full-sized adult," Sprague told reporters. "There is some mother and her now-10-year-old daughter walking the streets of New York who did what mothers didn't do 10 years ago, and she donated her daughter's cord blood to a public cord blood bank. They will never, ever know what they have done for me and for my family."

Other successfully treated patients who appeared at the news conference were:

-- Jaider Abbud, a Brazilian dental surgeon diagnosed with juvenile diabetes last year at the age of 26. He received an infusion of his own stem cells in a trial last year and is no longer taking insulin.

-- Doug Rice, 61, who had congestive heart failure and was told in November 2005 he had three or four months to live without a mechanical heart. The resident of Washington state has improved dramatically since receiving an injection of stem cells from his blood in a January 2006 procedure in Thailand.

Also testifying to the success of adult stem cells were:

-- Julio Voltarelli, a Brazilian researcher whose clinical trial using stem cells from blood resulted in 13 of 15 Type 1 diabetes patients being free of insulin use.

-- Amit Patel, a Pittsburgh, Pa., cardiothoracic surgeon and adult cardiac stem cell researcher whose treatments with stem cells from bone marrow have resulted in patients "still doing well" four years later, in contrast to a control group receiving standard care that is not doing as well.

The Patients First Act is designed to advance stem cell research and human trials that show benefits in the near future, Lipinski and Forbes said in news releases. It also is to promote the development of "pluripotent" stem cell lines without destroying human embryos, they said.

"The issue of embryonic stem cell research has become divisive, and when there are cures and human lives at stake, divisiveness is not a luxury we have," Forbes said in a written release. The legislation attempts "to devote our energies and our resources on the common goal shared by both sides of the embryonic stem cell debate -- curing and treating patients," he said.

Prentice commended the House for approving July 18 an increase of \$11 million in funds for the National Cord Blood Inventory, which collects cord blood units and makes them available for doctors searching for matches for patients.

The Senate is expected to attempt an override of President Bush's June 20 veto of a bill seeking to weaken his policy that blocks federal funds from being used in stem cell research that destroys embryos. The Stem Cell Research Enhancement Act, which Bush also vetoed last year, would provide funds for research using stem cells procured from embryos stored at in vitro fertilization clinics. The president's 2001 rule permits funds for embryonic research only on stem cell lines already in existence at the time of the announcement of the policy.

These summaries significantly simplify the findings in the original studies. Like any overview of a complex topic, oversimplifications are inevitable. This document attempts to provide the most accurate information in easily understandable terms

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FAQ: How are Stem Cells Processed?

Umbilical Stem Cells are harvested from the umbilical cord blood of full term healthy babies whose mothers have chosen to donate the cords.

Contents

1. Cord collection
2. Testing of samples
3. Confidential information
4. Obtaining the cord serum
5. Separation
6. Culturing and expansion
7. Final checks and cataloguing of units
8. Packing and transport

Cord collection;

Every major city in China has a government blood bank that handles the donation of cord blood. It is a common practice in China for mothers to donate the cords from the birth of their full term children. Every woman who enters the hospital in China to give birth is automatically tested for all major diseases including but not limited to Hepatitis and HIV. Detailed family histories are also done on each mother prior to donation. This represents the first step of the screening process for donated cord blood. Only women who have been fully screened and found to be completely healthy are allowed to donate their cords.

Once the cord is donated the cord blood is removed and these samples are sent to the government blood banks.

Testing of samples;

Each sample is tested upon arrival by the blood bank's government employee technicians. This is step two in the screening process. Inside some of these government labs we have set up our own private (government approved and overseen) labs. Once the blood has tested negative for diseases some of it is transferred to our interior labs. At this point the cord blood becomes the property of Beike Biotech. We now are responsible for each and every sample that is processed and transplanted into our patients. Now that the samples are within our own labs each one is again tested by our own technicians representing the

third step in the overall screening process. Once the cord blood samples have passed the testing phase our processing begins.

Confidential information;

These unique methods have been developed over a number of years by a host of doctors and scientists. At one time we had as many as 65 PhD's working on the research and development of our "Magic Mixture". Our "entire" process and many of the details involved can not be shared as this technology is considered to be patented within China and is therefore considered "proprietary" information. Despite this we do endeavor to provide our patients with as much information as possible. It is indeed one of our company's motto's to be as transparent as possible. It is our feeling that this is essential when dealing with patients under these circumstances.

Obtaining the cord serum;

This is easily accomplished by removing the actual red blood cells. Typically a specialty dynamic centrifuge is used to separate the serum still containing some of the stem cells from the Red Blood Cells. This is a highly refined process and while not done exactly the same as in many basic labs it is in fact very similar in concept. What is left after separation is a mixture of the many subset type stem cells and cord serum. It is at this point that some of the units of serum are set aside for direct transfusion into our patients.

Separation;

Within each cord is found blood and within the blood one can find many types of stem cells. There are in fact over 180 known subsets of stem cells within the overall family of Umbilical Cord Derived Stem Cells. The first step in locating those subsets of stem cells that we want is to remove all of the "blood" from the fluid sample and separate out the exact sub sets that we want. An example would be for the purpose of treating those patients with neurologically based issues we utilize three very specific sub sets of stem cells. There are in reality very few of these neuro based stem cells within the cord blood and we must find and extract just these three types from all the rest. This is done via a process known as Magnetic Washing. Our technicians will pour the serum mixture into a shallow pan filled with a solution containing very specific ions. These ions are ones known to attach only to certain types of cells and not to others. As the two solutions are carefully mixed the ions attach themselves to our target cells. Next the technician will activate a magnetic field thus attracting all the ion tagged cells to it. Once separated we literally wash away all but those cells with an ion attached. The magnetic field is then turned off and we are left with only the three subsets of stem cells we were after.

Culturing and expansion;

One umbilical cord only provides approximately 150,000 to 300,000 stem cells and most of those have to be washed away to obtain just the target cells. This leaves us with an amount far below the millions of cells needed for an effective transplant. To increase the number of cells scientists put them through a process known as expansion. The cells are swabbed onto a growth medium contained within an elongated bag. We do not use any animal products such as bovine serum in our growth medium. Feeder cells are also not used in our products thus further decreasing any possibility of contamination. Our medium is also infused with a small amount of an antibiotic to preclude any bacterial contamination. Our growth medium is also enhanced with Nerve Growth Factors. These factors are absorbed by the cells as they multiply thus promoting the cells potential to become neural tissue (white matter). These bags are then placed in a dark, warm, temperature controlled incubator and left to multiply. This multiplication process is called expansion. The process allows the cells to expand in number to meet the needs necessary for transplantation. Once the expansion is done the Stem Cells are put through another process to wash away all the growth medium leaving behind only the desired stem cells.

Final checks and cataloging of units:

Final testing is then done. All batches are tested and analyzed one last time. During this process they are also checked for quantity and quality. Lastly each sample is placed into either a sterile vial or an IV bag for transfusion into the patient. All products are individually cataloged and numbered and a tracking sheet is created. Our cell transplants take place 3 days a week; Mondays, Wednesdays and Fridays. All of our cells are processed to order on an as needed basis. We do not produce products in mass in advance and/or freeze them. Everything is processed and kept fresh until the time of use thus giving us a higher cell viability count and an increased cellular potency.

Packing and transport:

Three times a week on the days mentioned above our lab technicians begin their work day in the early morning hours. They take the products and match them up with the orders for transplant. Each patient in each location is assigned their sample. Each cataloged sample is matched with the patient and detailed sheets are created to track the transport, receipt and transplant of each unit to each location. Samples along with the documents are then packed for transport. In some cases the labs are located in the same city as the treatment facility. In this case we have drivers that are employed by Beike Biotech go to the lab and pick up the cells. They then take the cells to the hospitals where they hand them off to the units head doctor and head nurse. The delivery is then checked matching units with the order tracking sheet and signatures are done for receipt of the cells. For facilities not located in the same city as one of our labs we have one of our employees take the cells and fly them to the city in which our facility is located. The cells are then handed off from the transport tech to the drivers who check the contents and sign off for receipt of the units. These drivers who are employed by beike then transport the cell to the treating facility. We maintain a very strict chain of custody on all our products and they are never left in the hands of a third party. All units are always within the care of trusted Beike employees.

Updated by Kirshner Ross-Vaden 12/21/07

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Prices for Beike Biotech Stem Cell Treatments

The following prices are valid from March 15th 2008 to June 15th 2008.

Please Note: Prices for treatments in China are reviewed on a quarterly basis and are therefore subject to change.

Previously quoted prices do not apply.

Basic treatment program:

The choice of how many SCT's to have is ultimately up to the client but we do advise that you follow the recommendations of your medical consultant.

> 4 SCT's are \$20,000.00 USD (20K) ...20 day stay

> 5 SCT's are \$23,300.00 USD (23.3K) this is a savings of \$200.00 USD if the arrangements for 5 SCT's are made at the time of your registration ...25 day stay

> 6 SCT's are \$26,300.00 USD (26.3K) this is a savings of \$700.00 USD if the arrangements for 6 SCT's are made at the time of your registration ...30 day stay

> 7 SCT's are \$29,300.00 USD (29.3K) this saves you a total of \$1200.00 USD if the arrangements for 7 SCT's are made at the time of your registration ...35 day stay

> 8 SCT's are \$32,300.00 USD (32.3K) this saves you a total of \$1800.00 USD if the arrangements for 8 SCT's are made at the time of your registration ...40 day stay

****These discounts do not apply if you wait until you are on site to opt for additional stem cell transfusions****

Bone Marrow Surgery: there is an additional cost of \$5000.00 USD for this procedure if booked at the time of your registration. If booked on site the cost is \$5500.00 USD. If you are interested in obtaining this in addition to the above treatment please let us know at the time of your registration. This procedure is only available to those already undergoing a full treatment program. We must know at the time of your booking if you wish to have this procedure. For more detailed information on this procedure please ask your medical consultant. Each BMT procedure includes two separate intravenous re-infusions of specially processed stem cells containing three different stem cell subsets. The first transfusion is a combination of Hematopoietic Cells (MNC) and Endothelial Progenitor Cells (EPC) and the second infusion is pure Mesenchymal Stem Cells (MSC).

*Currently we only offer BMT's at our Hang Zhou location.

If for any reason the doctors at the treating facility determine after your evaluation that you are not a suitable candidate for a BMT your funds will be refunded or you can opt to have the applied to additional stem cell transplants.

NOTE:

Each transfusion contains approximately 10 to 15 million stem cells. Along with each transfusion patients are also given a transfusion of Neural Growth Factors. Transfusions are given IV and/or via transfusion into the Cerebral Spinal Fluid. This determination is made on site by the treating medical team.

You can request if you wish to have all stem cell transplants by IV only.

Included are free transportation to and from the hospital via car or minivan and the local airport and free accommodations at the hospital for the client and one caregiver. We also offer a complementary rehabilitation program. This therapy which is customized for each individual patient is provided free of charge and may be 1 to 2 hours done 4 to 6 times per week depending on the patient's ability to participate (Sunday's off). Meals and laundry service are not included. Meals are not served at hospitals in China. You can have your laundry picked up and done by an outside service at a reasonably low price.

Note; there is an additional fee for transport via a Handicap Van with a wheelchair lift of \$200.00 round trip (see below).

* Additional transfusions booked at least one month prior to treatment (this is on a case by case basis depending on room availability) are US \$3,500 each. Each transfusion may require an additional 2-5 days in the hospital. This option is only available to those already participating in a full treatment program.

** If you opt for additional transfusions outside of the above parameters and/or during your hospital stay they will be \$3,900 US each. This may require an additional time in the hospital and/or that you stay in a hotel near the hospital, which would be at your own cost. This option is only available to those already participating in a full treatment program.

NOTE: There is an additional transport charge of \$200.00 USD round trip for those with electric, non-collapsible chairs that require a handicap accessible van with a ramp and/or lift.

This type of transport would also be needed for anyone unable to be transferred into a typical van seat and/or those who would need to remain in their wheelchairs during transport.

Transportation by ambulance; if you are not able to be transported in a van and will require transport by ambulance there is an additional cost of \$800.00USD per trip (one way). This must be arranged for in advance so please let us know if this is a concern for you.

Electric Wheelchairs; We advise that you bring the lightest and most compact chair you have. Large, heavy, non-folding or non-collapsing chairs are very difficult to travel with and to transport in our SUV type vans which do not have ramps or lifts.
Shanghai Airport; we no longer offer transport from Shanghai.

PLEASE NOTE:

* A deposit of approximately 20% is required to be made within two weeks of booking your treatment. Deposits are considered non-refundable except in the case of medical / emergency situations and proper documentation of such must be supplied and verified. Should a refund be issued you will be expected to pay all banking fees which apply to all transactions.

* We have a flat transaction fee of \$100 per transaction that will be charged to the client. This is a pre-set "penalty and processing fee" for cancellations and refund transactions. A transaction is each time money has been moved into our account and when we have to move it back out as a refund.

* If you wish to apply for a refund you must do so at least 30 days prior to your arrival date. No refunds are given within 30 days of your arrival date.

* If for any reason you cancel within the 30 day time frame no refund will be granted. If a medical emergency arises and you are unable to travel and the proper documentation is supplied we can and will rebook you. If this should occur there may be a rebooking fee of \$1000.00 which must be paid prior to new treatment dates being given.

* If you need to rearrange your dates after your original booking we will be happy to carry over your deposit to your new travel dates. However all payment due dates will remain unchanged.

* Your final payment is due 30 days prior to your arrival date. We will give you exact due dates at the time of your registration.

* If during your hospital stay you become ill and/or require medical treatment as a result of something other than an issue related to the stem cell treatment you will be responsible for the payment of the additional care to the hospital.

* If for some reason you opt to extend your stay in the hospital please note that you may be charged an additional \$200.00 USD per day for hospital fees.

* If the patient arrives with any amount still showing as "balance due" this amount must be paid in cash upon arrival and treatment will not begin until all monies have been paid.

* There is a \$100.00 USD "change fee" which will be applied should you opt to change your treatment dates once you have been sent your confirmed booking. This fee also applies to any requests for a change in location.

* Should the client fail to pay their deposit and/or final payment on time their booking will be cancelled and they will then be required to pay in full in advance prior to being granted new treatment dates.

Extra Charges:

In addition to the items noted above also please note that there are extra charges for the following items noted below. Some of these issues may be noted prior to your arrival and can be paid for in advance. If these items are not noted until the patient's arrival the fees will need to be paid prior to beginning treatment. Fees must be paid in cash to the on-site accountant. Should the patient require any of these types of treatments for any reason during their stay payment is required to be made in full prior to the final stem cell transfusion.

Antibiotics \$42.00 USD per dose

Wound care/ pressure sores \$15.00 USD per wound per day

Oxygen \$4.00 USD per day

Suction \$4.00 USD per day

Trach Care \$135.00 USD per day

Round trip Handicap Van Service: \$200.00

Policy regarding unpaid fees:

If for any reason a patient fails to pay for treatments and/or services received Beike bio-tech reserves the right to withhold the final stem cell treatment. The amount due would be deducted, using a calculated cost of \$2500 for the final treatment and the balance refunded. Also deducted would be the transaction fee noted above and an additional "failure to pay" fee of \$100.00 USD.

Prices for treatments in China are reviewed on a quarterly basis and are therefore subject to change. As the market value of the "dollar" changes in relation to China's currency of RMB we must alter the prices in USD to match its relational value to the RMB. Please note that while it may seem as if the price is increasing it is in fact not as the prices are keep stable in RMB currency. Rather it is the currency exchange rate which is constantly changing and we must alter our quoted prices to reflect this. All prices are set in USD as it is considered to be the standard world exchange and therefore all payments must be made in US Dollars. We find it best to review prices every three months and make adjustments on a quarterly basis.

Updated by Kirshner Ross-Vaden (4/1/08)