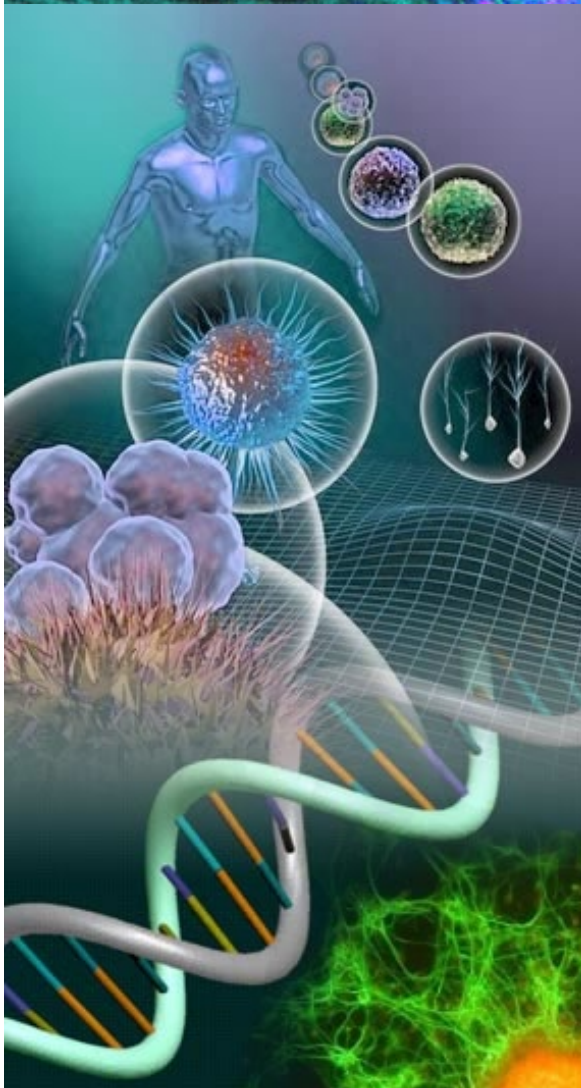


Welcome to the Cutting-Edge in Health Regeneration

Now offering Stem Cell Treatments

# StemTechLabs



## Stem Cells - a Modern Day Medical Miracle available NOW!

Are stem cell treatments illegal? – *NO!*

Are our stem cells unethical? – *NO!*

Are stem cells available in the USA now? – *YES, they are!*

A powerful healing technology is being distorted and dismissed in today's medico-legal system and media. You hear about stem cells every day in the news. But do you know anyone who has received their benefits? If they are so good, why are they not available, right now, to those who need them? – *Well, now they are!*

Stem Cell Therapy can truly be a modern day medical miracle, treating or curing over 70 diseases. Currently, their use is expensive, and almost non-existent in the USA. However, we have set up a state-of-the-art Stem Cell Lab in Ecuador and we are currently treating individuals for a variety of health problems with a high degree of success in regenerating diseased tissue and restoring optimum health.

An inexpensive, safe and effective source of Stem Cells already exists in every country. These are Human Umbilical Cord Stem Cells discarded from newborn babies.

“Cord blood hematopoietic stem/progenitor cells offer the potential for tremendous therapeutic benefit.”

– Jesse Goodman, MD, MPH, director of FDA’s Center for Biologics Evaluation and Research (CBER).

We are FDA registered. The FDA has determined that cord blood hematopoietic stem/progenitor cells are *safe and effective* for certain indications based on the large body of published literature.

## This Website Will Show You:

- What Stem Cells are, and why they are important
- Why Umbilical Cord Stem Cells are superior  
(NOTE: We do NOT provide nor do research with embryonic nor fetal stem cells.)
- Basic Stem Cell Technology
- Stem Cell Therapy – Previously untreatable conditions now can be cured
- Ethics, Legalities, and Politics of Stem Cells
- What Conditions can be treated
- Research on specific conditions
- How to Buy Stem Cell Treatment NOW starting at \$2,500 USD
- How to get your free 7 page PDF introduction document for your doctor

We are dedicated to  
bringing stem cell  
healing therapies to  
the world NOW!

We are providing NOW our cells to medical doctors in the USA. This means that you can get your cells NOW through your doctor in the USA. Have your doctor contact us for further details or point him/her to our PDF file at the above link. Please pass it on to your doctor. In it we provide information about the legality of human umbilical stem cell treatment, references to cases, and answer too many of the most common asked questions. Please do read it too, it is in uncomplicated language.

Want detailed stem cell educational information? If so be sure to click below to learn about Human Umbilical Cord Stem Cells, What are Stem Cells, Why are they important and how can they be used as preventive therapies, also learn about different sources and types of stem cells, and how they are separated and processed.

## Stem Cells — Frequently Asked Questions

### “What are Umbilical Cord Stem Cells?”

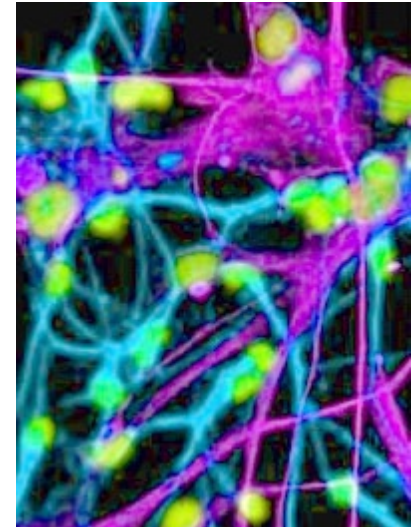
Umbilical Cord Stem Cells are found in the umbilical cord and placenta that nourish a baby. At birth, the baby takes as much blood into its body as it needs, and when the umbilical cord is cut and the placenta delivered, some blood remains in these organs. This blood is removed within 5 minutes of birth, and placed in a special bag for processing. At the laboratory, the stem cells are separated from the other blood cells and plasma, tested for purity, and frozen until they are needed.

### “What are Mesenchymal Stem Cells?”

The placenta and umbilical cord structure itself are rich in another type of stem cell derived from the Wharton jelly, the “Mesenchymal stem cell”. This cell, formerly only recognized as a part of bone marrow, appears to be capable of converting into virtually any of the cells of adult tissues. It has already been found to convert into liver and insulin-producing pancreas cells, bone, blood, joint cartilage, tendon, ligament and nerve cells, and has been found to repair damaged kidneys and Parkinson’s Disease brain lesions in rats. We anticipate that this Mesenchymal stem cell, and the cell precursors which descend from it, will be a major part of stem cell therapy in the future.

“Wharton’s jelly stem cells (WJSCs) are of great therapeutic potential because large number of cells are easily isolated and may be better tolerated following transplantation because of their low immunogenicity and immune suppression. The cells are a potential powerful device for tissue engineering, cell and gene therapy for a variety of genetic or inherited diseases, as well as for acquired diseases since WJSCs can be induced to form adipose tissue, bone, cartilage, skeletal muscle, cardio myocyte-like cells and neural cells and could be used to treat protein deficiencies, disorders of bone and cartilage and the heart, bone marrow stromal disorders as well as neurological diseases such as Parkinson’s disease, multiple sclerosis, cerebrovascular accidents (stroke) as well as perinatal hypoxia/asphyxia and even cerebral palsy.”

– Curtis L. Cetrulo, M.D. Professor Tufts University School of Medicine and President of the International Cord Blood Society.



## **“Will these stem cells help MY condition?”**

In spite of heavy opposition from governmental and pharmaceutical centers of power, a few brave and forward thinking physicians all over the globe are involved with clinical trials of Stem Cells for many conditions. In some cases, there is strong and consistent evidence that stem cells are helpful for a particular condition. In other cases, there may not be enough information yet to know. And in still other cases, stem cells need to be treated or “differentiated” into more specialized cells in order to treat the condition, a process which may or not be available now. By sharing information with doctors throughout the globe, we hope to be able to answer this question for you as soon as possible.

A list of conditions that may be treated with Stem Cells may be found in this excellent book and website: Umbilical Cord Stem Cell Therapy, by David Steenblock, D.O., [www.StemCellTherapy.com](http://www.StemCellTherapy.com).

## **“What about other types of stem cells?”**

- Umbilical cord stem cells can convert into any cell type in the body. Other stem cell types may not have this ability.
- Fetal stem cells are extracted from aborted babies, so are ethically questionable.
- Embryonic stem cells are in the news every other day, but they have not been used to cure anyone. They are the darling of the big pharmaceutical corporations because they require difficult, expensive, and patentable processing in order to be useful. They also have a tendency to develop into cancer into the animals in which they have been transplanted.
- Adult stem cells cause immune reactions when they are injected into anyone but the donor, and are generally available only in university research programs.
- Only umbilical cord stem cells are readily available from sources all over the world, do not cause immune problems, and are able to address problems in any organ in your body.

## **“Is Stem Cell Treatment legal in my country?”**

We cannot answer this for every country. However, in most countries, stem cells are not specifically regulated. They are a product which a physician may choose to use as part of his medical practice. In the United States, for example, a physician may use any device or unregulated substance that he has made to treat his patients. We can provide human stem cells to your physician, and teach him how to create a treatment for you. We believe that this is legal, within the scope of the law. We can also help your physician to enroll you and him into an organized program of clinical trials of stem cells, to increase the knowledge of stem cell use world wide. This will also help protect him from suspicious regulators.

**USA ONLY:** The mesenchymal and umbilical cord blood stem cells used in this study are human cells, tissues, or cellular and tissue-based products (HCT/Ps) as defined in 21 CFR § 1271.3(d). Under 21 CFR Part 1271, HCT/Ps are not subject to licensure or IND requirements if certain criteria are met (21 CFR § 1271.10).

These requirements include autologous use (use by the cell donor), or if used for other patients, the HCT/Ps must be “not more than minimally manipulated” and labeled for use for “homologous use only”. They may also not be used for a purpose requiring their “metabolic” activity.

**SOUTH AMERICA:** StemLab S.A. mesenchymal and umbilical cord stem cells shipped to the United States of America have not been “more than minimally manipulated”. StemLab S.A. labels and intends its cells which are used within the United States of America only for homologous and non-metabolic purposes. StemLab S.A. does not interfere with the practice of medicine by individual physicians who use StemLab products, and who may do so according to their own medical training and informed choice.

## **“What is the US FDA law regarding stem cells?”**

[See TITLE 21 part 1271 of the US FDA law](#)

## **“Where can I get Stem Cell treatment?”**

StemTech Labs can provide unprocessed, undifferentiated stem cells to your physician, who can enroll you into a program of human clinical trials, and administer the cells to you at his office. Or, we can refer you to another doctor who may be willing to administer the cells to you. We also offer stem cell administration by our own licensed physicians in Ecuador, as well as health-vacation packages of advanced medical diagnosis and treatments for many hard-to-treat conditions. These packages include hotel stay and stem cell treatment, as well as other medical assessments and treatments.

## **“Are there any problems resulting from receiving stem cells?”**

No significant adverse reactions to StemTech Labs stem cells, or other umbilical cord stem cells, have been reported. Some patients have had a short period of chills and fever, lasting for a few hours. This is a result of cytokine release from the stored cells. One patient with MS reported an improvement of her symptoms, followed by a bothersome increase in sensitivity of her nervous system.

Over 5,000 umbilical cord stem cell transplants have been given since 1988, mostly to children with leukemia, instead of a bone marrow transplant. There have been little or no adverse reactions reported from these transplants. There have been problems with the procedure, but these problems are mostly for Graft vs Host disease (see below) due to the pre-treatment with radiation and chemicals to destroy the immune system, and not from the stem cells themselves. Umbilical cord stem cells do not seem to cause any immune problems in the recipient, unlike adult stem cells, and they do not cause cancer, like embryonic stem cells. StemTech Labs tests its stem cells for blood borne infections in an independent lab.

There has been one case of a non-cancerous collection of stem cells forming as a result of an injection of stem cells into a kidney, performed in Thailand. While this collection was found by physicians, and the kidney was removed for fear that it was cancer, the cells do not seem to have had any direct effect on the patient's health.

## What about Graft vs Host Disease?

Graft vs. Host Disease, or GVHD, is a common side effect of bone marrow transplantation, and of stem cell replacement of bone marrow, usually used for cancers such as leukemia. Sometimes this disease, which is totally caused by medical treatment, can be fatal. Even with a perfect tissue match, there is still a 50% incidence of GVHD in bone marrow/umbilical cord stem cell transplant patients. For stem cell transplant facilities, GVHD is thus a very important problem, and stem cell transplant doctors in the USA, most of whom are ONLY doing transplants for cancer, thus are very concerned about GVHD. In fact, much of the medical literature about umbilical cord blood stem cell transplantation is primarily discussions of GVHD.

In a patient who has NOT had their immune system and bone marrow obliterated by radiation and/or drugs, however, GVHD DOES NOT OCCUR. It doesn't happen. It is difficult for most hospital and research stem cell transplant physicians to understand this, because they NEVER give stem cell treatments without immune obliteration. But, for non-cancer, non-bone marrow problems, it is not necessary to do immune obliteration, so in our Stem Cell Transplant patients, we never see GVHD.

## “How are Stem Cell treatments given?”

In a brief, in-office procedure, the stem cells can be given through an IV line into a vein, or injected under the skin. Stem cells have the ability to travel throughout the body to find the sites of problems, and then to multiply at those locations, and repair the problem. Like any other injections, there may be a chance of bruising, pain, bleeding or infection at the site. Specialized cases, such as providing nerve stem cells to the spinal cord, brain, or retina, may require injection of the cells into the spinal canal, or behind the eye. It is still unclear what the best route of administration is for some types of problems. It may be necessary to work with a specialist in order to deliver the cells to the right location, but stem cells do have an amazing ability to find a problem, migrate to the site of the problem, multiply, differentiate into the proper cell types, and repair the problem.

“How much do Stem Cells cost?”

Currently, prices vary from \$100,000 for stem cell treatment for MS at the University of Texas, to \$25,000 per treatment for fetal stem cells in Ukraine and Dominican Republic, to \$20,000 for umbilical cord stem cells in Africa, and \$12-\$15,000 in Mexico.

Starting July 15, 2008 or earlier, our *StemTech Lab* has provided undifferentiated umbilical cord stem cells for the introductory price of only \$5000 US, plus shipping. This is as little as 20% of the price of other companies' stem cell treatments.

We at StemTech labs have a commitment to provide top quality, safe and effective stem cells to those who need them, at a price which they can afford. Most companies see the demand for these cells, and charge whatever they can get. We believe that by lowering the cost, without sacrificing quality, we will be able to provide these life changing stem cells to many more people, thus improving many more lives.”

In the near future, we will be providing differentiated stem cells for more specialized treatment of nerve, eye and brain disorders, diabetes, liver failure, cancer and other illnesses.

### **“How do stem cells find their way in the body? How can they identify damaged areas or areas that need repair?”**

Cells have many identifying markers that they carry on their outside membrane. Most of these markers are proteins, some are combinations of sugar molecules, and some are mixtures of both. Some of these markers are familiar as the ABO and Rh blood type markers. Another group of markers are the HLA markers (Human Lymphocyte Antigens) that identify our cells as “Self” or “Foreign”. These are the “Tissue Type” markers that are currently so important in transplants. If a person receives a transplant of a different tissue type, he must take anti-rejection drugs for the rest of his life, to keep his own cells from attacking the “foreign” tissue cells. Besides the “self or non-self” markers, there are also markers on cells that identify them as a particular cell function, ie, cardiac muscle cells, liver cells, or blood cells. Experiments with fetal animal cells show that if you take cardiac muscle cells and liver cells, and mix them up, the cells will migrate toward their own cell type, and when the like cells find each other, they soon begin to form a primitive organ. *The heart cells even start beating!*

Further experiments where fetal lamb heart and liver cells were mixed with adult human liver and heart cells showed that the heart cells sought out the heart cells, and the liver cells sought out the liver cells. The primitive organs formed were made up of part lamb and part human cells. Furthermore, the young animal cells somehow activated the older human cells, and made them more active.

Further experiments have shown that injections of radioactively labeled fetal animal cells in humans traveled throughout the bloodstream, but ended up in the appropriate human organ. They even have the ability to cross the blood brain barrier, which protects the sensitive brain from most cells, chemicals and other substances in the blood. These experiments support the very successful fetal animal cell therapy (“Live Cell Therapy”) which is done in Europe and Mexico, but is illegal in the US.

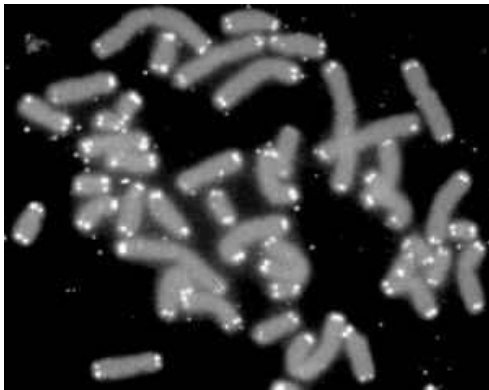
The ability of a cell to travel toward a certain chemical stimulus (such as tissue damage, or a particular type of cell) is known as chemotaxis, and is a commonly known cell characteristic. Some of the most common forms of chemotaxis involve inflammation, or tissue damage, calling in fibroblasts and blood cells to fight infection and repair the damage. Fibroblasts are fairly primitive cells which maintain the extracellular matrix, and also build connective tissues. Under the microscope, most stem cells are indistinguishable from fibroblasts, so it is not difficult to believe that they preserve some of the same chemotactic ability to find damaged areas that the fibroblasts have. Recent experiments with labeled human umbilical cord stem cells have also showed that they have the ability to seek out, and find damaged areas in animals’ tissues and brains, again crossing the blood brain barrier when needed.

A final thing to consider is that the full pattern of the body is not coded in the DNA. It exists in the etheric/electromagnetic “morphogenetic fields” permeating and surrounding the body. These fields have been visualized and photographed via the Kirklia techniques, and can be measured with electromagnetic sensors, as well as radioesthetic ones, such as dowsing rods, pendulums, and the like. Some of the effects of the electromagnetic fields of the body are described in the orthopedic surgeon Dr. Robert Becker’s book *The Body Electric*. These fields map the perfection or ideal image of a body. Cells contain the genetic (DNA) programming to produce the biochemical means (proteins and enzymes) of following the morphogenetic fields to produce a body. Experiments with salamanders have shown that cells which hold the DNA code for the entire animal can be induced to produce a limb, or a limb on top of a limb, by disruptions in the morphogenetic field. It appears that stem cells have the intrinsic ability to follow the morphogenetic fields of the body, to copy and produce the idea form and function of that body. If there is a disruption or anomaly in that form or function, stem cells, even from a different body, have the ability to seek out that anomaly and then seek to repair it.

*Ormus, or White Gold*, seems to increase the ability of stem cells to follow the morphogenetic fields. – See the photos later in this document of ‘Tut the Cat’, who regrew a tail when provided with Ormus. You can see in one photo a callus of stem cells actively building new tail—bones, nerves, muscles, blood vessels, and skin.

## “Why are newborn baby stem cells better than our own stem cells?”

The genetic information in a cell is encoded in a series of long strands of DNA, called Chromosomes. Each chromosome has a tail at each end, sort of like the tips of a shoelace, called a telomere. Telomeres are composed of condensed, repeating rungs of DNA which form a loop at the end. As cells repeatedly divide throughout the lifetime of a cell, the telomeres become shorter and shorter.



*Telomeres at the ends of chromosomes. – From Wikipedia.*

Eventually, if a telomere becomes too short, the cell dies rather than lose pieces of actual genetic code.

There are enzymes which rebuild the telomeres in some cells, especially in stem cells, so that they may continue to divide indefinitely and produce more stem cells. Still, the chances of DNA being damaged and its coding inaccurate, and also having short telomeres, increases with age.

### *Young Serum*

A study in India where unprocessed umbilical cord blood was transfused into sick patients showed that almost all of the patients made significant improvements in their health. Thus, the newborn cells were superior to their own cells.

Another study, in the prestigious Science journal Nature, showed that old cells got younger just by being exposed to young blood serum. For this reason, we our stem cells are exposed to their own serum at all stages of processing, including the thawing and infusion process.

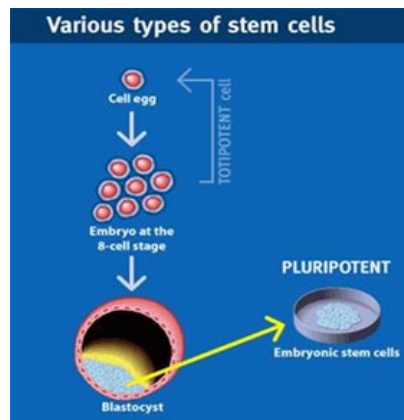
## Stem Cells — Education

### Introduction / Umbilical Cord Stem Cells

The constantly renewed supply of Umbilical Cord Stem Cells can be tapped, easily and inexpensively. Umbilical Cord Stem Cells can be used as-is, or processed for increased effectiveness. A huge world-wide need already exists. Very little is being done to meet that need. It is possible to break through the stranglehold that Big Pharma has placed on Stem Cell use, easily supplying these products for international and domestic use. In so doing, hundreds of thousands of people can be helped.

### Stem Cells—What Are They?

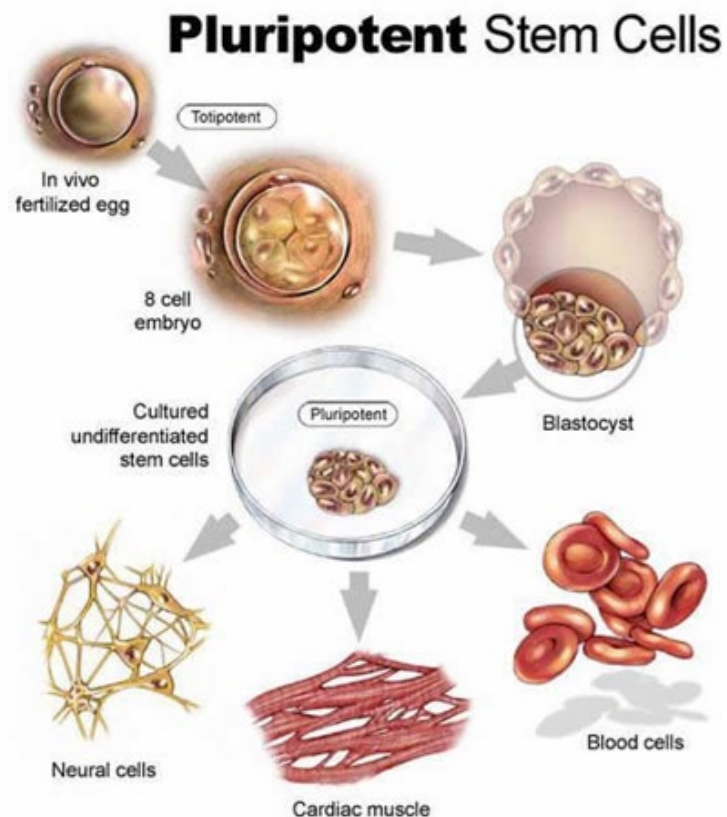
Stem cells are the primordial cells in the human body. They have the ability to convert into any other of the 200 odd cell types in the human body. Stem cells are the primordial cells in the human body. They have the ability to convert into any other of the 200 odd cell types in the human body. Since their basic programming is to build an entire human body, they can then repair damage, or even replace missing organs (in animals and thus far with the help of researchers). Serving as a sort of repair system for the body, they can theoretically divide without limit to replenish other cells as long as the person or animal is still alive.



Beginning with the fertilized ovum, down through the 8-cell stage, the cells of the developing embryo are considered to be totipotent, or capable of converting into any cell of the body, including the beginning cells. The first stem cells occur inside a developing embryo (blastocyst), a ball of cells that is constructed at about 12 days of age. These embryonic stem cells are understood to be multipotent (capable of differentiating in to almost every cell type in a living body). They divide and differentiate to ultimately construct the entire human body. 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 specialized function, such as a muscle cell, a red blood cell, or a brain cell.

## Why Are Stem Cells Important?

Because stem cells can turn into any other cell, they serve as a major repair mechanism of the body. Research has shown that stem cells can recognize areas of need, and migrate into those areas, then multiply and differentiate into the exact cells needed to repair the tissues and organs that have been damaged. As the stem cells are used, they replace themselves, so continue to be available for repair of damage. It appears that stem cells follow the electromagnetic field which defines the shape and function of the body. This may soon allow them to recreate a lost limb or organ, as already is possible in lower animals such as newts and salamanders.



## The Ultimate in Preventative Therapies

Research shows that new stem cells are more able to multiply, and to make repairs, than older stem cells, such as those existing in aging bodies. The availability of newborn stem cells such as those we offer makes the body maintenance processes much more active. As damaged cells are identified by the immune system, and then replaced by circulating stem cells, dangerous conditions such as cancer are likely to be prevented. In fact, stem cells can be considered the ultimate Preventive Health measure!

Stem Cell Therapy involves the introduction of healthy new stem cells to, potentially, repair, and replace damaged or lost cells. The ability to repair damaged tissues and rejuvenate aging organs makes it very effective at reversing various disease processes, as well as the signs and symptoms of aging.

## Sources of Stem Cells

*Embryonic* - We do NOT provide this type of cells.

*Fetal* - We do NOT provide this type of cells.

*Adult Human Neonatal Umbilical Cord Blood* - This is what we provide.



### *Neonatal Umbilical Cord Stem Cells* – This is What We Do

During pregnancy, the developing fetus is fed by blood from the placenta. Blood travels through the umbilical cord and enters the baby's body at the umbilicus, or navel. This blood contains large numbers of stem cells, which are actively assisting in the growth and development of the baby's body.

At birth, the umbilical cord is cut, and the cord and placenta are usually discarded as medical waste. The blood remaining in the placenta and cord still contain significant numbers of stem cells, as do the placenta and cord structures themselves. To collect them, the blood is collected from the placenta and cord within 5 minutes of birth, and placed in a special bag with a solution that prevents clotting. The blood is transported to the lab within 24 hours. Stem cells are separated from the blood using a centrifuge or other methods.

## Why are Umbilical Cord Stem Cells Superior?

Unlike embryonic stem cells, Umbilical Cord Stem Cells are usually ignored in the media. There seems to be an organized attempt to prevent people from knowing that a readily available source of stem cells exists world wide. This is likely because the large pharmaceutical companies seek to control the production and use of stem cells.

- These cells are “Pluripotent,” which means that they can turn into almost any cell type.

- Unlike embryonic stem cells, Umbilical Cord Stem Cells do not promote tumors.
- Unlike adult stem cells, Umbilical Cord Stem Cells do not cause immune reaction. Since these immature cells do not express adult tissue-type proteins (ABO, Rh, and HLA antigens) on their surfaces, these proteins do not seem to cause either an immune reaction in the recipient, or a graft vs host reaction against the recipient.
- Unlike fetal stem cells, Umbilical Cord Stem Cells do not require the death of a human baby or fetus.

The only accepted use for umbilical cord stem cells in establishment medicine is as a substitute for bone marrow transplant in cancer patients. After the bone marrow is destroyed by chemotherapy and radiation, cord blood stem cells have the ability to reconstitute the bone marrow. Over 5,000 cord blood cell transplants have been done for this purpose, and few, if any, side effects have been reported. To ensure a supply of stem cells, Cord Blood Banks are being established nationwide. These \$14,000 stem cells are not available for other uses.

Although the cancer specialists are only interested in reestablishing the ability to form blood, these stem cells replace much more than just bone marrow stem cells, and are likely to assist the body in recovery from cancer in other ways.



## Umbilical Cord Mesenchymal Stem Cells

The jelly-like material which fills the structure of the umbilical cord itself is rich in an additional type of stem cells, called “mesenchymal stem cells”.

Mesenchymal stem cells are present in cord blood, but in very low concentrations.

They are also present in bone marrow, and help form the structure of the marrow and support the blood-forming cells there. These cells are also multipotent, and able to differentiate into progenitor cells representing all three layers of the embryo. This means that an additional rich source of multipotent stem cells is now available.

Without further processing, mesenchymal cells readily differentiate into cells which repair bone, fat, joints, cartilage, tendons and connective tissues. With further processing, these cells have already been converted into brain type cells, liver and pancreas precursor cells. They have treated Parkinson's disease in rats, and have rebuilt kidney damaged tissue. Thus, it appears that these mesenchymal stem cells are at least as exciting as the umbilical cord blood stem cells in rebuilding the many structures and organs of the body.



## Embryonic Stem Cells

(Media Darlings) - *We do NOT provide this type of cells*

Embryonic stem cells are derived from the blastocyst (12 days) stage of Human Embryos. Because they can turn into most cell types, they are called pluripotent. They do not have the ability to grow by themselves, without being grown on mouse cell feeder layers. Because these cells are prone to form tumors (cancer) when transplanted, their clinical (therapeutic) use is questionable. Rather than just using them as they exist in nature, embryonic stem cells require technology for selection of pure populations of differentiated cells or somatic cells. There are over 200 kinds available now, due to extensive research efforts using these cells.

Since these cells are derived from human embryos, there are definite ethical considerations affecting their use, though recent breakthroughs which may allow skin cells to be used as embryonic stem cells will likely change this. Currently, excess in vitro fertilization embryos are most commonly used to make these stem cells.

Since many of these cell lines have not been able to be grown without animal "feeder" cells, there is risk of contamination of these cells with animal viruses. Older cell lines, which have originated with human embryos but been grown out as stem cells for years, are approved for federal government research. However, these lines are most likely to suffer from genetic abnormalities, due to the continued multiplication and division of these cells.

Embryonic stem cells are the type most commonly mentioned in the media. In fact, in the media, the words embryonic stem cells and stem cells are often treated as if they were the same thing. The US government has restricted funding of research with embryonic cell lines to a few already existing lines, and denied the use of federal research funds for making new stem cells due to ethical reasons.

## Big Research = Big Pharma

The Hype, the Money, and the Control needed to handle embryonic stem cells make these the darling of the Big Pharmaceutical Corporations. Embryonic stem cells require extensive research and processing capabilities to make them, and to make them into useful cell types. It appears that the major corporations funding embryonic cell research desire to make these the only type of stem cell used. The reason for this is that only the big research corporations have the assets to do the research to bring these cells into medical use. Since it requires a lot of research and money to do so, it is likely that they will be able to come up with a number of patentable processes, which will allow them to control the use and sales of embryonic stem cells.

## Fetal Stem Cells

*We do NOT provide this type of cells.* Fetal Stem Cells are harvested from aborted human fetuses. This poses obvious ethical questions. Ideally, these cells are harvested from fetuses whose mothers have already decided to abort, and who do not benefit financially from donating the fetal tissue to a stem cell company. Typically, these are young women in Eastern Europe.

Liver (somatic) and Brain (neuronal) cell types most common. They are currently available from Ukraine or Czech, and many are administered in the Dominican Republic, at a cost of \$25,000 USD per treatment. Since these cells are the result of an abortion, there is a risk that the fetal materials have been contaminated with mothers' blood or other materials. Adult blood cells can react against the transplant recipient's tissue, or cause an immune reaction by the recipient against the contaminated fetal cells. Contaminated stem cells may be sensitized against adult blood, thus causing a "graft vs host disease" problem after transplantation.

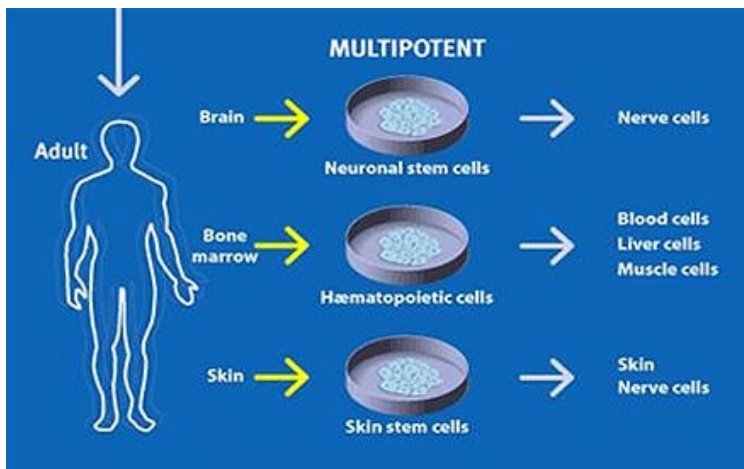
Another concern with these fetal cells is the apparent lack of screening for infectious diseases in these tissues. Given the fact that these cells are the result of unprotected sexual activity, one might be concerned about sexually transmitted or blood borne diseases transmitted by the same activity, which diseases might be transmitted by the fetal stem cells. None of the companies providing these cells have given certified data about infectious disease screening of mother or fetus.

## Adult Stem Cells

Adult Stem Cells are adult in that they are harvested from mature tissues, though those tissues may be in a child. Sources include biopsies of adult fat, muscle, bone marrow, blood, or liposuction fluid. They are called multipotent, because they have the ability to turn into a few types of cells.

Unlike embryonic stem cells, adult stem cells do not require other cells to feed them when they are being grown. Unlike embryonic cells, they do not promote tumors. But because they are from tissues that fully express the tissue type, they CAN cause immune reactions when implanted into a person different from the donor. These cells can be grown and scaled up for use in multiple patients, without differentiation into a particular cell type.

## Stem Cell Types –By Cell Line



- Pluripotent stem cells differentiate into the precursor cells for many specialized cell types.
- This differentiation can be controlled by using cell growth factors, special cell messenger molecules.
- Much of the stem cell research involves this differentiation process.
- Neuronal Stem cells, from brain, nose or skin, can be used to repair spinal injuries, brain injuries, and blindness, and treat degenerative nerve

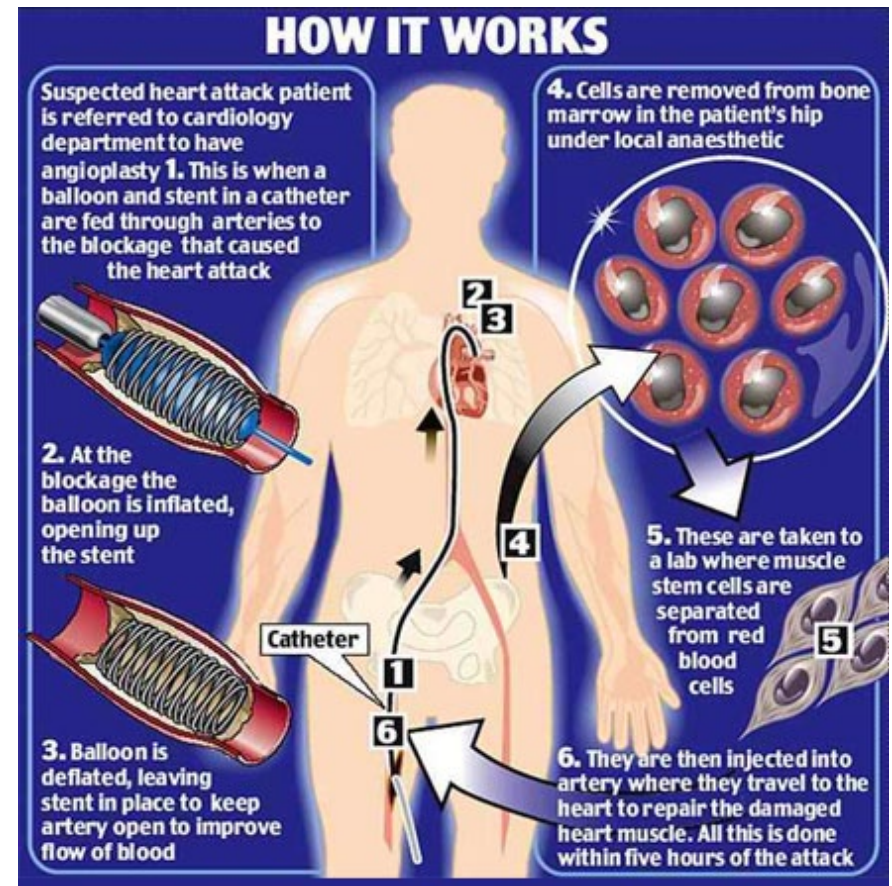
disorders like Multiple Sclerosis and ALS (Lou Gehrig's Disease).

- Liver-pancreas precursor cells can heal a damaged liver or pancreas, and cure diabetes
- Hematopoietic, or blood forming stem cells, are most commonly used to replenish bone marrow in cancer patients whose marrow has been destroyed by chemotherapy and radiation.
- Umbilical cord blood banks and bone marrow banks store these cells for cancer patient transplantation
- Mesenchymal Stem Cells, from the umbilical cord, fat or other tissues, can be used to rebuild bone marrow, kidneys, pancreas, brain, nerves, bones, joints, tendons, or other organs.
- Muscle Stem Cells, from adult muscle biopsy, can be grown out and then injected into a damaged heart, causing the heart to repair itself. This is being done in clinical trials now.

See Chart (right):

Self-donated cells now used to repair damaged heart muscle.

Note: *These are still OLD cells.*



## Technology of Stem Cell Therapy

A brief look at established Stem Cell Science

### Collecting the Cord Blood

Potential donors are pre-screened for possible blood-borne infections or for risky behavior. Choosing a country like Ecuador or the Seychelles with low AIDS, Hepatitis and other blood-borne illnesses is *vital*. Mother's blood is checked by an independent lab near the time of birth to verify non-infectious status. Newborn blood is much less likely to show markers of infectious illness, even if it showed up in maternal blood. Donated cells are never used until the labs clear.

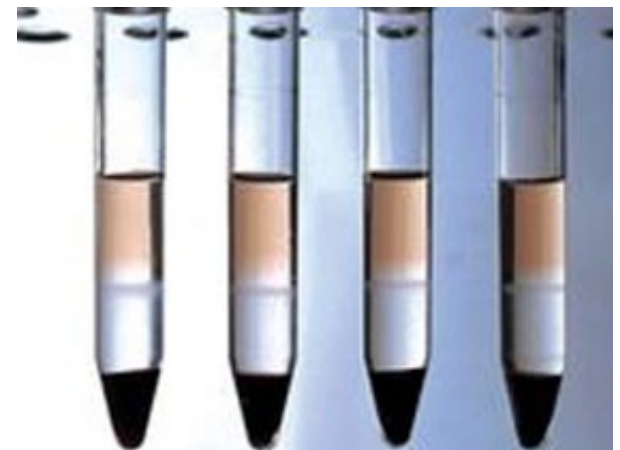
### Collecting Umbilical Cord Mesenchymal Stem Cells

After collection of blood, the umbilical cord is cut from the placenta, and kept cold until processed. The blood vessels are removed from the cord, and the cord is cut into 1 cm sections. The cord pieces are soaked in an enzyme cocktail for an hour or so.

The enzymes break down the matrix around the mesenchymal stem cells, releasing them into the fluid, which is centrifuged to settle the cells, and washed. The cells may then be expanded, stored, or used.

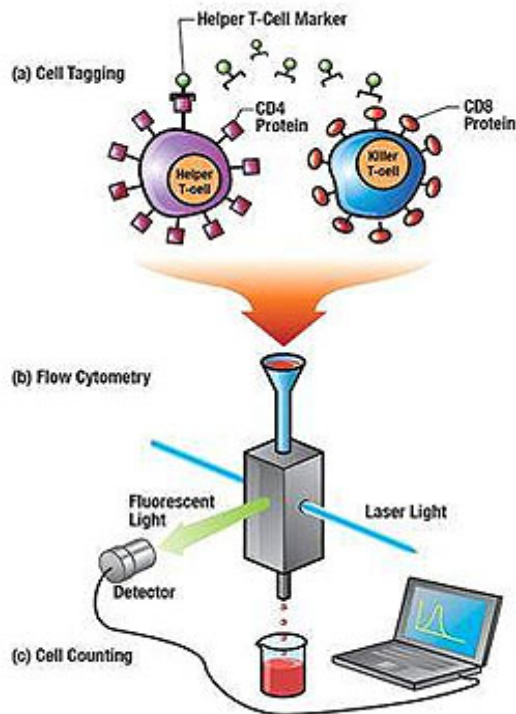
### Separation—Gravimetric

Cord Blood Stem cells can be simply removed from cord blood by centrifugation. Cord Blood is layered with a special fluid which is very slightly less dense than the stem cells. After centrifuging at a thousand times the force of gravity, stem cells are found in a layer between the blood cells and the fluid level.



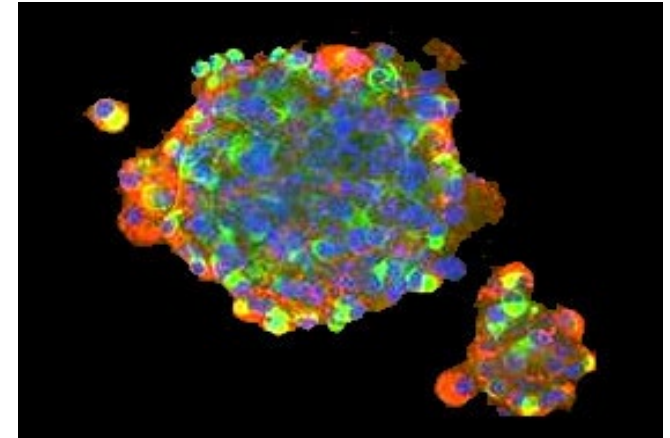
## Fluorescent Marking

Stem cells of different types can also be identified by particular proteins on their membranes. Antibodies can be created to find and bind to these proteins. If the antibodies are then marked with fluorescent dyes, the characteristic identifying proteins on the cells can be seen with a microscope, or scanned with a flow cytometer.



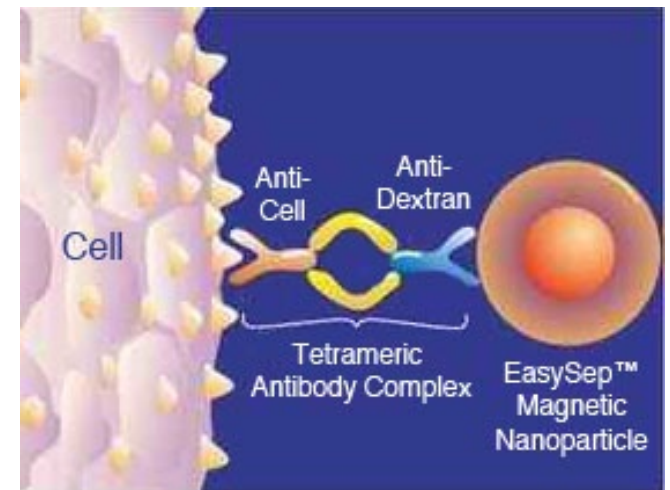
## Fluorescent Separation

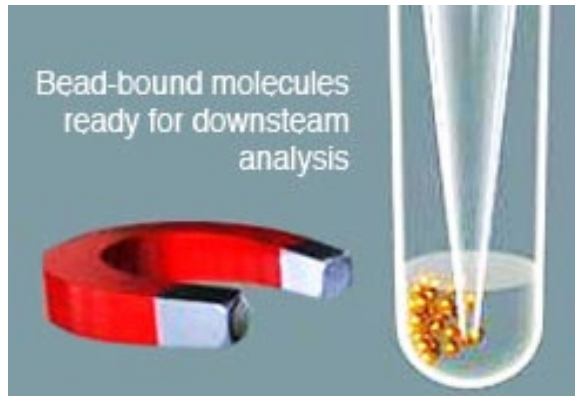
A Flow Cytometer can identify the different cell types, by looking at size, internal structure, and tagged markers on surface proteins. A special \$400,000 version of flow cytometer, called a “cell sorter,” can actually separate one cell type from the others.



## Magnetic Marking

Instead of dyes, the identifying proteins can be marked with tiny magnetic spheres.





## Magnetic Separation

A magnet then separates the marked and unmarked cells.

## Phase II—Expansion

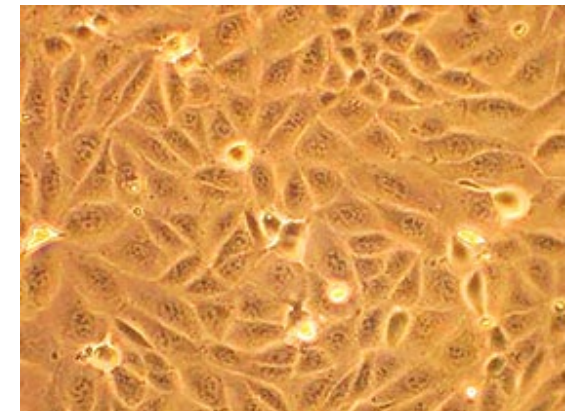
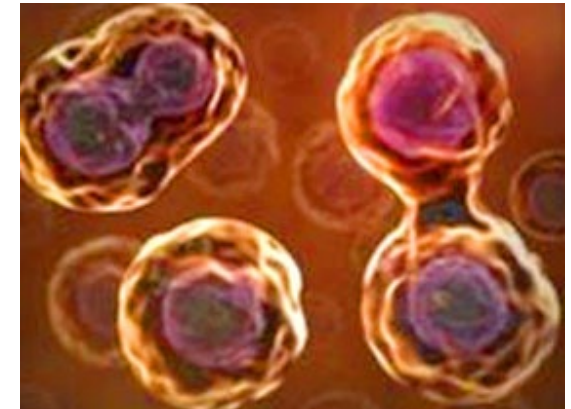
Expansion is simply allowing the stem cells to multiply. Cells can safely be expanded up to 10 divisions.

They must be monitored to ensure that they remain multipotent—able to differentiate into many cell types.

## Differentiation

Means changing from a multipotent cell into a more specialized cell. For example, a stem cell might differentiate into a nerve cell precursor cell, a skin precursor cell, a mesenchymal cell, or a liver/pancreas precursor cell.

A mesenchymal stem cell might differentiate into a blood cell, a bone cell, a joint tissue cell, a kidney cell, or a brain cell.



## **Differentiation—Phase III Therapies**

Administering the precursor to a specific cell type, instead of a generalized, pluripotent stem cell, allows concentration of healing power on a particular organ or system. This allows specific cell types to be used to treat specific diseases.

Stem Cell Therapies are being applied to treat a wide range of human conditions, including many types of cancer, infectious diseases like AIDS and Hepatitis, diabetes, heart, lung, kidney diseases, many diseases of the eyes like Macular Degeneration or Retinitis Pigmentosa, as well as neurological disorders such as Parkinson's, Lou Gehrig's disease (ALS), multiple sclerosis and spinal cord injuries.

Over 70 diseases have so far been successfully treated with stem cell therapy.

## **Diseases Amenable to Stem Cell Therapy**

Mainstream medicine uses Cord Blood Stem Cells as a primary treatment for replacing bone marrow destroyed by chemotherapy and radiation. Over 5000 of these stem cell transplantations have been given, without problems. Cord blood banks to store umbilical cord blood or stem cells for these purposes now exist in many cities.

Pioneering doctors now have successfully treated more than 70 diseases with stem cells. Because of the money available for cancer research, and because blood illnesses and cancer are treated by the same doctors, most of the 70+ listed illnesses are types of cancer, or blood or immune system disorders.

Another significant category of diseases amenable to treatment with stem cells are genetic disorders, especially disorders of metabolism. Many of these genetic disorders cause the body to lack a certain enzyme or body chemical. If a few normal cells can be transplanted in these illnesses, these cells often can produce enough of the missing enzyme to cure the illness.

Stem cell treatment of more common illnesses are less studied by the medical establishment, but more often studied by researchers outside of the university and big corporation setting.

## We divide therapies into three phases:

Phase I Therapy — *unprocessed stem cells*

Phase II Therapies — *Expanded cell lines*

Phase III Therapies — *Differentiated cell precursors*

## Phase I Therapy — Unprocessed Stem Cells

Prescreened, disease-free placentas and umbilical cords are collected and the blood removed from them. Umbilical Cord Blood Stem Cells (UCB Stem Cells) are separated from Umbilical Cord Blood within 24 hours.

- Using Umbilical Cord Blood Stem Cells overcomes the potential downside of other types of stem cell therapy.
- Some cell types, especially embryonic stem cells, tend to degenerate and form tumors when transplanted. Adult and Umbilical cord cells do not have this tendency.
- Adult stem cells can cause immune reactions when transplanted into another person. Rejection of the transplant, or graft vs. host disease, can result. Umbilical cord stem cells seem to lack this response.
- Because they contain a mixture of stem cell types, including stem cells that can turn into any cell type, unprocessed Umbilical Cord Blood Stem Cells (UCB Stem Cells) are useful for many generalized disorders.
- These cells are excellent for use in Anti-Aging. Stem cells increase libido, energy and strength, thicken thinning skin, increase muscle and bone mass, improve heart and immune system function, increase eyesight in many cases, improve lung function in many cases.
- They are also good for Skin conditions, Arthritis and Joint problems, kidney, liver, heart, and many more.

**The following is a partial list of improvements reported by recipients:**

*Cardiac:* Restore cardiac function and stop arrhythmias. Repair heart muscle and blood supply. Rebuild some valves.

*Lungs:* Improve function in some cases.

*MS:* Improve many cases.

*Kidneys:* Improve many cases.

*Liver:* Improve liver function. Regrow damaged liver.

*Metabolic Disease:* Cure many cases of devastating metabolic disease

*Neurologic:* Improves memory in many cases. Reverses MS and ALS. Very effective in stroke and cerebral palsy.

*Cancer:* Improves immune system function. Repairs or replaces damaged immune system. Sometimes regrows normal tissue to replace cancer.

*Blood Disorders:* Replaces damaged marrow, curing many cases.

*Diabetes:* Cures some cases of Type I and II.

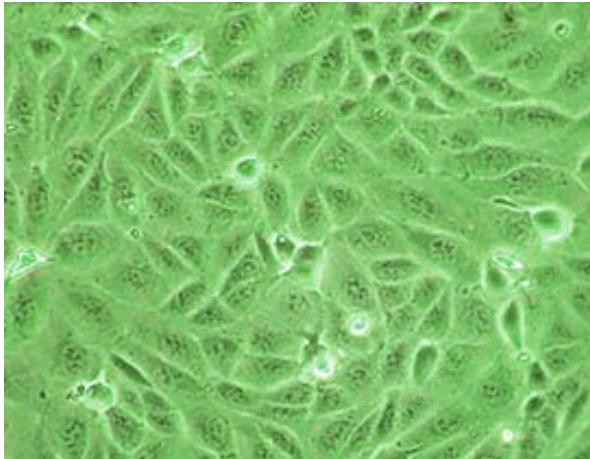
*Bones and Joints:* Increase bone mass. Repair many arthritic joints.

*Skin:* Skin disorders.

*Surgery:* Improved post-surgical healing.

*Endocrine Gland Disorders:* Renew and regulate youthful hormone levels

## Phase II Therapies – Expanded Cell Lines



It is expected that increasing the doses of stem cells will allow greater ability to repair damaged body parts, and an increased ability to stimulate native cells to repair function. Expansion is the term for allowing stem cells to multiply and increase their numbers.

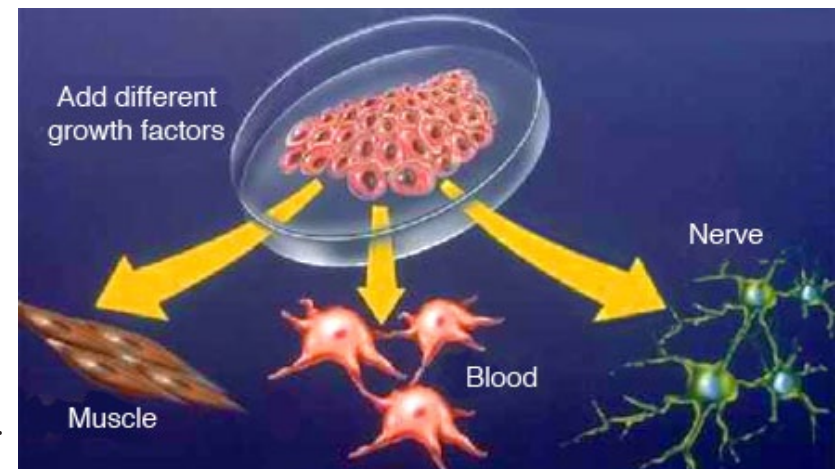
The minimum dose for an adult can be found in one cord blood donation (unit). Some units are smaller, and may have only half as many stem cells. Expansion of the cells, which can double up to 10 times without a problem, insures effective use of smaller cord blood donation. In research, mice have been given as much as 200 Million human stem cells, and did very well!

Allowing the Stem Cells to multiply will increase the number of Stem Cells transplanted, and likely increase the chance of effective treatment and healing. Still, since stem cells can multiply and produce more stem cells, and more of the needed differentiated cell type, it may not be necessary to give large amounts of stem cells. More research will determine optimum numbers for different conditions.

Further expansion will allow several people to be treated with only one unit of donated cord blood. Overexpansion may decrease the cell's ability to multiply within the body, thus robbing them of some of their effectiveness.

## Phase III Therapies — Differentiated Cell Precursors

Differentiating the Stem Cells into the precursor cells for different cell types allows more specific targeting of cells to a specific damaged organ.



***Nerve cell Precursors:*** Stroke repair, MS, ALS, Cerebral Palsy, Dementia, memory loss, traumatic brain injury, spinal cord injury. Blindness.

***Mesenchymal Stem Cells:*** Kidney repair, liver repair, pancreas, brain cells, intestinal disorders, bone and joint problems.

***Liver/Pancreas Precursors:*** Diabetes Type I and II, Hepatitis and liver disease, liver cancer.

***Hematopoietic Stem Cells:*** Anemia. Bone marrow disorders. Immune disorders. Cancer. Chronic Infections. Lupus. Rheumatoid Arthritis

***Skin Stem Cells:*** Burns; Skin grafts; Skin disorders

***Muscle Precursor Cells:*** Muscular Dystrophy, cardiomyopathy, heart attack damage.

***Lung cell precursors:*** Emphysema, Lung Disorders

## Stem Cells — Topics

### Politics and Ethics of Stem Cell Therapy and Research

“But, I thought Stem Cells were bad!” or, “If they are that good, why doesn’t everyone use them?”

### Why all the hype about Embryonic Stem Cell Research?

Embryonic Stem Cells have a high potential for giving answers and understanding to basic science questions—because they are controlled from day one, they give a cleaner, less complex, more reproducible model for experiments. Research institute controlled Embryonic Stem Cells have a high potential of providing specific treatments for specific disease states. Specific treat-



ments for specific diseases is right in line with the Disease Management paradigm of our medical system.

Embryonic Stem Cells require difficult, specific PATENTABLE science to bring them to the medical marketplace, giving biotech firms great potential for return on investments. Embryonic Stem Cells can be isolated from any requirements for donors, since they use established, stable cell lines, or use “left-over” embryos from In Vitro Fertilization (IVF).

### **Downside of Embryonic Stem Cell Research?**

Embryonic Stem Cell production requires the destruction of human embryos. Research using US Federal Funds are restricted to a few established cell lines, and does not allow for new embryo destruction with their money. This means that the embryonic stem cell lines used in many research programs have been grown out for many years, and have acquired several genetic abnormalities. Embryonic stem cells are also known to cause tumors in the recipients.

### **Ethics of Fetal Stem Cell Research and Use**

Fetal Stem Cell use requires the destruction of living human fetuses. The donors are usually young university students recruited at abortion clinics in Eastern Europe. Donors have already decided to undergo an abortion, but are asked if they would donate the aborted fetal tissue to science. Recently, several reports have emerged of “missing babies” from Ukrainian hospitals. Conjecture is that these newborns may have been used for lucrative fetal stem cell market.

### **Ethics of Adult Stem Cell Use**

Adult stem cell use causes much less controversy, as donors are usually able to give consent. However, since infant siblings’ cells are considered adult stem cells, the practice of birthing one child to save an older sibling has occurred. Adult stem cells are more likely to cause immune reactions when given to other recipients.

### **Why are Umbilical Cord Stem Cells generally ignored?**

Umbilical cord stem cells are readily available, but ignored in favor of embryonic cells. Why? Biotech companies want us to believe that stem cells are difficult, rare, and expensive so that they can control the market. Umbilical cords are readily available everywhere. They are too hard for Biotech to control. Separating cord blood stem cells from cord blood could be too easy, so that the corporations could not control them!

Cord blood stem cells rejuvenate the WHOLE BODY--they don't just fight a disease! This holistic approach goes against the Disease Management paradigm of our supposed "health care" system.

## **Who controls medical education and research?**

Big Pharma controls most postgraduate medical education. Just take a medical journal, cut out the drug ads, and see how few pages are left! Go to a medical conference, and see all the advertisers who paid for access to the doctors! "Detail men" from drug companies visit doctors offices every day, supposedly to educate them about new science, but really to sell them on new drugs. Big Pharma controls most undergraduate medical education. Research grants to medical schools provide salaries for professors, as well as for research. Drugs pay for research chairs, trips and gifts for the administration. Drugs and drug money are given to university hospitals to use in physician training programs.

Pharmaceutical companies have threatened to withdraw all funding if a medical school tries to do research on a natural therapy which avoids the need for drugs.

For example, Tulane University and University of Washington closed down research on EDTA Chelation Therapy under duress from the drug companies, who threatened to withdraw ALL funding to the universities if the research program continued. The leading researcher for these studies was Robert Carter, MD, MPH, Prof. Tulane Univ.

## **What does Big Pharma want?**

They want a treatment, NOT a Cure! A cure would cut off their cash, while a treatment would keep the money rolling into their coffers. Physicians are discouraged from even using the word "cure". They are told to not even consider the concept of a cure.

Treatments, instead of cures, insures an ever-growing source of money for doctors, hospitals, and Big Pharma. Drug companies want to provide daily, but convenient, use of their product (drug), for the rest of your life. Much of their research is on finding new and more convenient ways of taking their drugs. One-a-day pills, instead of three a day, promotes continued use—at a higher cost! They want their drugs to have a high cost, but to have that cost paid by insurance companies

Of course, pharmaceutical companies are heavily invested in insurance companies. This insures that the “right” treatments (their drugs), rather than the less expensive, natural or non-patentable ones, are the only ones paid for by insurance. Even if your doctor told you to take a multivitamin every day, have you ever tried to get your insurance company to pay for it?

Drug companies want patentable treatments, using synthetic imitations or modifications of natural substances, instead of using natural source, bio-identical products that they cannot patent, so cannot control the price.

## **What about “Natural” health treatments?**

Natural treatments are unpatentable, so they do not bring the drug company much money. Doctors are trained to ignore them, drug companies refuse to provide them, and the regulators refuse to allow a producer of natural treatments to make any claims about his product, even if those claims are supported by the scientific literature.

Furthermore, drug companies, and the Federal Regulators, allow dangerous drugs to be sold without constraint, even if they are known to be dangerous.

For example, FDA-approved horse urine pills and synthetic modified progesterone were used by millions of women for menopause, when safe, natural hormones, identical to human hormones, were readily and cheaply available.

- Natural hormones could not be patented.
- Premarin (Pregnant mare urine) was the #1 pill in US for years.

- Horse urine pills (Premarin) were known for 70 years to cause cancer.
- ProVera, a synthetic progestin was known for 30 years to increase bad cholesterol, and to cause heart disease and stroke.
- These harmful drugs were approved by the FDA, while the natural forms, which reduce risk, were not.
- Stem Cells are a natural treatment. They cannot be patented.

The process of making artificial or artificially raised stem cells CAN be patented. This is why so much research is going into making a patented version, a modified, unnatural version, before the FDA accepts it into general use.



## Legal Aspects of Stem Cell Research and Therapy — Is this legal?

### International Use of Stem Cells

In most countries, use of stem cells is not specifically regulated. They would be seen as a medication that a physician can use as he is trained. StemTech Labs has plans to set up anti-aging and medical treatment clinics in Bahamas, Canada, Puerto Rico, and other locales easily accessible to U.S.A. patients. As the supply of stem cells improves, existing spas and clinics are likely to begin using stem cells.

### U.S.A. – Use of Stem Cells

More severely ill patients, who have difficulty traveling, would benefit from availability of stem cells in the U.S.A. In the

U.S.A., there are no current special regulations regarding the use of stem cells for treatment of humans. Customs officials have told us that there are restrictions against importing animal cells without a license (disease free), but no such restrictions for human cell lines. Many physicians in the U.S.A. want to use stem cells, but cannot, due to the lack of an FDA approved source.

This limitation can be bypassed by allowing the physicians to join our research team, letting them do research on the clinical application of stem cells in their own practices. Some U.S.A. physicians have collaborating physicians in Mexico, especially Tijuana, who provide U.S.A.-source stem cells to patients there.

## *TITLE 21 part 1271 of the US FDA law*

[\*Link to the entire section\*](#)

The mesenchymal and umbilical cord blood stem cells used in this study are human cells, tissues, or cellular and tissue-based products (HCT/Ps) as defined in 21 CFR § 1271.3(d). Under 21 CFR Part 1271, HCT/Ps are not subject to licensure or IND requirements if certain criteria are met (21 CFR § 1271.10). These requirements include autologous use (use by the cell donor), or if used for other patients, the HCT/Ps must be “not more than minimally manipulated” and labeled for use for “homologous use only”. They may also not be used for a purpose requiring their “metabolic” activity.

StemLab S.A. mesenchymal and umbilical cord stem cells shipped to the United States of America have not been “more than minimally manipulated”. StemLab S.A. labels and intends its cells which are used within the United States of America only for homologous and non-metabolic purposes. StemLab S.A. does not interfere with the practice of medicine by individual physicians who use StemLab products, and who may do so according to their own medical training and informed choice.

## **Research – U.S.A.**

In the U.S.A., federal funding for embryonic stem cells is restricted to a few established lines of cells, to avoid the Federal Government paying for destruction of human embryos. No other restrictions are known for stem cells research, public or private.

## **Research – U.S.A. – FDA**

The Federal Food and Drug Administration does not regulate individual physician practice. Individual physicians can do research and create their own treatments or devices, under the FDA regulations. FDA regulates MANUFACTURED medications, drugs, devices. It also controls whether new drugs are acceptable for interstate commerce.

## **Research – Individual Physician**

Individual physicians can use their own preparations of materials in their own practices, without FDA interference. StemTech Labs can provide raw materials, ie, human stem cells of various types, and let individual physicians use them as they see fit.

## **Research—IRB**

Research with human subjects in the U.S.A. is subject to oversight of an Institutional Review Board (IRB). StemTech Labs will soon have such an IRB, Our client physicians can join it, or any other stem cell IRB, and their stem cell research using human subjects will be totally legal in the U.S.A.

## **In Ecuador**

In Ecuador, local medical research and practice is controlled by a university. We have connections for cooperation with such a University, as far as collecting donor cords, doing research and production, and setting up a clinic for administration of stem cell products. We will experience an increasing need for trained technicians and physicians. One university has requested that we set up a post-graduate program in stem cell technologies. Local administration of stem cells by StemTech Labs in Ecuador is done by, and under the authority of, a local licensed physician.

## **In Puerto Rico**

An excellent clinical researcher in Puerto Rico will be working with us in validating our products and procedures. He has several other physicians anxious to begin production of stem cells locally, when we open our production and research laboratory

there. In actuality, medical practice currently is wide open in Puerto Rico, with little restriction on any types of modalities, including stem cells.

## **In South Africa**

There are at least two stem cell clinics in South Africa. One is building a satellite clinic in the Seychelles. They want a lab there, have government approval for it, and we are in the beginning stages of negotiations to build the lab for them. They have a good world-wide internet presence, but do not make their own cells. Cost of cells is included in a vacation package to the Seychelles: \$24,000.

## **In Costa Rica**

A good U.S.A. researcher had a successful stem cell practice in Costa Rica. This practice has since been shut down by the Costa Rican government. We suspect pressure from international drug manufacturers, and other international powers to the north.

## **In Dominican Republic**

Fetal stem cells from Eastern Europe are administered by a U.S.A. company, using Dominican physicians. They provide monthly clinics, 20-40 patients daily for two days. Cost of administration: \$25,000.

## **In Ukraine**

Advanced stem cell researchers in Ukraine provide fetal stem cell injections there to Westerners for \$25,000 per injection. They have been doing research in stem cells and cryobiology for over 20 years.

## **In China**

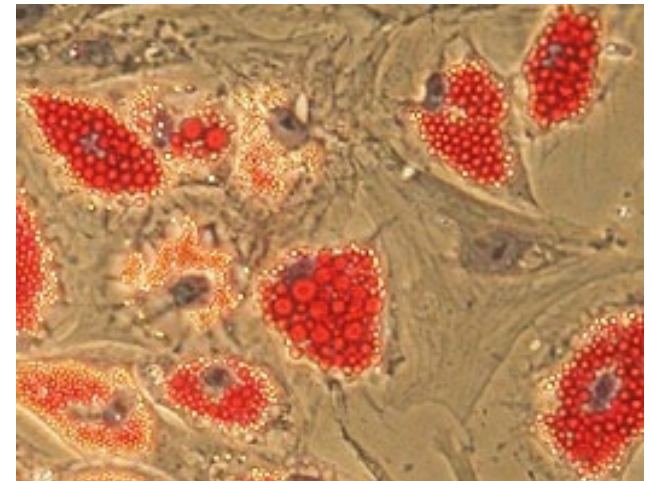
China has many stem cell programs. One of the leading programs is nerve cell progenitor cells from the nose injected into spinal

cord lesions. Others include nerve cell progenitor cells for Cerebral Palsy and other pediatric brain problems, and Adult muscle stem cells into heart muscle. They require a four week stay for most of these programs.

## Our Lines of Research in Stem Cell Therapy

At StemTech Labs, we have several exciting lines of research underway. Some of these projects are as follows:

- Improve effectiveness of basic stem cell separation and processing.
- Begin stem cell expansion, to increase total available cells.
- Develop a more effective regimen for Lung cell precursors, to treat emphysema and other disorders.
- Augmenting the amounts of mesenchymal stem cells in umbilical cord blood by harvesting them from umbilical cords.
- Differentiation of Mesenchymal stem cells into neural stem cells, liver, kidney, and other precursor cells.



Morphogenetic Field

### **Increasing ability to follow the morphogenetic pattern of the body.**

Every living thing has an energetic pattern, or morphogenetic field. Cells use this field as a pattern to build a body.

**ORMUS** / ORMUS/ORMES is a unique form of matter.

[www.subtleenergies.com/ormus](http://www.subtleenergies.com/ormus)

Ormus has been shown to markedly improve vitality and decrease mortality in chickens, yeast cultures, plants, and humans. As evidenced in this photo, It has shown to increase crop yields by 100+%.

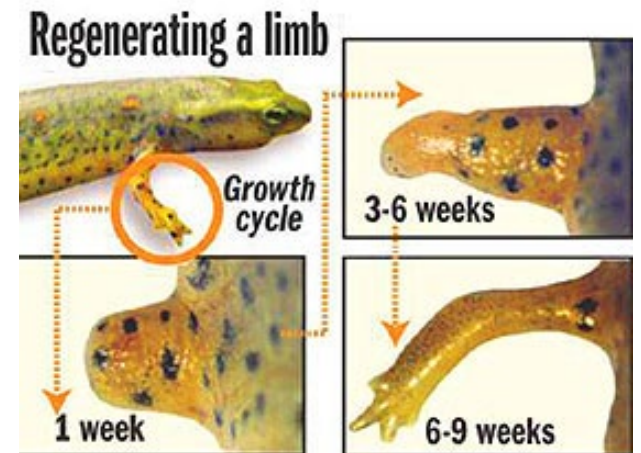
## Increasing Stem Cell Viability

In 250,000 broiler chicks, minute amounts of Ormus decreased many diseases and lowered mortality. Ormus added in very small amounts to yeast cultures increased alcohol tolerance up to 37% alcohol. We hope that Ormus will increase the vitality of our stem cell lines.

Salamander cells use the field to duplicate an amputated limb, but higher animals have not been able to regenerate limbs. mA Newt can regenerate an entire limb within 7-10 weeks.

## Ormus and Regeneration

Ormus appears to be able to increase stem cells' ability to regenerate the body, following the morphogenetic field. See the following photos of a cat with a severed tail, which regenerated an entire tail.



Stub of cat's tail, with severed part. Ormus-treated ball of stem cells is creating a new tail – skin, bone, muscle, nerves. Adult cat with regenerated tail.

## Live Cell Therapy

Since the 1920s, Europeans have used live fetal animal cells to stimulate healing in human patients. Live fetal cells have been shown to travel to like cells in the human body, similarly to the actions of stem cells. Once arrived, the cells stimulate the cells in the damaged human tissue to repair and regenerate.

While most famous for its regenerative and anti-aging aspects, disorders such as diabetes and endocrine dysfunctions have been cured using live cell therapy, and other diseases such as emphysema have been successfully treated, producing results faster than stem cell transplants. This therapy is not available in the U.S.A. at this time, but is available in several other countries. We hope that we might be able to duplicate the success of Live Cell Therapy with umbilical cord stem cells, instead of fetal animal cells, or possibly use a combination of the two therapies.

- Differentiating stem cells into Liver/Pancreas precursors, to heal diabetes.
- Producing Neural Stem Cells for brain and spinal cord injury, MS, ALS, Cerebral Palsy, Parkinson's Disease, and other disorders.

## Conditions Treatable by Stem Cell Transplantation

Find this page at: [www.stemcelltherapies.org/treatable\\_conditions.htm](http://www.stemcelltherapies.org/treatable_conditions.htm)

The following chart taken from Dr. David Steenblock's excellent website on stem cell therapy, [www.stemcelltherapies.org](http://www.stemcelltherapies.org)



## Diseases Treatable by Stem Cell Transplantation

### *Alphabetical Listing*

*Compilation from The National Donor Program,  
2002 and [www.stemcelltherapies.org](http://www.stemcelltherapies.org), 2004*

Absence of T & B Cells SCID  
Absence of T Cells, Normal B Cell SCID  
Acute Biphenotypic Leukemia  
Acute Lymphoblastic Leukemia (ALL)  
Acute Myelofibrosis  
Acute Myelogenous Leukemia (AML)  
Acute Undifferentiated Leukemia  
Adrenoleukodystrophy  
Agnogenic Myeloid Metaplasia (myelofibrosis)  
Alzheimer  
Amegakaryocytosis/Congenital  
Thrombocytopenia  
Aplastic Anemia (Severe)  
Amyotrophic lateral sclerosis (ALS)  
Ataxia-Telangiectasia  
Atherosclerosis  
Autism  
Bare Lymphocyte Syndrome  
Beta Thalassemia Major  
Breast Cancer  
Bronchial Asthma  
Cartilage-Hair Hypoplasia  
Cerebral Palsy  
Chediak-Higashi Syndrome  
Chronic Granulomatous Disease  
Chronic Lymphocytic Leukemia (CLL)  
Chronic Myelogenous Leukemia (CML)  
Chronic Myelomonocytic Leukemia  
(CMML)  
Cognitive Dysfunction  
Common Variable Immunodeficiency  
Congestive Heart Failure  
COPD  
Depression  
Diabetes  
DiGeorge Syndrome  
Essential Thrombocythemia  
Epilepsy  
Ewing Sarcoma  
Familial Erythrophagocytic Lymphohistiocytosis  
Fanconi Anemia  
Gaucher's Disease  
Glanzmann Thrombasthemia  
Histiocytosis-X  
Hemophagocytosis

## Treatable Diseases, *continued*

Hodgkin's Disease  
Hunter's Syndrome (MPS-II)  
Hurler's Syndrome (MPS-IH)  
Juvenile Chronic Myelogenous Junveile  
Kostmann Syndrome  
Krabbe Disease  
Lesch-Myhan Syndrome  
Leukocyte Adhesion Deficiency  
Macular Degeneration  
Maroteaux-Lamy Syndrome (MPS-VI)  
Metachromatic Leukodystrophy  
Morquio Syndrome (MPS-IV)  
Mucopolidosis II (I-cell Disease)  
Mucopolysaccharidoses (MPS)  
Multiple Myeloma  
Multiple Sclerosis  
Myelomonocytic Leukemia (JMML)  
Myocardial Infarction  
Niemann-Pick Disease  
Neuroblastoma  
Neutrophil Actin Deficiency  
Non-Hodgkin's Lymphoma  
Omenn's Syndrome  
Optic Atrophy  
Osteopetrosis  
Paroxysmal Nocturnal Hemoglobinuria (PNH)  
Plasma Cell Leukemia  
Polycythemia Vera  
Prolymphocytic Leukemia  
Pure Red Cell Aplasia  
Refractory Anemia (RA)  
Refractory Anemia with Ringed Sideroblasts (RARS)  
Refractory Anemia with Excess Blasts (RAEB)  
Refractory Anemia with Excess Blasts in Transformation (RAEB-T)  
Renal Cell Carcinoma  
Reticular Dysgenesis  
Sanfilippo Syndrome (MPS-III)  
Scheie Syndrome (MPS-IS)  
SCID with Adenosine Deaminase Deficiency  
Severe Combined Immunodeficiency (SCID)  
Sickle Cell Disease  
Sly Syndrome, Beta-Glucuronidase Deficiency (MPS-VII)  
Stroke (acute and chronic)  
Traumatic Brain Injury  
Waldenstrom's Macroglobulinemia  
Wolman Disease  
X-Linked Lymphoproliferative Disorder

## Home | Glossary

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### Clinical Experience

*Clinical Experience with over 1700 patients with Fetal Stem Cell Therapy in Ukraine*

“In 2004, the prestigious Institute for Cryobiology and Cryomedicine in the Ukraine gathered data on the use of fetal liver cells and fetal neuronal cells for hematologic support and treatment of more than 1700 patients suffering from a wide variety of diseases and conditions, including blood and immune disorders, diabetes, eye disorders (e.g., diabetic retinopathy, macular degeneration), neurologic conditions (e.g., spinal cord injuries, Parkinson’s disease, multiple sclerosis, amyotrophic lateral sclerosis, and others), hemosuppression due to chemotherapy or radiation therapy for various types of cancer, gynecologic problems, chronic fatigue syndrome, gastrointestinal disorders (e.g., ulcerative colitis, Crohn’s disease, and abdominal adhesions), and others.”

Diseases	Number of Patients	Treatment Results: Degree of Improvement			Duration of Observation
		Significant	Partial	None	
Acquired aplastic anemia	18	14	2	2	1-8 years
Secondary anemic states	246	230	16	0	6 mos – 6 years
Thrombocytopenia	38	19	8	11	3 mos – 5 years
Diabetes	222	0	206	16	1-8 years
Diabetes retinopathy	230	194	36	0	1-5 years
Macular degeneration	86	74	10	2	1-7 years
Cytostatic disease (hemosuppression after chemotherapy and/or radiation therapy)	118	94	18	6	1-7 years
Gynecological pathologies					
- Endometriosis	12	10	2	0	1-5 years
- Septic complications	16	12	4	0	short term
- Anemia during pregnancy	39	39	0	0	short term
Neurology					
- Spinal cord trauma	16	0	14	2	1 - 5 years
- Nervalis fascialis	7	4	0	0	1 year
- Parkinson's disease	19	13	6	0	3 years
- MS	23	16	5	2	1 - 3 years
- Trigeminal neuralgia	46	46	0	0	1 year
- Cerebral palsy	13	0	13	0	9 mos - 4 years
- Amyotrophic lateral sclerosis	11	0	11	0	3 years
- Duchenne's disease	80	0	80	0	1 year
Multiple organ trauma	8	8	0	0	short term
Chronic fatigue syndrome	32	30	2	0	1-5 years
Arthritis	29	22	7	0	1-5 years
Psoriasis	12	9	2	1	1-8 years
Rejuvenescence (anti-aging)	139	120	19	0	1-7 years
Sexual pathology	88	52	22	14	1-8 years
Ulcerative colitis/Chron's disease	28	14	8	6	1-5 years
Abdominal adhesions	24	21	3	0	short term
Aesthetic application	140	140	0	0	1-5 years
<b>Totals</b>	<b>1740</b>	<b>1181</b>	<b>494</b>	<b>62</b>	
<b>Percents</b>	<b>100%</b>	<b>68%</b>	<b>28%</b>	<b>4%</b>	

“Overall, the responses to treatment were “significant” in 68%, “partial” in 28% and none in 4%. The follow-up periods were up to eight years.<sup>18</sup> As can be seen in the Table, the various diseases generally responded well. Other reviews of the Institute for Cryobiology and Cryomedicine’s experience in treating a wide range of patients with various cell preparations note positive responses in about 70% to 80% of patients.”

*Institute for Cryobiology and Cryomedicine. Clinical applications of fetal summary of findings. Unpublished report. Institute for Problems of Cryobiology National Academy of Sciences of the Ukraine. Kharkov, Ukraine, 2004. Umbilical Cord Stem Cells*

## Umbilical Cord Stem Cell Therapies

### *Research on specific conditions*

This is a chart taken from Dr. David Steenblock's excellent website on stem cell therapy, [www.stemcelltherapies.org](http://www.stemcelltherapies.org). Find this page at [www.stemcelltherapies.org/umresearch.htm](http://www.stemcelltherapies.org/umresearch.htm)

Umbilical cord stem cells can or soon will be able to:

- 1) Repair injuries to the heart muscle of heart attack victims.
- 2) Reduce the clinical symptoms of Parkinson's disease.
- 3) Improve the outcome of cancer patients.
- 4) Improve quality of life in patients with Multiple Sclerosis.
- 5) Improve outcome for children with cerebral palsy.
- 6) Improve outcome for acute and chronic stroke patients.
- 7) Improve outcome for patients with acute and chronic traumatic brain injuries.
- 8) Improve outcome for those with muscular dystrophy.
- 9) Improve outcome for those with Huntington's Disease.
- 10) Reduce symptoms of Diabetes 1 and 2.
- 11) Improve the symptoms in Autism Spectrum Disorder.
- 12) Improve vision.
- 13) Improve symptoms in Down Syndrome.
- 14) Improve symptoms of Rheumatoid Arthritis.
- 15) Improve symptoms in Amyotrophic Lateral Sclerosis (ALS).
- 16) Improve function in Spinal cord injury.
- 17) Reduce symptoms in Epilepsy.
- 18) Improve symptoms in sickle cell anemia.

For further medical research, search PubMed for "umbilical cord stem cells" and a health condition of interest to you to see more summaries of the work being done.



## Genetics and Stem Cells

*“What if the baby that the stem cells come from has a genetic defect?”*

First of all, the parents of our stem cell donor infants are screened for genetic diseases in them and in their families. In most cases, when a child develops a genetic disease, it is a recessive trait. This means that the child gets the disease because that child has two coinciding copies of a bad gene. Genetic diseases are rare. Recessive genetic defects being active in a baby are many times more rare.

It is very likely that any family genetic defect that would be active in the baby would be uncovered in the screening process. It is also very likely that any hidden genetic defects would not be active in the baby, or in his stem cells. It is extremely unlikely that any genetic defect in the baby’s cells would cause any problems in a transplant recipient. If there were any effect at all, it would likely be that the cells were not as helpful as they otherwise might have been. Even this is very unlikely. Read on for a more detailed explanation.

### **Sickle cell**

As you know, genetic traits are encoded on DNA strings, called chromosomes. Portions of DNA called genes are strung along the chromosomes in the thousands. Each parent contributes half of the 46 chromosomes in the infant’s cells. The chromosomes are in pairs, so the baby gets two copies of each chromosome, and on the chromosome, each gene, each string of genetic material.

Genes generally code for a protein. Often, this is a special type of protein called an enzyme. Enzymes act as catalysts in most of the chemical reactions in the body, making the reactions proceed more rapidly. When an enzyme is defective, it may not be able to effectively act as a catalyst in a particular reaction. Instead of the intended product of the reaction being made, the substrates, or the chemicals that the enzyme acts on, accumulate. It is like if a tuna fish canning machine were broken down, you would not get cans of tuna. Instead, you would get piles of cans, and piles of unpacked tuna. And the tuna can box packer would not have canned tuna to box.

Sometimes, the lack of the reaction product causes the disease condition (no canned tuna). In other cases, it is the accumulation of unprocessed substrate material that causes the disease problem (piles of unpacked tuna, and piles of empty tuna cans). As long as there is one good enzyme produced by one of the chromosomes, there is usually enough enzyme activity to produce the desired product, and to prevent accumulation of the substrate material (one tuna canning machine can usually keep up, even though you usually use two).

When there is a genetic problem, it is usually due to a defect in the DNA coding for a specific protein or enzyme. Sometimes, though, a longer piece of a chromosome is broken off or deleted, or sometimes even an extra copy is included. Since this usually causes significant anomalies in the newborn baby, these defects are usually identified by the physician or midwife examining the newborn.

A defective gene produces a defective version of the protein or enzyme. As long as at least one good gene is present, most cells are able to make enough of the protein or enzyme to function adequately. In this case, no disease results, even though the abnormal gene is present. This kind of genetic problem is called a recessive trait. Recessive traits are not extremely uncommon, but they rarely result in disease. Only when there are similar recessive defects on the same gene of the same chromosome, coming from hidden genetic defects on both the mothers side and the fathers side, does the genetic defect cause disease.

Most hidden genetic defects are recessive traits. This means that both the father's family and the mother's family can have a hidden copy of the bad gene on their paired chromosomes, but as long as there is a good copy on the other chromosome, no disease is expressed. The members of the family with a copy of the defective gene are called "carriers" of the genetic "trait". They do not have the genetic disease, but carry the possibility of the disease in their genes. If a woman from a family with a hidden genetic defect (a carrier) marries a man from a family with the same defect (another carrier), then it becomes possible that the genetic defect will cause disease in their child. That is why most societies prohibit marriage of close relatives. An egg from such a mother has a 50:50 chance of having this trait, as does a sperm from her husband. Only when an egg with the trait is fertilized by a sperm with the same trait does that disease become expressed.

Since an egg from a mother who is a carrier of this trait has a 50:50 chance of having the trait, and so does the sperm from a man with the trait (but not the disease), when an egg from a carrier is fertilized by a sperm from a carrier of this trait, it receives one copy of each chromosome from the father and another from the mother, and there is a 1 in 4 chance that this child will end

up with two bad gene copies. With two bad genes and no normal ones, there is no chance of a functional enzyme in the cell. The combined enzyme defects prevent the normal processing of enzyme substrate materials into enzyme products, and the condition eventually makes itself known.

In those genetic disorders where a single bad gene out of the pair causes a problem, this is a “dominant trait” (or possibly an incompletely dominant trait), and is readily apparent as a family disease pattern. There are no hidden “carriers” of these genes in a family—if someone has the gene, then it is apparent in his or her own health. Dominant genetic defects are therefore easy to identify and screen out. When the mothers and fathers are screened for family genetic disorders, dominant genetic defects are easy to detect. They affect everyone in the family (mother’s family, father’s family, these parents, and all of their children). These donors are easily rejected from our collection program.

Recessive genetic defects are more difficult to screen out. If there are no cases in which the same abnormal gene is in both parents of any individuals in this family, there will be no cases where the disorder has expressed itself. It will therefore be impossible, without extensive genetic testing, to find any of these hidden gene defects. If there is only one copy of the gene in the family chromosomes, there will be at most one copy of the gene in the baby, and so the disorder will not be expressed in the baby, or its stem cells.

Suppose that the unlikely case occurs that there is a recessive genetic defect present on one of the chromosomes in the stem cells. These cells would still be able to do all of the functions of any other stem cell, since they have a normal copy of the gene on the other paired chromosome.

In the extremely unlikely (millions or billions to one) chance that the hidden genetic defect is matched by another hidden defect in exactly the same gene, out of the thousands of genes on that particular chromosome, then the stem cells produced by that baby would be unable to make one protein or enzyme. The chances of that particular protein being one needed in the activities of the stem cell are slim. Even if the defective enzyme were needed for some chemical reaction by the stem cells, your own cells would still be able to make that chemical, and it is possible that the stem cells would be able to take it in, and use it. In the even more unlikely (billions or trillions to one) chance that the stem cells were made unable to function by the defect, then they would not have been able to function in the baby either, so the baby would not have been born!

We cannot rule out the possibility that some genetic defect in a baby might make its stem cells not work right in your body, even though they worked just fine in making a baby! What then would be the effect of transplanting these defective stem cells into you? Basically, nothing. If they didn't work, they still would not harm you. You would not get the benefits of the stem cells, but neither would you be harmed.

*Let's look at the example of one genetic disease:*

Sickle cell disease is a genetic disease which causes a defect in the hemoglobin protein in the red blood cells. The abnormal hemoglobin causes the red blood cells to deform. In Africa, where the disorder originated, having one abnormal sickle cell gene, or in other words, being a sickle cell carrier, protects against malaria. As a recessive defect, full-blown sickle-cell disease is only present when two copies of the sickle cell trait coincide in the same person. This defect in hemoglobin makes the red cells deformed, especially when stressed by low oxygen conditions. The mass deformations of red cells that occur in a "sickle cell crisis" cause severe pain, blocked blood flow, and organ damage. Sickle cell disease is likely to be well known in a family. The presence of a case of sickle cell disease in a family line would cause rejection of a mother as a donor of her child's stem cells.

If a family were sickle cell carriers, this could be detected by special blood tests, but if the family had never intermarried with another family of carriers, there would be no cases of full-blown sickle cell disease, so it would be unlikely that such tests were ever done on this family. *The presence of sickle cell trait in transplanted stem cells would NOT cause the disease in the recipient.*

If the transplantation were being given to replace bone marrow in a cancer patient, it would be important to use blood stem cells from a person who had been tested for abnormal hemoglobin, because these stem cells are going to replace all of the blood-producing cells for that person. Even if the recipient did have bone marrow problems, the stem cells would likely help him. These stem cell trait stem cells would even be fine for producing red blood cells, even though there would be some abnormal hemoglobin present. But in general, such abnormal stem cells would work just fine. And for most people, the presence of stem cell trait would cause no problems, and the stem cells would seek out and repair the other defects in the body.

If the screening process totally failed, and stem cells were transplanted from a baby which was going to go on and develop full-blown sickle cell disease (the same bad genes on two chromosomes), this could cause sickle cell disease only if there were a

pre-existing defect in the bone marrow which caused the stem cells to migrate there and start producing red blood cells. So, the presence of these abnormal genes would only be important if the stem cells were being given to replace blood producing cells in the bone marrow, for example, in a patient who had some blood disease, or perhaps a bone marrow transplant recipient. In the presence of normal bone marrow and a normal blood system, the stem cells would not have a reason to seek out this niche to set up housekeeping, and would be unlikely to be activated to produce blood-producing cells. These stem cells would be quite able to do any other function desired of stem cells, including replacement of immune system stem cells, platelet-precursor stem cells, or white blood cell (leukocyte) precursor stem cells.

So, we see that it is very unlikely that a genetic disorder be present in donated stem cells. Dominant genetic disorders are easy to screen out, based on family history. Recessive genetic disorders are also likely to be screened out. Hidden recessive genes in carriers could possibly get through the screening process, but would not affect the function of the stem cells, and would not adversely affect your body. Double recessive gene defects that would cause stem cell dysfunction would likely be fatal to the developing embryo, so would not result in a healthy childbirth, and would not pass our screening process. In the extremely remote event that a double recessive gene existed which would affect the stem cells, it would also affect the newborn soon in its life. But it would be very unlikely to cause any adverse effect in the transplant recipient. Much more likely would be the chance that the transplant of these cells would not do anything at all.

### **“What types of genetic diseases might be helped by stem cell therapy?”**

*See the earlier FAQ for more discussion about genetics.*

The National Blood Donor Program lists many genetic disorders as possibly or definitely benefiting from stem cell transplants. Many of these disorders listed are genetic problems with blood cell formation, and are helped by the hematopoietic (blood forming) stem cells found in umbilical cord blood.

Here is a list of some of these genetic disorders of blood cells or blood formation:

Myelodysplastic Syndromes (bone marrow disorders)

Inherited Erythrocyte Abnormalities

Beta Thalassemia Major

Pure Red Cell Aplasia

Sickle Cell Disease

Histiocytic Disorders

Familial Erythrophagocytic Lymphohistiocytosis

Histiocytosis-X

Hemophagocytosis

Phagocyte Disorders

Chediak-Higashi Syndrome

Neutrophil Actin Deficiency

Reticular Dysgenesis

Inherited Platelet Abnormalities

Amegakaryocytosis/Congenital

Thrombocytopenia

Congenital Immune System Disorders

Ataxia-Telangiectasia

Kostmann Syndrome

Leukocyte Adhesion Deficiency

DiGeorge Syndrome

Bare Lymphocyte Syndrome

Omenn's Syndrome

Severe Combined Immunodeficiency (SCID)

SCID with Adenosine Deaminase Deficiency

Absence of T & B Cells SCID

Absence of T Cells, Normal B Cell SCID

Common Variable Immunodeficiency

X-Linked Lymphoproliferative Disorder

Other genetic diseases are called metabolic diseases, because they are characterized by defects in some metabolic, or biochemical, process. Usually this is due to a defect in one gene on a chromosome. See the above explanation for more information on genetics. These diseases are also called "Liposomal Storage Diseases", because they result in an over-abundance of metabolic substrate materials stored in the liposomes of a cell. Here is a list of some of these disorders:

Mucopolysaccharidoses (MPS)

Hurler's Syndrome (MPS-IH)

Scheie Syndrome (MPS-IS)

Hunter's Syndrome (MPS-II)

Sanfilippo Syndrome (MPS-III)

Morquio Syndrome (MPS-IV)

Maroteaux-Lamy Syndrome (MPS-VI)

Sly Syndrome, Beta-Glucuronidase Deficiency (MPS-VII)

Adrenoleukodystrophy

Mucopolipidosis II (I-cell Disease)

Krabbe Disease

Gaucher's Disease

Niemann-Pick Disease

Wolman Disease

Metachromatic Leukodystrophy

Some of the diseases that stem cells may help include genetic metabolic disorders like these, in which fats or carbohydrate materials accumulate in the cells. If it is a liver cell that is causing a problem because it doesn't have the right enzyme (liver cells need more enzymes than most cells, because they are responsible for so many chemical reactions), then the liver cells may swell with accumulated substrate materials. This can lead to liver failure and death. Sometimes the accumulated materials themselves are toxic, and cause damage to other cells.

In disorders such as Maple Sugar Urine Disease (MSUD) and Phenylketonuria, or PKU (you have seen it on all of the Aspartame packages), there is an inability to process certain amino acids. Maple Sugar Urine Disease and PKU cause a build up of toxic products in the blood. These toxic products cause nerve and brain damage.

Other metabolic disorders involve the nerve cells themselves. As the nerve cells swell with the abnormal materials, it causes cell dysfunction, which often leads to blindness, neurological impairment, and early death.

Sometimes, as in PKU and MSUD, the accumulated chemicals are able to leak out of the processing cells into the surrounding tissues, other cells, and the blood. While this can affect the other cells if the chemicals are toxic, it also provides a way in which stem cells can be helpful. Providing multipotent mesenchymal stem cells which then convert into liver cells, the liver begins to repair itself. Since these new liver cells have normal enzyme function, they can begin to remove the accumulated substrate chemicals in the bloodstream. Often, they are able to completely remove the accumulation of abnormal chemicals, so that the original liver cells are able to do most of their other work.

In other cases of this type of genetic disorders, the swollen, damaged liver cells are unable to get rid of the accumulated substrate material. These cells continue to be dysfunctional, but the new liver cells may be able to take over their function.

Sometimes, these original liver cells, which are unable to rid themselves of accumulated materials, continue to deteriorate, and they die. In that case, the new, normal liver cells may be able to multiply, and essentially build a new liver.

In the case of nerve damage, again, if the accumulated materials are able to leak out and be processed elsewhere, the damage may be reversible. It is also possible that new nerve cells, or new nerve helper cells (glial cells) produced from mesenchymal stem cells are able to replace the dysfunctioning nerve and glial cells.

There are other inherited diseases that do not fall into this category, but are considered likely to be helped by stem cell transplants. Some of these are: Lesch-Myhan Syndrome, Cartilage-Hair Hypoplasia, Glanzmann Thrombasthemia, and Osteopetrosis

## Patient Feedback / CASE STUDIES

Included here are some of the feedback we've received by those whom we've treated with Stem Cells:

### Brain Injury

D.A. is a 15 year old girl with mental retardation as a result of a birth injury. While she is physically healthy, mentally she has not progressed beyond the level of a 2 or 3 year old. D.A. received a stem cell injection a few months ago, and within 2 weeks was using more complex language. Instead of simple sentences like, "I go school", she now says things like, "Why do you always blame ME for everything?" That certainly sounds much more like a 15 year old! Her family is pleased with her progress, though not satisfied with it, and D.A. will be receiving more treatments.

D.L. is a man in his thirties who has been in a coma for 10 years, following a motor vehicle accident and then a stroke. He received a stem cell treatment, and within a week or two began moving his arms and legs to get attention. He now recognizes his mother and friends, gives kisses, and tries to speak. As D.L. was one of our first patients, his doses contained a significant amount of dead cells along with the living cells that we certified, and he did seem to have some fever as a result, but he still has had a significant improvement.

After several months, D.L. was able to speak a few words. His physician says that he is no longer in a "persistent vegetative state", and is now awake and aware. People at church remark how much more alert and awake he is now. Improvements from that one injection have continued over the course of a year. D.L. now is growing back hair, on his head and pubic area, which he had lost. His mother is surprised that the hair is now dark, whereas before it was blond. His mother is anxious for D.L. to have another stem cell treatment soon, and we hope to provide a second treatment soon.

## **Pulmonary Hypertension, Atrial fibrillation, and other related disorders**

R. is a Vietnam veteran of about 60 years of age. In Vietnam, he was repeatedly exposed to Agent Orange, a toxic defoliant containing dioxin. As a result, he developed pulmonary hypertention due to lung damage, and this in turn led to irregular heart beats (atrial fibrillation), kidney and liver disfunction, severe water retention, and severe shortness of breath, especially on exertion. In fact, he told us that he expected to die, before he got his stem cell treatment.

When we saw R. in Chicago, he could barely walk, due to fluid retention and shortness of breath. He was treated in Chicago with a stem cell infusion, and began feeling better not many days later. He says that he lost 37 lbs of water weight within a couple of weeks! His EKG now shows normal heart rhythm, and lung tests are improved. He no longer feels that he is going to die, and desired to have another treatment.

Several months later, we provided some stem cells for another treatment. We wanted to send many cells, so we sent several vials with smaller amounts in each. Unfortunately, each vial had a significant amount of dead cells, along with the specified number of live cells. R. had a significant reaction to the chemicals given off by the dead cells, and did not have the result that he hoped for. NOTE—we have made significant progress with our processing, so that the numbers of dead cells are now very much reduced. We are also able to give more live cells for the same price, as much as ten times as much as previously.

## **Chronic Fatigue**

Joel has had symptoms of chronic fatigue for many years. His health has made some improvement since working with Stem-Tech, and finding out that he had a serious mycoplasma infection in his blood. He suspects that this infection, which seems to be associated with many cases of Gulf War Syndrome, probably originated from vaccinations as a child. Mycoplasma is a common known contaminant of cell cultures, including those used for vaccines.

Joel received one treatment with intravenous MMS, 0.6 cc of 28% solution, and had a significant “die-off” reaction (Jarisch-Herxheimer reaction, caused by the toxins released by dying pathogens). Following that episode, he had increased energy. He then received an IV with 30 cc of silver nano-particle colloid, and one treatment of stem cells at the same time. Within a week after this treatment, he was able to climb a mountain to service a water tank, something that he never would have been able to

do before that. He has also noticed that, when walking up a hill near his home, his heart no longer pounds like it was going to come out of his chest, and he is able to recover much more quickly from this exertion.

PM has visited many doctors for symptoms of chronic fatigue, for many years. She has been diagnosed with several chronic-fatigue-related disorders, including Chronic Fatigue/Immune Deficiency Syndrome and Myalgic encephalomyelitis. She was treated with stem cells twice, then her father, seeing the improvement, ordered another three treatments. We know that she did have a reaction from one of the treatments. This was apparently because, in trying to give her a large amount of live cells, we gave her too many dead cells, but she has made significant improvements. Last we spoke to her, she said that she was going to order some more!

## **Liver Disease**

HF is from Afghanistan. He has been working in a gas station, but became unable to work because of fatigue, swelling and pain. He was found to have developed a chronic liver disease, and was scheduled for a liver transplant. He had chronic pain, fatigue, and bloating, and it was difficult for him to sleep. Instead of a dangerous liver transplant, he decided to get a stem cell transplant. He had some fever and aches after the transplant (fortunately we have learned how to prevent most of this). After a couple of weeks, he reported less pain, better sleep, decreased water retention, and increased energy. He is back to work again! We look forward to helping him heal with a second treatment.

## **Anti-Aging**

Dr. J.C. is a physician in Canada. He gave some of our stem cells to patients in his anti-aging practice. Within a week, one post-menopausal woman's estrogen level had tripled, bringing it into the normal range for a pre-menopausal woman!

## Stem Cell Glossary

**ABO** — Cell recognition proteins found on the outside of red blood cells. The “A” and “B” proteins, along with the rH protein, constitute the basic blood typing system. Umbilical Cord Stem Cells are usually given to ABO-matched recipients. See HLA Proteins.

**Adult Stem Cells** — stem cells taken from differentiated or mature tissues, as opposed to fetal or embryonic tissues. Adult stem cells may be taken from adults, or children. Adult stem cells express cell recognition proteins, such as ABO, rH and HLA, and thus are recognized as “foreign tissues” when transplanted into someone other than the donor. Foreign tissues stimulate a rejection response in the recipient. Umbilical cord stem cells technically might be termed adult stem cells, but since they do not trigger an immune response, they are considered in a separate category. Adult stem cells can be useful as “autotransplants”, or tissue donated to oneself, after a heart attack or cancer treatment, for example.

**ALS** — Amyotrophic lateral sclerosis, or Lou Gehrig’s disease, is a degenerative condition of the brain. ALS has been successfully treated with neural stem cells, which improve function and slow down or stop the process of the disease.

**Antibody** — A protein, manufactured by the cells of the immune system (human or other animal), which identifies and attaches to another specific protein. Antibodies are used by the body to identify self or non-self proteins. Antibodies are used in research to identify the characteristic proteins on the outside of cells, thus revealing the cell type. Antibodies may be tagged with fluorescent or magnetic markers, which allow the identifying proteins to be visualized, or the cells with those proteins to be magnetically separated.

**Blastocyst** — The embryo as a ball of cells, formed at 12 days of age. The inner cell mass consists of stem cells, and goes on to form the fetus. The outer sphere, or trophoblast, becomes the placenta and amniotic sac.

**Big Pharma** — The giant pharmaceutical corporations of the world, who seek to control all access to health, and to limit the use of healing practices that they do not control.

**Blood-borne Diseases** — infectious diseases which can be transmitted by exposure to infected blood. Some of these types of diseases are HIV/AIDS, hepatitis B and C, cytomegalovirus, Syphilis, etc. These are infectious, not inherited diseases. Stem-Tech Labs checks all donated blood and tissues for blood borne illnesses at a US lab.

**Blood-Brain Barrier** — a functional barrier between the circulatory system and the spinal fluid that bathes and nourishes the brain. This barrier prevents passage of many toxic substances into the brain. It may be a barrier to migration of stem cells from the bloodstream into the brain, but some studies have demonstrated the passage of neuronal stem cells through the blood brain barrier. Some stem cell therapist use the sugar mannitol to make the blood brain barrier more permeable and help the stem cells to cross into the brain. See Intrathecal.

**Blood Type** — the major blood types identify the presence or absence of three proteins on the outside of blood cells. These proteins are called “A”, “B”, and “Rh”. Although it has not been demonstrated to be necessary, umbilical cord blood transfusions are generally matched according to ABO and Rh blood type.

**Bone Marrow** — the reddish substance found in the central canals of many bones. Bone marrow functions to produce blood cells. Bone marrow is often damaged by chemotherapy or radiotherapy in cancer treatment, and can be reconstituted by transplanting bone marrow or umbilical cord blood cells.

**Clinical** — used in medical practice, as opposed to just in research. Clinical trials are trials of the actual use of a therapy in people, rather than in a test tube.

**Cell Characterization** — identification of cells as those of a particular type, such as mesenchymal stem cells, muscle cells, blood cell precursors, etc. Since most stem cells and cell precursors look the same under the microscope, characterization of stem cells usually calls for the use of specialized molecular probes and sophisticated instruments, like a flow cytometer.

**Cell Culture** — Growing the cells in an artificial environment, to allow them to multiply and increase their numbers.

**Centrifuge** — a device which spins at a high rate of speed, causing centrifugal force to be exerted on objects placed in it. A centrifuge is often used to separate stem cell-containing layers from other cells.

**Cord blood** — Umbilical cord blood.

**Cord Blood Stem Cells** — Umbilical Cord Blood Stem Cells

**Cryogenics** — Extreme cold. Cells may be frozen by special techniques, and kept at extremely cold temperatures until needed. They are then thawed out and injected or infused.

**Cytokines** — chemical cellular mediators which initiate an action in another cell. This might be a call for a certain cell type to migrate to a certain area, to differentiate, or to change in some way. See Growth Factors.

**Cytometry** — Cell measurement.

**Differentiate** — Change in structure and function from a stem cell, or other cell precursor, into a more specialized cell. For example, neural precursor cells differentiate into neurons (nerve cells), as well as the support cells called Glia and Oligodendrocytes.

**Donor** — The person or animal which gives tissue or cells for transplantation or research.

**Ectoderm** — The outer layer of an embryo, which develops into the skin and nervous system.

**Embryo** — The early stage of formation of an animal. In a human, this lasts from fertilization of the egg, until 8 weeks, when the embryo is called a fetus. An embryo forms from three layers of cells: The inner layer, or endoderm, the middle layer, or mesoderm, and the outer layer, or ectoderm.

**Embryonic Stem Cells** — Stem cells produced by embryos. Human embryos are the source of human embryonic stem cells. Most stem cell research focuses on embryonic stem cells, as they are multipotent, and the most primitive of the stem cells. They may be able to answer many questions about stem cells. Processing them is more difficult than other stem cells, and more likely to produce patentable products and treatments. But embryonic stem cells do have a major drawback—they cause tumor formation, especially teratomas. As a result, they cannot be used for transplantation. At the University of Wisconsin Stem Cell Re-

search lab, skin cells have been converted into embryonic stem cell-like cells, and much media hype celebrates this discovery, as embryos do not have to be destroyed in order to create these cells. However, these are not normal embryonic cells, as they have four extra genes implanted into them, and it is very unlikely that a clinically useful stem cell product will be forthcoming from these cells.

**Endoderm** — The middle layer of an embryo, which develops into the liver, intestines and digestive organs.

**Enzyme** — A protein molecule which assists in a change in another molecule or molecules. Enzymes are like catalysts, in that they cause a reaction to occur at a higher rate, without becoming used up in the reaction. Enzymes are used in most, but not all, chemical reactions in life. Some enzymes are used in stem cell processing to release stem cells from their culture containers, or to release them from the tissues in which they are found.

**Expansion** — Increasing the numbers of a particular line of stem cells by growing them out in cell culture. Expansion allows the administration of increased numbers of cells, thus increasing the probability that the stem cells will successfully repair the lesions in the body.

**FDA** — Food and Drug Administration, a federal agency of the United States government. Charged with protecting the public from adulterated food and dangerous drugs, this agency has transmogrified into a front for the big pharmaceutical corporations. Through a “revolving door” system, FDA researchers and lawyers tend to leave the agency for better paying jobs in industry. Rather than protect the public against dangerous drugs, FDA employees approve drugs whenever possible, thus preserving their chances at a more lucrative job with industry. They also have restricted use of natural, unpatentable therapies, in favor of synthetic, patentable therapies profitable to Big Pharma.

**Fetal Stem Cells** — Stem cells processed from aborted human fetuses. These usually are of two types, “somatic” stem cells, from the liver of the fetus, and “neuronal” stem cells, from the fetal brain.

**Fetus** — The later stage in development of an unborn animal, when the developing embryo becomes recognizable as it will look when it is born, or hatched. From 8 weeks of gestation to birth in humans.

**Flow Cytometry** — Counting and measurement of cells as they flow past a laser light. The amount and direction of reflection of light from a laser, and the activation of fluorescent dyes tagging the cell, are detected as the cell moves by in a stream of fluid. This is the primary means of identifying, characterizing, and counting different cell types.

**Fluorescent** — Glowing under ultraviolet (UV) light. Fluorescent dyes are used to mark specific proteins that identify or characterize cell types.

**Fluorescent Marking** — Marking the specific proteins on the outside of a cell with antibodies tagged with a fluorescent dye. This dye will glow in a characteristic color when exposed to ultraviolet light, causing the marked protein to show up as a colored spot. Fluorescent marking is one of the common tools used in characterization of cells.

**Graft vs. Host disease, or GVH** — A problem which develops when the immune system cells in transplanted bone marrow attack the tissues of the recipient. This is much less of a problem when the bone marrow is replaced with umbilical cord stem cells.

**Genetic** — Having to do with inherited traits, or the DNA and chromosomes on which they are inherited. Stem cells can cure genetic disorders by replacing cells with abnormal genes with cells that have normal genes. See Inborn Errors of Metabolism

**Genes** — the packets of DNA which encode inherited traits.

**Glial Cells** — small support cells that surround the neurons in the brain. These support cells are necessary for normal brain function, and are one of the three cell types produced by neuronal stem cells.

**Growth Factors** — Chemicals produced by other cells which cause the target cells to develop some characteristic, to grow, to multiply, or to differentiate. Growth factors are used in cell cultures to cause cells to grow but remain multipotent, or to differentiate into a specific cell precursor or cell type.

**HLA** — Human Leukocyte Antigens, these are identification proteins found on the outside of cells, including white blood cells, that allow the immune system to recognize tissues as “self” or “non-self”. HLA proteins are responsible for rejection of transplanted organs, as well as for ejection of splinters and other foreign materials from the body. HLA typing is thus extremely important in transplantation of most organs or tissues. Bone marrow replacement with HLA-matched umbilical cord blood stem cells is recommended to prevent graft vs host disease in the recipient, but HLA-unmatched transplantation of umbilical cord stem cells in persons with an intact immune system does not trigger a rejection response, unlike other cells or tissues. This is a major reason that umbilical cord stem cells are preferable to adult stem cells.

**Hematopoietic** — Blood Forming. Most of the research on Umbilical Cord Stem Cells has been on the hematopoietic stem cells found among them. Because these are the cells important in reconstituting blood marrow after chemotherapy and radiotherapy, and because there is lots of money for cancer research, these cells were extensively studied, long before the current wave in stem cell research.

**Inborn Errors of Metabolism** — the genetic absence or malformation of a certain gene, or the protein that it encodes, which causes a baby to be born without the ability to process, or metabolize, certain compounds. This kind of genetic error is not enough to cause the death of the fetus, as the mother has been able to process the compounds as long as her blood has been handling the waste in the fetal blood. But after birth, the precursor compounds to that chemical step build up in the body. The build up of these compounds causes a variety of problems, from swollen liver to blindness to death in a few months. Some of these disorders are tested at birth, for example PKU, the inability to process the amino acid phenylalanine, and Maple Sugar Urine disease, common in the Amish and Mennonite communities. These disorders can often be easily cured by administration of liver stem cells, which differentiate into normal liver cells, and take over the processing of the built-up metabolic byproducts.

**Infusion** — To administer into the body by injecting into the bloodstream, usually into a vein. Stem cells may be infused into the bloodstream to allow them access to most parts of the body.

**Injection** — Administering a substance inside of the body, by means of a syringe and hypodermic (“under skin”) needle. Stem cells may be injected into specific sites, or injected under the skin to allow them to migrate elsewhere.

**Intrathecal** — Inside of the spinal canal, or inside of the skull, but outside the brain, in the spinal fluid. Intrathecal injection of neuronal stem cells, placing them directly into the spinal fluid that surrounds the brain and spinal cord, is one possible route of administering them, to allow them to access spinal cord and brain lesions. Spinal puncture is the usual route for intrathecal injections.

**Lesions** — Wounds, or structural abnormalities. A cut is a lesion, as is an area of dead heart cells from a heart attack, or worn cartilage from arthritis. Stem cells appear to seek out and repair various lesions. A genetic defect could also be considered a “genetic lesion”, and these are often easily repaired with stem cell therapy.

**Ligands** — Proteins or other molecules found on the outside of cells which identify the cell type. Stem cells and other fetal cells have the ability to migrate around the body and find certain cell types. A system of ligands allow injected fetal lung cells to find adult lung cells, for example, and stimulate them to repair the lung tissue. Ligands actually refer to loose bonds formed between these proteins, or between other molecules.

**Live Cell Therapy** — A therapy used since the 1920s in Europe and other countries, wherein cells from specific fetal animal organs (usually lamb cells) are injected into humans. These cells migrate into the recipient’s tissues, and stimulate them to repair or to function better. Sometimes, these animal cells continue to live in the recipient’s tissues. Sometimes, they fuse with the recipient’s cells to form a hybrid cell. Most of the time, the cells are rejected by the body and die, after stimulating repair and improved function of the target tissue.

**Macular Degeneration** — deterioration in the macula, which is the spot on the retina at the back of the eye, with the highest visual resolution, or the highest concentration of vision cells. Macular degeneration is generally associated with aging and often with arteriosclerosis. Some cases of macular degeneration have been helped by injecting neural stem cells, through a catheter, into the central retinal artery, which goes down the optic nerve into the eye.

**Magnetic Marking** — A means of characterizing cells, magnetic marking involves attaching microscopic magnetic particles to target proteins on the cell surface, using antibodies developed against the target proteins. Once tagged with the magnetic particles, the marked cells can be removed from a suspension of cells by using a magnet.

**Mesenchyme** — A primitive material found in the developing embryo, which develops from the mesoderm and contributes to the formation of the skeleton, blood and muscles.

**Mesenchymal Stem Cells** — Multipotent stem cells found in umbilical cord tissues, as well as in bone marrow and fat. Mesenchymal stem cells are capable of differentiating into cells from all three layers of the embryo. They are known to spontaneously differentiate into bone, fat, joints and cartilage, (mesoderm), and nerve cells (ectoderm), as well as liver, pancreas and kidney cells (endoderm). Mesenchymal cells are also easy to grow in cell culture, so make a powerful tool to rebuild the body.

**Mesoderm** — The middle layer of an embryo, which develops into the skeleton, bones, muscles, connective tissues and blood.

**Morphogenetic Field** — The electromagnetic field surrounding and interpenetrating the body, which carries the blueprint that cells follow to create the body. More specific than DNA, the morphogenetic field interacts with cellular DNA to stimulate the creation of body structures. It appears that ORMUS increases stem cell ability to repair body structures and follow the morphogenetic field.

**Multiple Sclerosis** — or MS, is a disease of the central nervous system (CNS), wherein the nerve fibers lose the “insulation” or myelin sheath surrounding them, causing diminished transmission of nerve impulses, and diminished function of the brain and spinal cord. This degenerative process seems to be caused by the immune system attacking the nerve tissue, and may be related to hidden or latent infections with viruses such as measles, poliomyelitis, and human herpesvirus type 6. Transplantation of umbilical cord blood stem cells has regulated the immune system attack on the CNS, and neuronal stem cells have repaired much of the damage, giving increased function to MS patients.

**Multipotent** — Capable of differentiating into most cell types.

**Neonate** — Newborn. Neonatal, adj.

**Neurons** — Nerve cells, in particular, cells of the brain or peripheral nervous system which pass signals along to other neurons.

**Neurogenic** — Capable of generating neurons. Neuronal precursors or neuronal stem cells. Also means coming from or caused by the nervous system.

**Neuronal Stem Cells** — Stem cells that are precursors for brain or nerve cells. They may be harvested from fetal brains, or produced by differentiation of more primitive precursors. Neuronal stem cells often differentiate into a mixture of neurons, and glial cells and oligodendrocytes, the neuron's support cells.

**Olfactory Stem Cells** — An unusual source of nerve stem cells has been found in the nose, where the sensors for smell reside. Apparently, these exposed nerve cells are constantly being repaired, so they come with their own supply of stem cells. Dr. Lima of Portugal has tried transplanting the patch of olfactory cells in the nose into damaged spinal cord lesions, often with profound success. It is likely that injecting neural stem cells into the spinal cord lesions will be as effective, without need for surgery or sacrifice of the sense of smell!

**Oligodendrocytes** — Specialized cells of the central nervous system that support the function of the neurons, these cells have many branch-like dendrons that reach out and support the fibers coming out of the neurons. Oligodendrocytes are one of the three cells formed when neuronal precursor cells differentiate.

**ORMUS** — A unique form of matter which seems related to life energies. Ormus or ormes appear to be di-atomic (2 atoms) forms of metallic elements, especially in the platinum group, but including precious metals such as silver and copper. Ormus appears to increase the healing abilities of the body, and to increase the ability of the stem cells to follow the morphogenetic field. [www.subtleenergies.com/ormus](http://www.subtleenergies.com/ormus)

**Placenta** — the purplish organ that exchanges nutrients, oxygen, and wastes from the blood of the mother to the blood of the fetus. The Placenta contains many stem cells, in its blood and its tissues. It is usually discarded as medical waste following the birth of the baby. Also called “afterbirth”, as it is delivered after the baby is born.

**Pluripotent** — Capable of differentiating into many cell types. For example, a cell capable of turning into bone, fat, tendon, cartilage and ligament cells, but not into brain cells or liver cells, might be considered Pluripotent.

**Precursor** — A cell capable of differentiating into another cell type. For example, a hepatic/pancreatic cell precursor is capable of differentiating into liver cells of several types, pancreatic cells that secrete digestive juices, and pancreatic cells that produce insulin. A stem cell is a precursor to other cell types.

**Primitive** — A term describing a cell that is less specialized, and more capable of differentiation into other cell types.

**Protein** — A large, complex molecule made up of amino acids in chains. The structures of proteins are encoded by DNA, and the proteins are manufactured, according to the DNA blueprint, by apparatus in the cell. Surface proteins on the cell identify the cells as self or non-self, and also allow researchers to identify different cell types, by identifying the proteins expressed on their surface. Antibodies are used to identify various types of proteins.

**Recipient** — The person who receives transplanted tissue, organ, or cells.

**Rejection** — The response of the immune system to a transplant of foreign tissue, or tissue from another person or animal as donor. Adult stem cells are much more likely to trigger rejection than fetal, embryonic or umbilical cord stem cells.

**Rh Protein** — A cell recognition protein found on the outside of red blood cells. This protein was first identified in Rhesus monkeys, and thus its name. Along with the “A” and “B” blood type proteins, these constitute the major blood type markers.

**Self** — Belonging to or part of the body, as opposed to foreign material or foreign proteins present in the body.

**Somatic** — Pertaining to the body, as opposed to the brain or the spirit.

**Stem Cell** — A precursor cell capable of differentiating into many different types of cells. Stem cells form a powerful repair system for the body. They have three primary characteristics:

1. *They can remain stem cells, indefinitely.*
2. *They can divide, and each daughter cell can continue to be a stem cell, or can convert into precursor cells to other types of cells.*
3. *They can turn into many other types of cells*

**Stem Cell Therapy** — Use of stem cells to treat a disorder. Over 70 different disorders have been identified as amenable to stem cell therapy.

**Teratoma** — A type of tumor, often cancerous, containing many different cell types, even teeth, hair, bone, etc. This type of tumor is the most common tumor resulting from embryonic stem cell transplantation in animals, and is the reason that embryonic stem cells are not used in humans.

**Totipotent** — Capable of differentiating into all cell types. Only the fertilized ovum and the first few stages of cell division, down to the 8 cell stage, are considered Totipotent.

**Transplantation** — Moving an organ, tissue or cell from one person—the donor—into another, the recipient. Transplants of organs generally involve surgery, but stem cell transplantation can be done by injecting the cells into a specific area, or by infusing them into the bloodstream and allowing them to find their way to the damaged tissues.

**Tumor** — Swelling. An abnormal mass of tissue. Tumors may be cancerous, or non-cancerous (benign). The tumors caused by embryonic stem cells are called teratomas.

**Umbilical Cord** — The cord that connects the fetus to the placenta, and carries blood to and away from the fetus. This cord is usually discarded as medical waste after birth. It contains multipotent stem cells in its blood and tissues.

**Umbilical Cord Blood** — the blood contained by the placenta and umbilical cord after the cord is clamped and cut, following the birth of a baby. It contains multipotent stem cells.

**Umbilical Cord Stem Cells** — A mixed population of stem cells found in the blood of the neonatal umbilical cord and placenta. This population includes multipotent embryonic-like stem cells, a population of hematopoietic stem cells, and a variety of stem cells capable of differentiating into virtually all adult human tissues. Umbilical cord stem cells do not trigger immune reactions, like adult stem cells, and do not cause tumors, like embryonic stem cells. Mesenchymal stem cells are also found in the umbilical cord material itself, but are rare in umbilical cord blood.



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## **CONTACT US!**

Skype us now: **sales@stemtechlab.com**

Ecuador: **+593 99 581 219** or **+593 91 847 091**

USA: **1 305 515 8137** -- GMT -5:00 Monday - Sunday (7am - 10pm)

USA FAX: **1 866 798 2158** --International FAX: **1 514 409 2770**

CANADA - Coordinator

Overseas Medical Services Canada Inc.

1771 First Avenue NW, Calgary, AB T2N 0B2 Canada

Ph & Fax: **1 403 283 4947**

Toll free: **1 866 449 4947**

Skype ID: **offshorem**

[www.uniquehospitals.com](http://www.uniquehospitals.com)