NUSTEM TECHNOLOGIES, INC.

Cord Blood Stem Cell Rescue Therapy

Business Plan

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II. EXECUTIVE SUMMARY

There exists a multi-million dollar opportunity to supply the medical community with a new and superior source of stem cells for transplantation in the treatment of cancer and many other serious diseases. The primary mission of NuStem Technologies, Inc. (NuStem) is to meet this need through the collection, processing, cryogenic storage and sale of stem cells derived from the umbilical cord of a newborn baby following a live birth.

> ***"The potential benefits of cord blood include immediate availability, absence of donor risk, and very low risk of transmissible infectious diseases."***
>
> *Lancet Medical Journal*

Stem cells are life sustaining precursor cells that develop into red and white blood cells, and platelets. In the treatment of cancer, chemotherapy and radiation destroy not only the cancer cells but also these blood precursors. Without healthy blood cells to supply oxygen, fight infection, and aid in blood clotting, the person's health and life are threatened. This becomes a major factor that inhibits physicians from being more aggressive in treating cancer. A "rescue" of new stem cells is needed so that the cure itself does compromise the patient.

> ***"Results of the largest study ever to compare outcomes of cancer patients transplanted with bone marrow vs. stem cells are promising news for many patients with high-risk blood cancers."***
>
> *William Bensinger MD 41th annual American Society of Hematology, December 1999*

The reason that people get bone marrow transplants is because bone marrow is a source of stem cells. It has been discovered that the blood found in the umbilical cord of a newborn baby has a rich supply of stem cells, and that this source offers several advantages over bone marrow:

- Immediate availability because of cryogenic storage, eliminating the long search for a bone marrow match
- Much greater probability of a positive match since cord blood stem cells have less demanding matching requirements
- Reduces, by 10 to 18 times, the chance of certain serious side effects
- Lower cost of treatment
- Higher survival rate
- Safer and less invasive collection

> ***"In the three-year, multi-center study, more than 160 patients with a variety of blood cancers were randomly assigned to receive bone marrow or stem cell transplants. The two year survival rate among the marrow transplants were 45% compared to 70% for the stem cell patients."***
>
> *William Bensinger MD 41th annual American Society of Hematology, December 1999*

NuStem will have a distinct competitive advantage over other present and future cord blood banks because:

- The most revered talent in stem cell research and transplantation are members of the Company's Scientific Advisory Board
- The Company has in place an unparalleled source of genetically diverse stem cells through relationships with obstetrical practices around the world
- The equipment and processes used by NuStem are state-of-the-art and meet or exceed all FDA and National Institutes of Health (NIH) guidelines. Proprietary cell expansion techniques may prove to be a revolutionary breakthrough in the science
- The Board of Directors and Management of the Company are seasoned professionals in the medical field

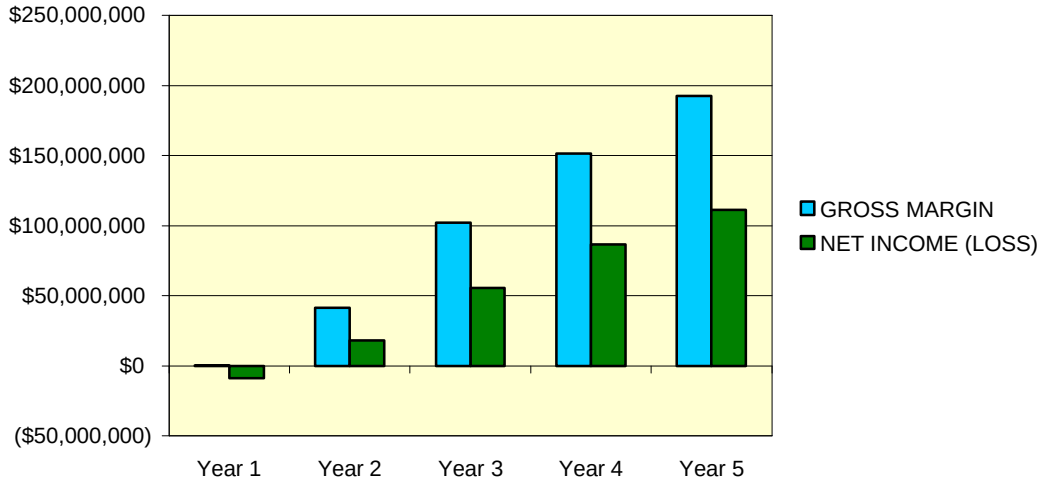
> ***"Compared with bone marrow, cord blood for transplant has the advantages of being 'on the shelf' ready for use, having low contamination with viruses such as cytomegalovirus, and placing neither the donor neonate nor the mother at risk."***
>
> *MJA, Vol 166, 2 June 1997*

Only about 30% of patients worldwide that need a bone marrow transplant have a compatible family donor. Of the remaining 70%, only 25% of these find a suitable match after searching the bone marrow registries. In the United States, more than 50,000 bone marrow transplants are needed each year, but 15,000 people die because an acceptable match could not be found. NuStem will provide a more effective and less expensive alternative to traditional bone marrow transplants.

> ***"…more than 50% of patients (are) unable to access bone marrow for transplant and, in this context, umbilical cord blood has emerged as an attractive alternative and rich source of hemopoietic stem cells for transplant."***
>
> *MJA, Vol 166, 2 June 1997*

It is anticipated that annual sales will grow to more than 11,500 units per year at a sales price of at least $15,000 per unit. By the third year, NuStem projects a net profit of $55.6 million on gross sales of $102.2 million. By the fifth year, NuStem projects net profits of $111.3 million on sales of $192.5 million.

Gross Revenues / Net Income



NuStem operates under the control of an executive management team, its Board of Directors, and the Scientific Advisory Board. The members of the management team were chosen because of their expertise in the various disciplines necessary to ensure NuStem's success. They include individuals with experience as CEO's, domestic and international Marketing Directors, CFO's, and the former Director Blood Diseases Program of the National Institutes of Health. Although NuStem is proud of its current management and technical team, it is aware that additional key personnel will be added as required by the anticipated growth of company.

The company is currently seeking an infusion in excess of $25 million through three rounds of fund raising. The proceeds of each round will be used as follows:

First Round $1,000,000 "Friends and Family" has been raised.

- This first round proceeds has been used to establish the management team; provide funds for the initial marketing and funds raising, overhead, operations, an office lease, purchase of first freezer and initial laboratory development; and for the filing of patents and other legal documents.

Second Round "Series A " Preferred Stock $10 Million

- Phase 1 development includes the further development of the first cord blood bank in Reno, NV. The purchase of additional freezers and lab and support personnel will be funded from this round. The development of an interactive web site and cord blood registry database, data systems for inventory tracking and matching, and expanding laboratory and staff will be funded from this round.
- $600,000 is earmarked for a strategic partnership for research and stem cell inventory in conjunction with Flinders Cancer Institute in Australia. This partnership will not only open global access into South East Asia; but also, will realize revenue sharing with Flinders Institute.

Third Round "Series B" $15-20 Million

- Establish the corporate headquarters
- Phase II development of cord blood banks in key US markets
- Procure and build up cord blood inventory from the domestic and international network
- Invest aggressively in market development and alternative markets
- Host annual International Symposiums on Stem Cell Rescue Therapy

By building an operation that can meet the worldwide demand for cord blood stem cells, many, many lives will be saved.

"Approximately two ounces of placental blood contains more stem cells than a pint of bone marrow."

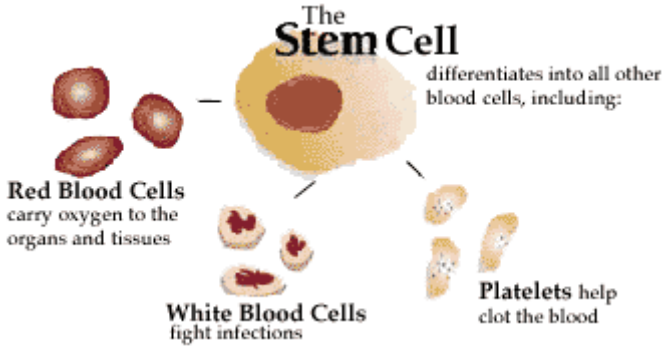
Dr. Eric Sandler, Cancer Research Weekly

III. INDUSTRY BACKGROUND

STEM CELLS & CORD BLOOD

Stem cells are the precursor cells from which all blood cells, as well as the key components of the body's immune system, are derived. They can reproduce themselves unless circumstances damage or destroy them. Stem cells circulate freely in the blood of babies before, and just after, they are born. An unusually rich supply is then available to be harvested from the umbilical cord following a live birth. This has historically been medical waste that has been discarded. Shortly after birth, stems cells begin to migrate into the body's bone marrow. When you hear of a person needing a "bone marrow transplant", it is the stem cells that are being sought. Stem cells are absolutely necessary because they produce:

- **Red blood cells** that carry oxygen throughout the body
- **White blood cells** that fight infection
- **Platelets** that aid in clotting



Stem cells are an essential component in the effective treatment of numerous diseases. In some cases, such as cancer, chemotherapy and radiation destroy not only malignant cancer cells but also the body's stem cells. Without a replenishment of stem cells, the body cannot make the blood components necessary for life. In other cases, a genetic malfunction cripples the stem cells and results in the production of defective blood components. The reason that the red blood cells in a person with Sickle Cell Anemia look like crescent moons is that the stem cells do not produce healthy, full cells. Replacing the body's defective stems cells with stem cells that function properly can cure many of these diseases.

BONE MARROW TRANSPLANTATION

Bone marrow, the spongy tissue found inside the hips, breastbone, skull, ribs, and spine, contains stem cells. In everyone other than newborns, these stem cells are found nowhere else in the body. In a bone marrow transplant, the patient's damaged or diseased bone marrow is "rescued" with healthy stem cells that are infused into the patient's blood stream. In a successful transplant, the new stem

cells migrate to the cavities of the large bones, engraft and begin to produce normal blood cells again. A bone marrow transplant enables physicians to treat certain diseases with aggressive chemotherapy or radiation by allowing replacement of the damaged stem cells after the treatment. In essence, stem cells serve as a "cure for the cure" in cancer treatment.

Stem cells have been used to treat patients diagnosed with leukemia; aplastic anemia; lymphomas such as Hodgkin's disease; multiple myeloma; immune deficiency disorders; and, other diseases. While bone marrow transplants do not provide 100% assurance that the patient will be "rescued" after aggressive treatment, a transplant can increase the likelihood of a cure, or at least prolong the period of disease-free survival.

In 1996, more than 35,000 people underwent BMTs at over 200 centers nationwide. BMTs now save thousands of lives each year. However, in 40 percent of those needing a bone marrow transplant, a suitable matching donor is not found. Even though many organizations seek to find matches, there is still a major shortage of donors. Over 15,000 people die each year because a suitable bone marrow match could not be found. There is a major opportunity for cord blood banking to fulfill this need by providing an additional and alternative source of stem cells. In light of research that has shown that cord blood is a more effective, safer, and a less expensive source of stem cells, it is expected that physicians will welcome a new source of stem cells so that they can push the limits of chemotherapy and radiation treatment.

GENETIC MATCHING

Most cells in the body contain protein molecules called antigens that "mark" the cells; thus, the cells of any individual are unique from all other people. HLA is the name given to the system of identifying the antigens to be matched between patient and donor. There are six markers that determine a person's HLA type - three antigens inherited from the mother and three antigens inherited from the father. When a person joins a bone marrow or cord blood registry, a blood test is performed to identify which HLA markers are present. The results are then entered into a database and can be searched for matches.

There are two major types of stem cell donations:

Autologous

A person's cells are saved for the individual's future use. The genetic matching in an autologous donation is perfect. However, if the patient's stem cells carry a genetic deficiency, an autologous donation may not provide the healthy stem cells needed.

Allogeneic

The stem cells come from an unrelated donor. In allogeneic transplants, since the HLA matching is not perfect, the new stem cells must match the genetic makeup of the recipient as closely as possible. However, because of the immunologically naive nature of cord blood stem cells, the requirements for precision matching are not as demanding as in bone marrow transplants.

Better matching minimizes serious side effects. If there is not a good genetic match, the hybrid immune system built from the transplanted stem cells perceive the patient's body as foreign material. The new cells attack the original cells with the intent to destroy. This condition is known as graft-versus-host disease (GVHD) and can be life threatening. Alternatively, the patient's existing immune system may destroy the new stem cells; this is called host-versus-graft disease (HVGD). Cord blood has proven to be a far more successful than bone marrow in successful engraftment.

CORD BLOOD STEM CELL TRANSPLANTATION

The barriers and difficulties that the bone marrow transplant patients experience include: difficulty finding suitable donors, high incidence of post-transplant infections, and graft-versus-host disease (GVHD).

Stem cells are most commonly derived from bone marrow and peripheral blood. However, only a few years ago, researchers discovered an alternate source by using the blood from the umbilical cord of a newborn infant. The first umbilical cord blood transplantation was performed in Paris in 1988 on a five-year old boy with a rare blood disease call Fanconi's anemia. More than a decade later the boy is well and healthy. Processes have been developed over the last ten years for storage of cord blood using liquid nitrogen for cryogenic freezing, similar to the methods used to store other cells such as sperm and embryos. When needed, the cord blood is slowly thawed and transfused into the recipient to provide a "rescue" when the patient's own stem cells are damaged or diseased.

Cord blood is proving to be a superior source of stem cells for treating patients with diseases like lymphoma, leukemia, certain blood and immune disorders, and solid tumors (i.e. breast cancer). Scientists have discovered that cord blood is 8 to 10 times richer in stem cells than bone marrow. They have found that cord blood may be better suited for transplants because:

Cord blood stem cells are easier to harvest and cheaper to store than bone marrow stem cells

Retrieval of bone marrow is invasive and can be very painful; it requires extracting the marrow from the donor's bones with a needle and syringe. This is an involved process that usually requires general anesthesia and carries risks for the donor. As a result, few people volunteer to undergo the procedure unless it is for a relative or very close friend.

Bone marrow is expensive to harvest. The cost of procuring and administering a BMT is in the order of $120,000 to $250,000, not including the cost of anti-rejection drugs and the costs of treating complications.

Cord blood stem cells are harvested with no risk or trauma to the mother or infant

While harvesting bone marrow involves risk to the donor, cord blood donation carries no risk for the donor mother or baby. Immediately after the baby is born, the umbilical cord is clamped and the baby separated from the cord. One of the attending physicians uses a drainage system to collect the blood from the umbilical cord and placenta and transfer it into a specialized collection bag.

The time required for a donor search is greatly reduced

Search for a bone marrow donor may take several months. Some patients relapse or develop complications during the prolonged search period, making them ineligible for a transplant. Since cord blood samples are harvested and stored, no search for a donor is necessary. Rather, a query of the cord blood bank's inventory is made; if there is a match, the stem cells can be shipped almost immediately. In addition, cord blood cells eliminate the difficulty of donor attrition and limited donor availability. Twenty to thirty percent of potential marrow donors identified as a match are unavailable to donate at the time of request.

The shortage of donors in ethnic minority populations is alleviated

The National Marrow Donor Program estimates that the current potential for a bone marrow match for non-Caucasians may be as high as one-in-a-million. There is very limited representation by minorities in the Donor Program.

NuStem Technologies will focus on developing a strong ethnic mix and genetic diversity in its blood bank. NuStem has commitments from more than a dozen obstetrical practices around the world to provide cord blood collection services. This worldwide network is unique among cord blood banks. By rotating the schedule of when collection centers are harvesting samples, NuStem can maintain a cord blood bank with unmatched ethnic and genetic diversity. This mix will enable NuStem Technologies to provide an unusually high percentage of matches for all HLA types.

Cord blood stem cell transplants are safer than bone marrow transplants

Transplants done to date show that cells from cord blood are far less likely to precipitate graft-versus-host disease, a serious and relatively common rejection complication in bone marrow transplants. Whereas **30% to 50%** of bone marrow transplant patients develop this dangerous complication, only about **3%** of cord blood recipients develop the condition. Scientists believe this may be because cord blood cells are less mature and therefore more educable or malleable. Because the baby's blood supply is protected from

most viral infections while in-*utero*, cord blood is less likely to have been contaminated by the viruses that even healthy adult donors have been exposed to during their lifetime. As a result, there is dramatically less opportunity for the transplant patient (already at high risk for infections because of a weakened immune system) to be exposed to a virus during this susceptible period. About 50 percent of bone marrow transplant patients are infected with a virus as a result of the procedure.

CORD BLOOD BANKS

The process of building a cord blood bank is simple. At birth, the cord blood is obtained, processed, tested to determine its HLA characteristics, and cryogenically stored. Cord blood can be stored for at least ten years. When a match is made, the sample is removed, thawed, and sent to the facility that will perform the transplantation procedure.

There are two types of cord blood banks:

Autologous Banks

In an autologous bank, the family of the baby from which the blood is being donated pays to "bank" the baby's cord blood in the event that the baby, or a close relative, needs a stem cell transplant in the future. Families typically pay a front-end fee of $1,500 to bank the cord blood, plus a maintenance fee of around $100 annually. Autologous cord blood banks have proliferated because of the profitability margins. Autologous banks have not been very successful, however, at providing effective stem cell samples. Some BMT centers have reported a high percentage of failure for samples received from autologous centers. Management is not aware of any autologous cord blood banks that follow the guidelines of the National Institute of Health and FDA in their collection and storage processes. NuStem does not intend to compete with autologous cord blood banks.

Allogeneic Banks

An allogeneic bank collects cord blood from donors who will have no familial relationship to the recipient. No attempt is made to store blood for a specific individual or family – matching is done on HLA typing only. Many professionals involved in stem cell research believe that an allogeneic blood has benefits over autologous blood. If a person carries a genetic defect that causes the need for a stem cell transplant, their blood cannot be used. NuStem's management believes that establishing the largest and most diverse allogeneic cord blood bank in the world will provide the greatest opportunity to save lives – and the greatest opportunity for long-term profitability.

The New York Blood Center, the world's first allogeneic cord blood bank, was created in 1993 with funding from the National Institutes of Health. Cord blood banks have also been established in France, England, Ireland, the Netherlands, Germany, Italy, Switzerland, Portugal, Korea, Japan, Brazil and Canada.

There are three major constraints to developing a major allogeneic cord blood bank:

COST

The greatest barrier to developing a major allogeneic bank is the cost of HLA typing the units of blood as they are received. With processing costs running up to $650 per unit, the cost of developing and maintaining a substantial inventory can be dramatic. Most cord blood banks are non-profit, government-supported entities that depend on donated funds to develop their inventory. Consequently many cord blood banks contain an inventory of only 1,000 - 3,000 units. The New York Blood Center is currently the largest allogeneic cord blood bank in the world with less than 10,000 units stored. Initially funded by the National Institute of Health, The New York Blood Center is no longer receiving these funds.

NuStem Technologies, Inc. plans to invest $32.5 million dollars over the first three years to create a cord blood bank with 50,000 units. Within about a year, NuStem will be the largest cord blood bank in the world, and by the end of the second year of operations, NuStem's bank will contain over 41,000 units, four times the size of New York Blood Center.

GENETIC DIVERSITY

As the number of banked cord blood specimens increases, the probability of finding a suitable donor increases. Despite the small number of cord blood specimens banked to date, cord blood matches have been identified in many cases when no donor could be found in bone marrow registries. This ability to provide close HLA matching will be enhanced as the cord blood bank develops its genetic diversity through collecting blood from a wide range of ethic donors.

Most cord blood banks are affiliated with one hospital or a group of hospitals in their immediate area. The genetic diversity of the cord blood bank will be determined by the ethnic diversity of the area. This arrangement usually limits the access to the number of ethnic groups in the area. NuStem Technologies, Inc. has established a worldwide network of collection centers specifically chosen to provide access to wide variety of ethnic donors. NuStem will manage its network to develop an effective genetic mix in its blood bank. By changing which centers are currently harvesting cord blood, and by defining which racial profiles to target for collection, NuStem will build the most genetically diverse blood bank in the world. This diversity will help NuStem Technologies achieving the highest probability of completing a successful match.

STANDARDS OF PRACTICE

The National Institutes of Health and the United States Food & Drug Administration have established a standard methodology of practices for effective cord blood collection and banking. Most cord blood banks do not undertake the additional cost of operating within NIH protocols. The New York Blood Center is the only major cord blood bank that operates

under these standards. The practices in other cord blood banks may limit the efficacy of cord blood provided for transplantation. NuStem is committed to operating under all NIH and FDA standards and protocols.

MATCHING PROBABILITIES

As a cord blood bank increases the size of its inventory, the probability also increases for achieving a successful genetic match between donor sample and the recipient's HLA profile. The New York Cord Blood Bank is currently the largest cord blood bank in the world with less than 10,000 units of blood stored. At a size of 8,000 units, the New York Cord Blood Bank has demonstrated that it can achieve a 5/6 serologic match (5 out of 6 HLA characteristics) in only 58% of the requests it receives. Using additional data from the American Bone Marrow Donor Program showing that 20,000 units will produce a match rate of 82%, NuStem's planned inventory of 50,000 will achieve positive match rates that are unparalleled in the industry.

IV. DISEASES TREATED WITH STEM CELL TRANSPLANTS

The following is a partial list of diseases which can be treated with stem cell transplants:

MALIGNANCIES

Brain Tumors
Breast Cancer
Ovarian Cancer
Small-cell Lung Cancer
Testicular Cancer
Acute-Lymphocytic Leukemia (ALL)
Acute Myelogenous Leukemia (AML)
Acute Nonlymphocytic Leukemia (ANL)
Chronic Lymphocytic Leukemia (CLL)
Chronic Myelocytic Leukemia (CML)
Ewing Sarcoma
Germ Cell Tumors
Hodgkin's Disease
Juvenile Myelomonocytic Leukemia (JML)
Myelodysplastic Syndrome (MDS) Hodgkin's Disease
Multiple Myeloma
Neuroblastoma
Non-Hodgkin's lymphoma

HEMOGLOBINOPATHIES / BLOOD DISORDERS

Aplastic Anemia
Sickle Cell Anemia
Amegakarocytic Thrombocytopenia (AMT)
Blackfan-Diamond Anemia
Congenital Cytopenia
Evan Syndrome
Fanconi's Anemia (genetic)
Kostmann Syndrome
Thalassemia

ERRORS IN METABOLISM

Adrenoluekodystrophy
AL Amyloidosis
Bare-lymphocyte Syndrome
Dyskeratosis Congenita
Familial Erthrophagocytic Lymphoistiocytosis
Gaucher Disease
Gunter Disease
Hunter Syndrome
Hurler Syndrome (genetic)
Inherited Neuronal Ceroid Lipofuscinosis
Krabbe Disease
Langerhans'-cell Histiocytosis
Lesch-Nyhan Disease
Leukocyte Adhesion Deficiency
Osteopetrosis (genetic)

IMMUNODEFICIENCIES

Adenosine Deaminase Deficiency (ADA or SCID-ADA)
Chronic Granulomatous Disease (CGD)
Severe Combined Immunodeficiency Disease (SCIDs)
Wiskott-Aldrich Syndrome
Severe Combined Immunodeficiency Diseases (SCIDs)
X-linked Lymphoproliferative Disease (XLP)

AUTOIMMUNE DISEASES (EXPERIMENTAL)

AIDS-Auto Immune Deficiency Syndrome
Multiple Sclerosis
Rheumatoid Arthritis
Systemic Lupus Erythematosus

POSSIBLE FUTURE APPLICATIONS

Diabetes
Gene Therapy
Organ Regeneration

V. NUSTEM'S ALLOGENEIC BLOOD BANK SERVICES

NuStem Technologies will focus on developing:

Allogeneic Blood Bank

NuStem Technologies will obtain, analyze, process, register and store cord blood stem cell at its own cost. Requests from BMT and CBT Centers for stem cells will be sold a fee. The reimbursement price per matched sample is minimally $15,000 to $17,500, based on historical data.

World's Largest Inventory

NuStem Technologies anticipates that it will be able to build up its cord blood bank to about 8,000 units within the first year, and 41,000 units by the end of the second year, making NuStem the largest cord blood bank in the world in less than two years.

50,000 Samples Maintained Inventory

NuStem plans to build its bank to a maximum size of 50,000 units by the third year and maintain that inventory level by replacing cord blood samples at the rate they are sold.

Worldwide Collection And Distribution

From the professional contacts of NuStem's founders, NuStem Technologies has established commitments from an international network of obstetrical practices representing the ethnic diversity of the world's population. NuStem's collection network is unique among cord blood banks.

Greatest Genetic Diversity

NuStem Technologies' collection centers will maintain a richly diverse inventory. Specific centers around the world will operate at varying times in order to maintain an inventory that will be able to continually match requests at the highest possible rates.

Internet Based Searches For Matches

NuStem Technologies will build a state-of-the-art interactive Internet web site to provide on-line queries to identify genetic matches from NuStem's inventory. Access will be freely provided to any patient or medical institution. The privacy of all patient information and requests will be maintained.

Multiple Strategic International Relationships For Market Development

NuStem Technologies' management has already begun developing strategic international relationships that will provide new markets and access to the inventories of other international cord blood banks. NuStem will also develop

strategic relationships with institutions performing bone marrow transplants to achieve greater success in finding genetic matches and making stem cells immediately available.

International Education

NuStem Technologies has made a commitment to provide education and understanding about cord blood transplants. NuStem will sponsor an annual Cord Blood Symposium to provide an arena for sharing new research data and information. The symposium will also provide the foundation for NuStem to expand its marketing relationships with potential client institutions. Each year a broad collection of influential stem cell specialists and medical leaders will be invited as guests of NuStem Technologies.

VI. COLLECTIONS

NuStem Technologies has built a network of physicians, primarily obstetricians, around the United States, and in a dozen other countries, committed to supplying NuStem Technologies, Inc. with cord blood units. This network represents over 50,000 deliveries per year. The network has been setup to acquire samples with a broad genetic diversity to ensure that NuStem Technologies can create a bank that will be capable of supplying any needed sample worldwide.

NuStem Technologies has access to cord blood cell samples from the following centers:

- Reno, Nevada (3,100 deliveries)
- New Haven, Connecticut (2,800 deliveries)
- Stamford, Connecticut (2,100 deliveries)
- Bridgeport, Connecticut (2,450 deliveries)
- Orlando, Florida (5,000 deliveries)
- Bologna, Italy (3,000 deliveries)
- Santo Domingo, Dominican Republic (18,000 deliveries)
- Thessolonika, Greece (1,200 deliveries)
- Jacksonville, Florida (5,000 deliveries)
- Allentown, Pennsylvania (2,200 deliveries)
- Staten Island, New York (2,700 deliveries)
- Shreveport, Louisiana (3,000 deliveries)
- San Diego, California (1,200 deliveries)

VII. MARKET

The market for cord blood will initially be the same as the U.S. market for bone marrow rescue. Currently in the U.S. population of 270 million people, the need

exists for approximately 50,000 bone marrow rescues. Currently, only 35,000 patients find matching donors. The use of stem cells from cord blood is so recent and revolutionary that no national or international cord blood bank has more than 8,000 units in storage at this time. The Scientific Advisory Board of NuStem Technologies believes the market will increase significantly as stem cell units become available.

The largest cord blood bank is the New York Blood Registry, which reportedly has less than 10,000 units in storage, with 1,000 units distributed for transplantation. All other known cord blood storage facilities are primarily focused on the autologous (self-storage) portion of the industry.

NuStem Technologies has already begun building strategic alliances with international markets that are in need of cord blood for transplants. NuStem will aggressively pursue building relationships in the international markets and will facilitate this effort by inviting numerous internationally recognized bone marrow transplant specialists to NuStem Technologies' annual Symposium on Stem Cell Rescues.

VIII. COMPETITION

Although there are several existing cord blood companies in operation, they have been largely unregulated. Most of these companies are relatively new, many undercapitalized, few have more than a few hundred cord blood units in their inventory, and none have market dominance. No commercial bank is using the current NIH approved processing techniques and storage equipment. NuStem Technologies has secured on its Scientific Advisory Board several transplant specialists to ensure that NuStem's services become well known in the medical community.

CURRENT EXISTING COMPETITORS

- The National Heart, Lung and Blood Institute of the NIH including: New York Blood Center, Duke University, Dana Farber in Boston, Fred Hutchison in Seattle, UCLA, and the University of Minnesota. These groups are non-commercial, federally funded programs.
- United States Center for Cord Blood, Altamonte Springs, FL - autologous banking.
- CryoCell, Sebastian, FL - autologous banking.
- University of Arizona Cord Blood Registry, Tucson, AZ – autologous banking.
- Viacord/T-Breeders, Boston. MA - autologous banking and bio tech firm with stem cell expansion. Just raised 48 million from investment banks and health care funds
- The American Cord Blood Program at University of Massachusetts, Boston, MA.

- California CryoBanks, Santa Monica, CA - new startup.
- Aastrom, Ann Arbor Michigan, stem cell expansion technology.
- Internationally: Austria. Belgium, France, Germany, Israel. Italy, Japan and the United Kingdom.

IX. COMPETITIVE ADVANTAGE

NuStem Technologies expects to be the industry leader for four significant reasons:

Size of Cord Blood Bank

In less than two years, NuStem Technologies will be the largest cord blood bank in the world. The three-year projections show NuStem to be six times the size of the current largest cord blood bank.

Genetic Diversity

NuStem Technologies' international network of collection centers will ensure the adequacy of the samples as well as the genetic diversity that is required to satisfy the worldwide demand.

Strategic Relationships

NuStem Technologies has relationships with a number of strategic individuals and has developing relationships with international organizations that want to take advantage of NuStem's cord blood bank. Management is committed to building additional strategic relationships with Bone Marrow Transplant centers and international specialists through its hosting of an annual Symposium on Stem Cell Rescue.

Scientific Leadership

NuStem Technologies' Board of Directors and Scientific Advisory Board have been specifically established to provide NuStem Technologies with scientific leadership that is recognized worldwide. The Boards will provide NuStem with competitive advantages in two strategic areas:

- ***Processes & Procedures:*** The Scientific Advisory Board is comprised of current and past members of the FDA Advisory Board and the National Institutes of Health. These recognized scientific leaders specialize in laboratory procedures, blood banking techniques, and the use of stem cells from cord blood for transplantation. These individuals are experts in the use of hemopoietic stem cells and are involved in on-going research in this field. They will assure that NuStem's state-of-the-art laboratory and processing protocols will meet or exceed FDA requirements.

- ***Transplantation Acceptance:*** NuStem Technologies has leaders in the field of transplantation on its Boards who will assure that NuStem Technologies will become the recognized leader as the source for stem cells.

X. OPERATIONAL PLAN

NuStem Technologies' management has mapped out a detailed operational plan, which will allow the Company to establish itself as the preeminent cord blood company in the world. NuStem Technologies considers the essential elements of a successful cord blood cell storage business to be:

ACCESS TO GENETICALLY DIVERSE SAMPLES

NuStem Technologies has developed a worldwide network of sources for stem cells that is unique among cord blood banks. No other existing cord blood bank has developed such a broad network of collection centers for acquiring an ethnically diverse inventory of cord blood. These collection centers are large obstetrical practices that will be capable of collecting over 1,000 units each per year. Actual collections will be managed according to volume and ethnic requirements defined by the Company.

PATIENT EDUCATION

At each collection center, NuStem Technologies will hire a Cord Blood Collections Management Team, consisting of a nurse and an assistant, who will be responsible for managing all aspects of the collection process. The Collection Team will make available to the hospital, birthing center, or physician's office brochures detailing the services provided. Each Cord Blood Collections Management Team will be thoroughly trained in the uses and advantages of cord blood banking. The Collections Management Team will meet each obstetrical patient and share with her materials and information about the program. Education of the patient will begin early in the pregnancy and continue to the time of delivery. Each individual will have the option to donate or discard her cord blood sample.

PACKAGING, IDENTIFICATION, AND SHIPPING

The Collection Management Team will assure that all protocols established by the Scientific Advisory Board have been met in the collection and packaging process. The protocols developed by ThermoGenesis and MedSep, the companies that developed the cryogenic storage units and the packaging materials, are proprietary. Only protocols and equipment approved by the FDA and NIH will be used.

Demographic data on the mother will be recorded and entered into NuStem's database. The information is available for future use. The sample is then shipped via special courier directly to the NuStem Technologies Processing Center for processing, testing and storage.

PROCESSING AND TESTING

The practice of timely processing, and the strategic location of the storage centers, is essential. As the sample is removed from the shipping container, a

small portion of the sample is retained to be sent to an independent lab for additional testing.

The tests that will be performed on the sample include:

- HLA typing: A, B, DR, medium resolution,
- HIV and infection testing, and
- Blood typing

The remainder of the blood is spun down in a centrifuge to isolate the progenitor stem cells from the other components of the whole blood. The sample to be stored is mixed with a freezing agent and placed in the specially developed container to preserve the unit in a cryogenic state.

SAFE STORAGE AND RETRIEVAL OF CORD BLOOD SAMPLES

NuStem Technologies will utilize the only FDA approved cryogenic storage unit. Engineered and produced by ThermoGenesis of Sacramento, California, the unit is computer controlled and stores and retrieves samples robotically through a timed freezing/thawing process. Once the processing is complete and all data has been input into the database, the technician places the unit of blood in a storage container and into the cryogenic refrigeration unit to start the freezing process.

ONCOLOGISTS / CANCER CENTERS

Members of the Scientific Advisory Board, along with the staff of NuStem Technologies' administration, will contact major cancer research and treatment centers to advise them of NuStem's services. A primary responsibility of the CEO and Board members will be to travel to and visit treatment centers around the world. They will arrange meetings with key staff to discuss the uses of cord blood and the process of finding a matching sample through NuStem Technologies' Internet web site. Special access accounts will be established to enable treatment centers to access the online database.

NuStem Technologies will use the Symposium on Stem Cell Rescues to enhance the effectiveness of building relationships with treatment centers. Key staff of the centers will be invited as a guest of NuStem Technologies and will have an opportunity to tour NuStem facilities.

TRANSPLANT MATCHING

A state-of-the-art, Internet-based, web site will be created to provide online access to NuStem Technologies' inventory database. This genetic matching site will provide a user with the ability to enter the required HLA matching characteristics and immediately determine what is available in NuStem's inventory. An instantaneous online response will give a full detailed report showing how many samples match the desired characteristics ranked by number of characteristics that are matched. The site will provide any treatment center or patient around the world with the ability to determine availability of matched samples 24 hours a day.

RETRIEVAL, THAWING AND SHIPPING

Once a match has been found in the database and an order placed, the robotics of the cryogenic storage unit selects the sample and guides it through a slow-thaw process. The unit is capable of retrieving a sample completely frozen in the event it must be shipped frozen to another location in its frozen state. Special containers for either frozen or thawed shipping are used to protect the sample until it reaches its destination.

TREATMENT FOLLOW-UP & RESEARCH DATA

The NuStem Technologies will follow-up on the results of each transplant at timely intervals. The data collected will be used to provide efficacy tracking on all NuStem cord blood. This information will also provide the statistical information for research projects to determine the success of replacing bone marrow transplants with cord blood transplants.

XI. GOVERNMENT REGULATION

In response to the proliferation of unregulated cord blood banks, and general concern over the lack of oversight, regulation, and protection of the public, the FDA has resolved to act decisively.

In December 1999, the National Institute of Health released its *Draft National Institutes of Health Guidelines for Research Involving Human Pluripotent Stem Cells.* Though these guidelines will not significantly effect NuStem Technologies business operations, NuStem is committed to following NIH and FDA guidelines and practices. NuStem Technologies **will not use** any embryo or fetal tissue, or by-products, from aborted fetuses. Only cord blood obtained at the time of a normal delivery will be used to build NuStem's cord blood bank.

In 1997, the FDA announced regulations of cellular and tissue-based products that include stem cell regulation. The regulations require the licensing and registration of tissue processing facilities, but blood products that are not genetically manipulated received little regulation. Other than requirements for disease testing, the new FDA regulations will not inhibit NuStem Technologies' development of its blood bank and marketing of cord blood as a replacement for bone marrow stem cells. Because of NuStem Technologies' commitment to exceptional quality in the collection, processing, handling and storage of cord blood, NuStem Technologies considers that governmental regulation of this new industry will enhance NuStem's competitive advantage over its present and future competitors.

XII. MANAGEMENT

NuStem Technologies is committed to excellence in every facet of its operations. An example of this commitment is reflected in the experience, prominence, and reputation of the personnel it has assembled for its Officers, Board of Directors, and Scientific Advisory Board.

MANAGEMENT

- **Mark Cullen, M.D.**
  Corporate Secretary, Chief Operating Officer and Director
  High-risk obstetrician, Post Doctoral training Yale Medical School. Founder of NuStem. President & CEO SulphCo, Director Idria Oil and Gas. Cultivated cord blood collection centers.

- **Alan Levine Ph.D**.
  President and Director
  Former Director of the National Institutes of Health, Special Hematological Branch. Dr. Levine has been involved in cord blood banking and therapy since its inception.

- **Werner Mansfeld**
  Chief Executive Officer and Director
  Managed annualized sales growth from $1MM to $25MM as CFO for HardwareStreet.com, Inc., an Internet retailer in Reno, Nevada. Currently CFO for Netline, Inc. Extensive experience in management, finance and administration. Skilled in business startups and ensuing strategic planning.

- **Fredrick Pettit**
  Chairman and Director
  Extensive international banking experience. He is the former CEO of ants Software, Inc. and prior to that was the Managing Director of The Kriegsman Group. Recently guided a medical device company through their IPO process with the result that the stock price performance (IPO to high) outperformed every other IPO over a two-year period.

- **Paul C. Knauff**
  Chief Financial Officer
  Extensive background in the industry, and has held several senior, key positions with Fortune 1,000 companies over the past 25 years. Presently the CFO and Treasurer of Sulphco., a publicly traded oil services company, based in Reno, Nevada.

- **Alex Paior**
  Director
  Extensive international banking experience with 20 years as a corporate lawyer and investment banker. Former Director of Beston Pacific Corporation Limited, an Australian merchant/investment bank. Currently the Vice-President of Business Development for Clean Fuels Technology, Inc., an alternative fuel company based in Reno, Nevada. Has extensive experience in capital raising, mergers, business acquisitions and disposals.

- **Esmail Zanjani, Ph.D., Chairman of Scientific Board**

  Professor of Medicine/Physiology, Veterans Administration Medical Center, Reno, NV

  World's foremost expert in the field of stem cell research and stem cell transplantation. Developed and patented the standard assay for stem cells.

Holds the only Investigational New Drug (IND) permit to process cells for in-utero transplantation.

NUSTEM TECHNOLOGIES' SCIENTIFIC ADVISORY BOARD

The Scientific Advisory Board has been established to provide NuStem Technologies with the advice and leadership of leading experts in the field of blood banking, tissue transplantation and progenitor cell identification and separation.

Esmail Zanjani, Ph.D., Chairman
Professor of Medicine/Physiology, Veterans Administration Medical Center, Reno, NV

Joao Ascensao. MD, Ph.D., F.A.C.P.
Professor of Medicine and Director, Bone Marrow Transplant Program, University of Nevada, Reno

Ronald Hoffman, MD
Professor of Medicine; Head, Division of Hematology/Oncology, University of Illinois at Chicago

Alan Flake, MD
Department of Surgery, Children's Hospital of Philadelphia, Philadelphia PA

Makio Ogawa, MD, Ph.D.
Professor of Medicine; Associate Chief of Staff for Research, Ralph H. Johnson Veterans Administration Hospital, Charleston, SC

Kenneth Zuckerman, MD
Professor of Cancer Research, H. Lee Moffitt Cancer Center, Tampa, FL

Larry Lasky, MD
Associate Professor of Pathology; Director, Division of Transfusion Medicine, College of Medicine, Columbus, OH

NuStem Technologies' commitment to research, quality control and a business philosophy characterized by integrity, as exemplified by the distinguished membership of its Scientific Advisory Board, will be the foundation of a wide-spread acceptance of the company and its product in the medical community and in the marketplace.

XIII. FUTURE DEVELOPMENTS

NuStem Technologies is aware of current and pending research, which could give rise to an increase in demand for cord blood cells.

TREATMENT OF CONGENITAL DISEASES IN-UTERO WITH CORD BLOOD

The physicians and scientists at NuStem Technologies have been involved in fetal therapy with bone marrow since inception. There are currently l0 hematological, immune and metabolic diseases that can be treated *in-utero* with bone marrow transplantation. The scientific members of NuStem Technologies have the only Investigation New Drug (IND) protocol in the United States for this therapy. Dr. Esmail Zanjani is currently consulting with the government of Italy to develop a protocol for the treatment of Beta-Thalasemia.

NEW CANCER TREATMENT REGIMENTS

Solid tumor treatment regiments for cancers are now including bone marrow transplants for marrow rescue. Early diagnosis and aggressive chemotherapy are significantly improving outcomes. More states are requiring insurance companies to cover bone marrow transplants and many insurance companies, such as Blue Cross, are covering cord blood transplants. With improved outcomes using cord blood, along with the availability of samples, medical practitioners will have the confidence to treat certain cancers more aggressively, thus increasing demand for cord blood samples.

INTERNATIONAL AUTOLOGOUS BLOOD BANKS

NuStem Technologies, Inc. has been approached by several countries outside the United States to help establish a cord blood banking system. A letter of intent exists with Australia that includes parts of Asia, Indonesia, Malaysia and India. This agreement is with Flinders University, Beston Pacific, the government of Australia and a capital partner. Negotiations have begun with South Africa, the Middle East, and China. NuStem Technologies will have equity position as well as licensing and technical fees in these ventures.

In preparing its projections, NuStem Technologies has not given regard to any future increase in demand, which could arise from these developments.

XIV. LITIGATION

NuStem Technologies, Inc. is not involved in any current or pending litigation, nor is the management of NuStem Technologies, Inc. aware of any fact or circumstance that could give rise to any litigation.

XV. GLOSSARY

Allogeneic
Taking bone marrow or cord blood cells from a healthy donor, other than the recipient, whose blood type and HLA factors match closely enough to the recipient for the transplant to be successful.

Anemia
Low blood count that causes a deficiency in carrying oxygen throughout the body.

Aplastic Anemia
A condition where the bone marrow is unable to make blood cells.

Autologous
Related to self; derived from the same individual. In an autologous bone marrow or cord blood stem cell harvesting, the cells are taken from the individual to be used by that person at a later date in the event of disease requiring stem cell rescue.

Blood Bank
A stored supply of human material or tissues (blood) for future use.

Bone Marrow
Soft spongy material found in the cavities of the bones. Contains stem cells that produce blood cells for the body.

Cancer
A cellular tumor which, left untreated, can spread and cause death.

Chemotherapy
Drug treatment for cancer and other disorders. Aggressive chemotherapy can kill the stem cells that make all of the body's blood cells.

Cryogenic
Pertaining to or causing the production of low temperatures (frozen). Traditional methods use liquid nitrogen to create and maintain the low temperatures.

Cryopreservation
The maintaining of the viability of cells (blood), tissue, or organs by storing them at very low temperatures.

Gene
The basic unit of heredity. A gene contains the sequence of DNA that encodes the instructions for cell operation and replication.

Genetic Disease
Disease caused by abnormalities in the gene structure of the body's cells. Often causes various diseases due to improper cell operations.

Graft-Versus-Host-Disease (GVHD)
A transplant complication resulting from the reaction between the immune system cells of a stem cell transplant recipient (host) and donor (graft). If the donor stem cells perceive the body they were implanted in as hostile

tissue, the new immune system produced by the stem cells will attack the body of the recipient.

HLA
Special identifying markers that are on all cells of the body. HLA markers must match fairly closely between donor and patient, or rejection may occur. HLA identical means that two people have the same markers as each other (this can occur in twins or brothers and sisters).

Hemopoietic
Refers to an agent or process that affects or promotes the formation of blood cells.

In-*utero*
Treatment of a fetus while still in the mother's uterus.

Leukemia
"Liquid" tumors. A progressive, malignant disease of the blood-forming organs that causes a type of white blood cell to grow uncontrollably. Names are given depending on which type of white blood cell is abnormal. More sudden types include Acute Lymphoblastic Leukemia (ALL), Acute Non-Lymphocytic Leukemia (ANLL) and Acute Myelocytic Leukemia (AML). More gradual types include Chronic Granulocytic Leukemia (CGL), Chronic Myelogenous Leukemia (CML), Chronic Myelomonocytic Leukemia (CMML) and Chronic Lymphocytic Leukemia (CLL).

Lymphomas
Tumor of the white blood cells called lymphocytes. Different types include Hodgkin's (Follicular), Non-Hodgkin's (NHL), and Small Lymphocytic Lymphoma.

Myeloma
Tumor of one of the types of white blood cells.

Platelets
Cell fragments in blood that are involved in blood clotting.

Pluripotent
Cells that can differentiate into other cells

Relapse
A disease that returns in spite of treatment.

Severe Combined Immunodeficiency (SCID)
Immune problem where both immune cells and special immune proteins needed to fight disease are missing. Untreated, many will die at a young age.

Sickle Cell Disease
Inherited blood disease with red blood cells shaped like sickles (crescents).

Stem Cells
A blood precursor cell. Produces all types of blood cells in the body.

Thalassemia
Inherited blood disease with abnormal red blood cells, including alpha and beta thalassemia.

Umbilical Cord

The flexible, cordlike structure connecting the fetus at the navel with the placenta. It contains two umbilical arteries and one vein that nourish the fetus and removes the wastes.

Umbilical Cord Blood

Blood contained in the umbilical cord at the time of birth.