Global Institute of Stem Cell Therapy and Research

Pioneer in Innovative Stem Cell Science and Therapy
Profile
Global Institute of Stem Cell Therapy and Research (GIOSTAR) with its headquarters in San Diego, California, U.S.A. was formed with the vision to provide stem cell based therapy to those who are suffering from degenerative or genetic diseases around the world. We are leaders in developing cutting edge stem cell based technology, supported by leading scientists with pioneering publications in the area of stem cell biology. Our primary focus is to discover and develop a cure for human diseases with the state of the art and unique stem cell based therapies and products. The Regenerative Medicine provides promises for treatments of diseases previously regarded as incurable. GIOSTAR's ultimate aim is to continue maintaining its leadership in the field of stem cell science and continue developing affordable stem cell based therapy worldwide.

GIOSTAR is a coalition of esteemed and illustrious scientific minds in the field of genetics and stem cell science. GIOSTAR team of scientists and clinicians has been involved for the last 15 years in the development and utilization of stem cell based clinical protocols related to stem cell transplants. The GIOSTAR team includes international leaders in the field of embryonic stem (ES) cells and Induced Pluripotent Stem (IPS) cells and researchers in the field of stem cell therapies. GIOSTAR's mission is to administer the most safe and effective stem cell therapies and cures in the world, and deliver the highest quality care and treatment through its IRM's. The Strategic worldwide locations of medical clinics and hospitals will administer GIOSTAR's most advanced proprietary stem cell treatments.

Vision
GIOSTAR’s vision is to provide human stem-cell based therapy to aid those who are suffering from all types of degenerative and genetic diseases around the world such as Parkinson’s, Alzheimer’s, autism, diabetes, heart and blood related diseases, strokes, spinal cord injuries, paralysis, cancer and skin burns. GIOSTAR’s primary focus is to discover and develop treatments for human diseases with unique and state-of-the-art stem cell-based therapies and products, through the worldwide development of strategically located stem cell research clinics and hospitals. GIOSTAR’s ultimate aim is to continue maintaining the leadership in the field of stem cell science and to develop affordable delivery systems worldwide for the masses unable to afford today’s high cost of the treatment.

Mission
GIOSTAR’s mission is to administer the most effective stem cell therapies and cures in the world, and deliver the highest quality care and treatment through its IRM’s. Strategic worldwide locations of medical clinics and hospitals will administer GIOSTAR's most advanced proprietary stem cell treatments.

Values
GIOSTAR will continue to maintain its industry leadership position through its advanced pioneering research capabilities. GIOSTAR ensures the highest quality of its clinics and hospitals (IRM’s) with rigorous quality control and management. At the same time, GIOSTAR ensures that its operations are efficient, profitable and generate substantial returns to its shareholders. GIOSTAR will continue to value its patients, researchers, scientists, physicians, employees and treat them with the utmost dignity and respect. GIOSTAR values teamwork and respectfully rewards the team for its contribution towards our success. GIOSTAR aims to continue to operate with the highest levels of honesty and integrity. At the same time, GIOSTAR plans to give back to the community in a significant and measurable ways by developing programs that will make the treatments affordable to those who are less fortunate and in need.

Overview of Stem Cell Treatment
GIOSTAR has an ability to treat several devastating Immunological and Blood related diseases such as Diabetes type 1, Lupus, Multiple Sclerosis (MS), Amyotrophic Lateral Sclerosis (ALS), Crohns, Vasculitis, Scleroderma, Myasthenia gravis, Leukemia, Sickle Cell Anemia, Lymphoma, Thalassemia, and developing the therapy for Parkinson’s, Alzheimer’s, Autism, Cancer, Heart, Retinal degeneration, Strokes, Spinal Cord Injuries, Paralysis, Skin Burns, Spinal Muscular Atrophy (SMA), Arthritis, Neuropathy, Incontinence and Anti-Aging Treatments.

GIOSTAR uses autologous and allogeneic adult stem cells transplant to treat patients. GIOSTAR is leading the most advanced research to use embryonic stem (ES) cells and Induced Pluripotent Stem (IPS) cells to develop new therapies for clinical use.

GIOSTAR is using three kinds of stem cells: adult stem cell, human embryonic stem cell and induced pluripotent cells. The adult stem cell technology is well developed and being used regularly in clinical practice. Our clinicians are licensed to treat the patients using autologous (their own) and allogeneic (from others) adult stem cells for certain diseases. We are a leading private organization, which has state of the art excellence in extraction of stem cell from a human body and use it for therapy. Our clinicians are treating the patients regularly using adult stem cells since 2000.

The Medical and Scientific Advisory Board members of GIOSTAR comprised of the leading and revered medical doctors and scientists in the field of stem cell research and have the highest academic credentials (Please see list of publication). GIOSTAR has developed and performed clinical protocols of stem cell transplant related to Leukemias, Lymphomas, Multiple Myelomas, Solid Tumors (gimm cell tumors) and autoimmune diseases (a disease caused by defective immune system in which self immune system start killing our own cells, such as Multiple -Sclerosis, Lupus, Amyotrophic Lateral Sclerosis, psoriasis etc). We are leader in the world in the use of various stem cells, such as mobilized stem cells from the blood, bone marrow CD34-positive stem-cells, mesenchymal stem cells and cord blood stem cells and this high purity of CD34 positive cells which can be used in the treatment of several immunological and blood related diseases. GIOSTAR is pioneers in developing the studies for heart repair and limb ischemia model with endometrial regenerative cells and generation of universal red cells from human embryonic stem cells. We are the leading team with stem cell transplant for beta thalassemia and sickle cell anemia.

In the case of ES cells, we have generated the highest purity of Neural Precursor Cells (NPC), which can be used to treat any neural disease. We are also leading in the area of generating patient specific induced pluripotent Stem Cell (iPS) and have the ability to differentiate these cells in any cell lineage which can be used as an alternative of adult and ES cells.

GIOSTAR provides treatment for the following diseases
A Immunological diseases:
- Diabetes type I
- Lupus
- Multiple sclerosis
- Crohns
- Vasculitis
- Scleroderma
- Myasthenia gravis
- Amyotrophic Lateral Sclerosis
B Blood related diseases:
- Sickle cell anemia
- Leukemia
- Lymphoma
- Thalassemia

Stem cell therapy under development
- Alzheimer’s Anti-Aging Treatments
- Autism
- Cerebral Palsy
- Erectile dysfunction
- Failed Back Surgery Syndrome or Postnucleotomy
- Liver diseases
- Muscular degeneration
- Multiple Sclerosis (MS)
- Neuropathy
- Osteoarthritis
- Paralysis
- Parkinson’s
- Retinal Transplant
- Spinal Cord Injuries
- Strokes
- Skin Burns
- Spinal muscular atrophy (SMA)

www.giostar.com
Mr. Ferdinand Melendres
Chairman, Co-founder and Chief Financial Officer
Mr. Siddharth Bhavsar, M.S., MBA
Chief Financial Officer
Mr. Devan Patel, President, CEO and Co-founder
Mr. Ewa Carrier, MD
Medical Director
Dr. Anand Srivastava, M.S., Ph.D.
Chairman, Co-founder and Chief Scientific Officer
Mr. Ferdinand Melendres has over 10 years of experience working on key projects in a broad spectrum of industries including Healthcare, Life Sciences, High-tech, Software & Internet, with a wide range of companies including Fortune 500 companies, Philips Healthcare, General Electric, Microsoft, Industry, GoMarket, Government (National Institute of Health), Tata India and Non-Profit. His projects covered corporate financing, developing business plans, raising venture capital, performing analysis, strategy development, business process improvement, operations, marketing, M&A partnership development and post-merger integration. His international projects footprint spans USA, India, Netherlands, China, Japan and New Zealand. He also has experience of working in Private Equity, launching international operators for companies and turning around failing organizations. He has constantly been a recipient of a number of awards for excellence in his academic, professional & personal pursuits including National Health Scholarship (Confined by the Ministry of N. P. Health), Government of India, Academic Achievement Award, Philip Custom Award, Philips Healthcare Top 200 award among others. He also holds a patent in Cardiology Information Systems. He has an MS in Computer Science from USA and an MBA from UCLA Extension: School of Management where he has held a number of Director level positions and was most recently an officer for Technology Incubator on the Board of Directors of

GIOSTAR Philanthropic Projects

GIOSTAR Foundation (INDIA) is the philanthropic wing of Global Institute of Stem Cell Therapy and Research (GIOSTAR), San Diego, California, USA. It is pleased to announce the MOU entered into between GIOSTAR and Government of Gujarat in January 2009, to treat very poor tribal population in the southern part of State of Gujarat (India) suffering from devastating disease of Sickle Cell Anaemia for generations. This historical disease has its root from the time of Alexander the Great. It is said that, this disease spread along side travels of Alexander the Great and his army.

As envisioned by Hon'ble Chief Minister of Gujarat, India, Shri Narendra Modi and strongly supported by Ministry of Health, Gujarat this futuristic stem cell treatment provided by GIOSTAR will free the less fortunate tribal populous suffering from Sickle Cell Anaemia. The government has identified and assigned Surat Civil Hospital to start this work to be treated the tribal population under the influence of this amendment. The Government of Gujarat has approved the funds and is in the process of developing in phase 1: the state of art stem cell lab and dedicated stem cell treatment ward for sickle cell anaemia patients. In phase 2: The Government has plans to build the state of the art 50 to 100 bed stem cell treatment hospital in the Surat Civil Hospital Campus with the aim to treat many more ailments with GIOSTAR advanced stem cell technology.

Mr. Ferdinand Melendres
President of GIOSTAR Foundation (India)

GIOSTAR's most advanced Stem Cell treatment will be a blessing for the less fortunate tribal populous suffering from Sickle Cell Anaemia.
Pioneering Studies by Stem Cell Research Team

- Our team was first in reporting the repair of Crohn's disease using embryonic stem cells. (Biomedical Biophysical Research Communication, 36:1-93, 2007)
- Our team was first in reporting the repair of damaged brain using embryonic stem cells. (Stem Cells, 7:1649-94, 2006)
- Our research team successfully produced RBCs of high purity at experimental level in the laboratory conditions from embryonic stem cells and concluded the significance of VNT signaling pathway in hematopoietic differentiation from embryonic stem cells. (Biomedical Biophysical Research Communication, 34:123-133, 2006 and Biomedical Biophysical Research Communication, 34:506-16, 2006)
- Our team, for the first time demonstrated a method for up scaling of hematopoietic cells differentiation from hESCs. Our recent studies demonstrated the role of thrombopoietin (TPO) and vascular endothelial growth factor (VEGFD) signaling in up scaling and maintaining differentiation hESCs in culture conditions for extended durations. (Stem Cells, 6:1456-66, 2007)
- Our team has been first in reporting the superiority of embryonic stem cell over adult stem cells after transplantation also (Transplantation, 78:174-92, 2004).

Potential of Embryonic Stem cell

- Embryonic stem cells are undifferentiated cells that are unlike any specific adult cell. Because undifferentiated ES cells can proliferate indefinitely in culture, they can potentially provide an unlimited source of specific, clinically important adult cells such as bone, muscle, liver or blood cells etc.
- Why are embryonic stem cells important?
  - The ability to grow pure populations of specific cell types from ES cells offers a proving ground for chemical compounds that may have medical importance. Testing specific toxic substances on embryonic stem cells in vitro offers a cost effective way to determine if a substance is toxic to human cells in vivo.
- Embryonic stem cells can be used to treat disease:
  - The ability to grow pure populations of specific cell types from ES cells offers a proving ground for chemical compounds that may have medical importance. Testing specific toxic substances on embryonic stem cells in vitro offers a cost effective way to determine if a substance is toxic to human cells in vivo.
- The earliest stages of human development have been difficult or impossible to study. Human ES cells offer insights into developmental events that cannot be studied in animal models. Understanding the events that occur at the first stages of development has potential clinical significance for preventing or treating birth defects, infertility and pregnancies that end in miscarriage.
- How embryonic stem cells can be used to treat disease:
  - The ability to grow pure populations of specific cell types from ES cells offers a proving ground for chemical compounds that may have medical importance. Testing specific toxic substances on embryonic stem cells in vitro offers a cost effective way to determine if a substance is toxic to human cells in vivo.
- Why not use adult stem cells instead of using human embryonic stem cells in therapy?
  - Human ES cells have much greater developmental potential than adult stem cells (generally derived from bone marrow and cord blood). ES cells are able to give rise to all cells found in all tissues of the embryo. Furthermore, the possibility of rejection of embryonic stem cells from the host body is very less in comparison to adult stem cell.
- Why are embryonic stem cells important?
  - Embryonic stem cells derived from transgenic or genetically altered ES cells can be used for translational research where adult stem cells are not effective.

What are the benefits of studying embryonic stem cells?

- They have the potential to treat and cure a myriad of diseases, including Parkinson’s, Alzheimer’s, Autism, Diabetes, Sickle Cell Disease, Thalassemia etc.
- The diseases the GIOSTAR intends to provide therapy for include:
  - Diabetes
  - Leukemia
  - Thalassemia
  - Scleroderma
  - Crohn's
  - Multiple sclerosis
  - Lupus
  - Leukemia
  - Thalassemia

- Market Size **
  - 2009: $30 billion
  - 2015: $96 billion

- *Source - Market Research.com (Kalorama Information), WrongDiagnosis.com, World Health Organization, + ** My price per patient treated of $1,000.

Market in India

In a recent cover story in India Today magazine, India Today magazine, the world market for stem cell therapy was projected to grow from an estimated $30 billion (Rs. 1,44,000 crores) in 2009 to $96 billion (Rs. 4,60,800 crores) by 2015. The article also states that the Union Government has been proactive in promoting stem cell research and clinical trials in India. The Department of Biotechnology (DBT) has launched over 100 projects at 18 premier institutes across the country to conduct not only basic research on stem cell but also in efficacy in therapy. It has invested over Rs. 300 crore, including setting up the first dedicated Department of Biotechnology (DBT) has launched over 100 projects at 18 premier institutes across the country to conduct not only basic research on stem cell but also in efficacy in therapy. It has invested over Rs. 300 crore, including setting up the first dedicated stem cell therapy facility in India. The average price charged per patient’s therapy is assumed to be $10,000.

<table>
<thead>
<tr>
<th>Disease</th>
<th>Incidence in India (2007 figures)</th>
<th>Market Size **</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>115,000,000</td>
<td>$31,414,200</td>
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<tr>
<td>Leukemia</td>
<td>5,481,981</td>
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<td>Multiple sclerosis</td>
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<td>Scleroderma</td>
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<td>Sickle cell anemia</td>
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<tr>
<td>Leukemia</td>
<td>100,000</td>
<td>$1,000,000</td>
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<tr>
<td>Thalassemia</td>
<td>109,915</td>
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</tbody>
</table>

Total market $1.21 Billion

- *Source - Market Research.com (Kalorama Information), WrongDiagnosis.com, World Health Organization,
- ** My price per patient treated of $1,000.

World Market for Stem Cell Treatment Market in USA

- *Baby Boomer* is the generation born after World War II between the years of 1946 and 1964 that now totals 450 million worldwide.
- More than 77 million Americans were between the ages of 1946 and 1964.
- Over half of all Baby Boomer are now over fifty years old.
- They spend an average of $40,000 on health care annually.
- Their spending habits drive the economy.
- The 50+ Boomers control over 48% of all discretionary purchases that occur and spend almost $27 trillion on goods & services including health and wellness every year.
- The average price charged per patient’s therapy is assumed to be $10,000.

- *How long will this market phenomenon last?*
  - For the next 18 years, someone will turn 60 years old in America every 8 seconds.

Market in Europe, U.S.A, Middle East, Brazil, China & India

- The Thailand, Dubai, U.K. and Brazil facilities will target the European and Middle East medical tourism markets with a focus on stem cell therapy. The India-China markets will target the local facilities developed in those countries. As described in figure below the total addressable market for stem cell therapy for the facilities in India, China, Thailand, Dubai, U.K. and Brazil is estimated to be $449 billion for the diseases that GIOSTAR intends to provide therapy. For the average price charged per patient’s therapy is assumed to be $10,000.