NDPL

National Dental Pulp Laboratory, Inc.

Learn how saving your stem cells today can benefit your health tomorrow!

Why Stem Cells are Important

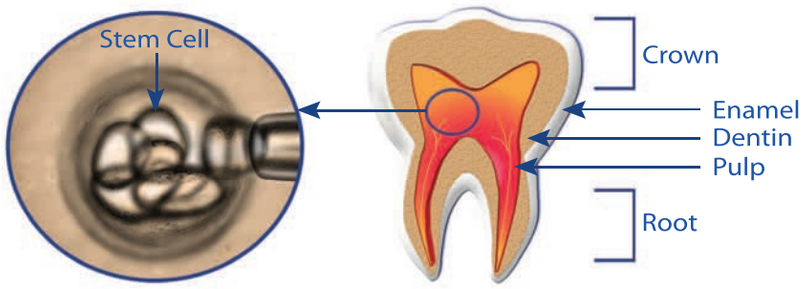
What are Stem Cells?

Stem cells are generic cells that have two special properties:

1. Self-renewal: the ability to divide itself into exact copies numerous times without changing into specific cell types.
2. Potency: the ability to form cell types that will repair and build tissues in the body.

What are Dental Pulp Stem Cells?

Dental pulp is the soft living tissue forming the inner structure of a tooth. Scientists have identified a very potent Mesenchymal stem cell inside the dental pulp.



This particular type of stem cell has the potential to differentiate into a variety of other cell types including:

- Cardiomyocytes to repair or regenerate damaged cardiac tissue following a heart attack
- Neuronal cells to repair or regenerate nerve and brain tissue
- Myocytes to repair or regenerate muscle
- Chondrocytes to repair or regenerate cartilage
- Adipocytes to repair or regenerate fat tissue
- Osteocytes to repair or regenerate bone and tissue from the oral cavity
- Endothelial cells to regenerate blood vessels

Stem Cell Milestones

1960
Researchers discover bone marrow contains both HSC and MSC.

1978
Blood stem cells are discovered in human umbilical cord blood.

2003
Dr. Songtao Shi discovers dental stem cells in his work at the National Institute of Health.

Transplant Milestones

1956
First bone marrow transplant performed on a cancer patient.

Two Stem Cell Types

(MSC) Mesenchymal stem cells have the potential to develop into tissue. They are critical in regenerating and repairing damage to the body.

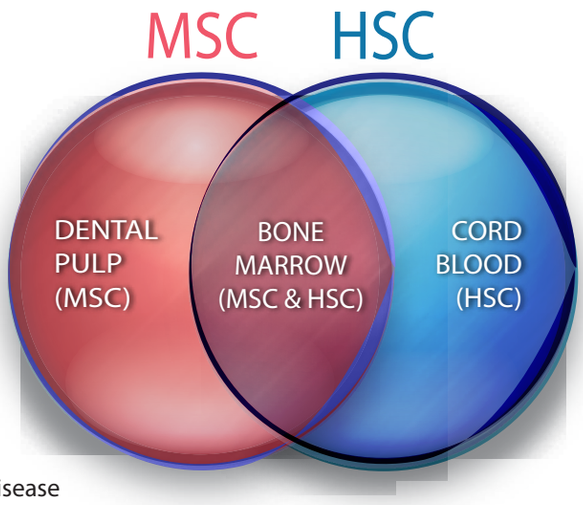
(HSC) Hematopoietic stem cells have the potential to develop into all the blood cell types. They are critical in reconstitution of bone marrow and in treatment of blood diseases.

Mesenchymal Stem Cells (MSC) Tissue Engineering

Regenerative medicine is the process of creating living, functional tissues to repair or replace tissue or organs. This process of regenerating damaged tissues gives hope to those with previously untreatable organ damage. Regenerative medicine has the potential to solve the problem of organ donation shortages.

Hematopoietic Stem Cell (HSC) Transplantation

The transplantation of blood stem cells derived from cord blood or bone marrow uses HSC's. Stem cell transplantation is an established medical procedure most often used in the fields of hematology and oncology, and performed on people with diseases of the blood, bone marrow, or certain types of cancer.



Partial List of Clinical Trials Using MSCs from Bone Marrow

- Heart Disease (Multiple Trials)
- Heart Attack (Multiple Trials)
- Diabetes Type 1 (Multiple Trials)
- Diabetes Type 2
- Multiple Sclerosis (Multiple Trials)
- Bone Grafting
- Adult Periodontitis
- Prevention of Graft versus Host Disease
- Prevention of Organ Rejection Kidney Transplant (Multiple Trials)
- Crohn's Disease (Multiple Trials)
- Cirrhosis of the Liver
- Wound Healing: Burn Injury
- Inflammatory Response After Muscular and Skeletal trauma

Partial List of Diseases that Currently can be Treated Using HSC's

- Various types of Anemia
- Acute Lymphoblastic Leukemia (ALL)
- Acute Myelogenous Leukemia (AML)
- Chronic Leukemias
- Non-Hodgkin's Lymphoma
- Hodgkin's Disease
- Sickle Cell Disease
- Liposomal Storage Diseases
- Congenital Immune System Disorders
- Breast Cancer

For a complete list of diseases that can be treated using HSCs and MSCs please visit our website at www.ndpl.net.

MSC Milestones

1968
First bone marrow transplant using a related donor for non-cancer treatment.

1973
First bone marrow transplant using unrelated donor.

1988
First cord blood transplant on 5 yr old suffering from Fanconi Anemia using his sister's cord blood. Both remain healthy.

2004
Patient's own stem cells are used to engineer bone tissue to create and replace his upper jaw.

Cryopreservation at NDPL

Why Choose NDPL?

We are a private, family owned laboratory located in Marlborough, Massachusetts that has helped people cryo-preserve tissue and cells for over 25 years. In the early 1970's we were founded as a cryogenic laboratory specializing in fertility work. In the mid-90's we began preserving stem cells from umbilical cord blood after a child's birth. Now, with the discovery of stem cells in teeth, we are able to offer stem cell preservation for both children and adults.

NDPL is proud of our on-site laboratories and storage facility that provides the safest means to preserve your stem cells, should you need them. The storage tanks preserving the stem cells are monitored 24 hours a day, 7 days a week, by staff and video surveillance. Our storage tanks do not require pumps or electricity, thereby protecting them from any temperature fluctuations due to power failure.

Researchers at NDPL have developed the protocol for processing and preserving dental pulp stem cells. Your tooth is diligently tracked from your dentist's office, to our lab, and into storage with a unique identification number.

Your personal and irreplaceable dental pulp stem cells hold the potential to improve health through regenerative therapy. We are here to help you collect, safely store, and gain access to those cells should you need them in the future.

Transplant Milestones

2006
The first complex organ, the bladder, is reconstructed using patient's own stem cells.

2008
First time tissue engineers reconstruct airway of 30 year old using her own stem cells.

MSC Milestones

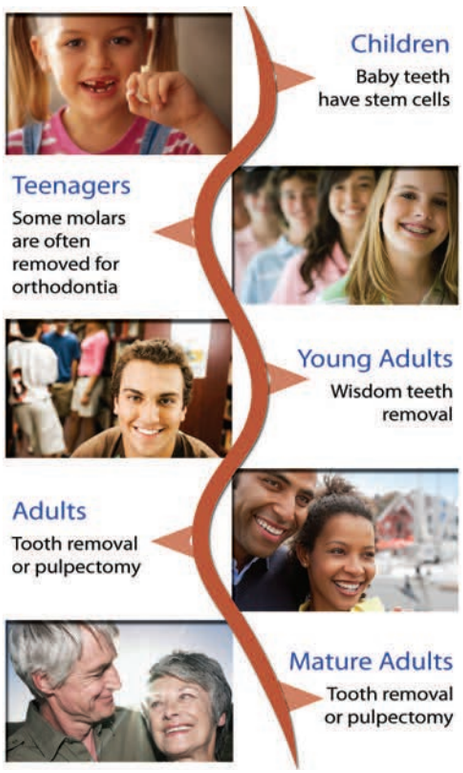
1999
Researchers discovered that stem cells can be made to differentiate into different cell types.

1999
First clinical trials begin for bone regeneration using MSC's.

How Does the Process Work?

When To Bank

The least invasive collection opportunities occur when a child's tooth is slightly loose, teeth are extracted for braces, or when wisdom teeth are being removed.



How Dental Pulp is Collected

Dental pulp stem cell collection is simple for you and for your dentist. After enrolling with NDPL, a stem cell collection kit will be sent to your dentist or oral surgeon. The extracted tooth will be placed into NDPL's transport solution and shipped overnight back to our laboratory through a world wide shipper.

Long Term Storage

The tooth is then processed with our minimally invasive handling technique to insure that the cells remain in their most natural state. When the pulp is prepared for long term cryogenic storage, 100% of the processed cells are preserved for you. No cells are withheld for our use – a procedure unique to NDPL.

Financial

There is a one time fee to process and preserve your stem cells. The only other charge involved is a small annual storage fee. NDPL offers an interest free, monthly payment plan for the initial processing.

MSC Milestones

2004
First clinical trials begin using MSCs for adult periodontal disease.

2006
First clinical trials begin using MSCs to treat Multiple Sclerosis.

2006
First clinical trial with MSCs to treat heart attack patients. Texas woman's heart returned to healthy function.

2008
First clinical trials begin using MSCs to treat Diabetes patients.

Current Stem Cell Research

Current research is focusing on the development of cell-based treatments using Mesenchymal stem cells to repair various tissues and systems in the body.

Diabetes affects an estimated 18.2 million Americans. Diabetes is a daily, lifelong struggle for those affected by both Type I and Type II Diabetes. MSCs have the ability to regenerate pancreatic tissue and repair insulin producing cells. Researchers are optimistic about the future role of stem cells in the treatment for diabetics.

Multiple Sclerosis affects 400,000 Americans. It is an inflammatory disease of the central nervous system which can cause paralysis of the limbs, sensation, visual, and sphincter problems. Current research is focusing on the development of cell-based treatments using MSCs for restoration of neuronal function.

Heart Disease is a leading cause of death in America today. While recovery from a heart attack can be managed through medications and lifestyle changes, these treatments cannot reverse the original damage to the heart. MSCs have the ability to regenerate heart tissue that has been irreversibly damaged.

Bone Regeneration from simple sports injuries to degenerative bone disease, current research is focusing on the development of cell-based treatments using MSCs to regenerate bone that has been irreversibly damaged by disease or injury.

Parkinson's Disease affects cells in the brain that are responsible for the control of voluntary movement. An estimated one million Americans suffer from this incurable disease. Successful laboratory studies have led to animal research to evaluate the effectiveness of MSCs therapy for the treatment of Parkinson's Disease.

Teeth contain a vital source of MSCs within them. MSCs found in dental pulp are likely to be used to regenerate bone and teeth as well as other maxillofacial structures.

Additional MSC Research Being Done to Help in These Areas:

Alzheimer's Disease affects 1 in 10 over age 65 and 5 in 10 over age 85. Currently 5.4 million live with this devastating disease.

Spinal Cord Injury affects approximately 450,000 Americans and approximately 11,000 people sustain new injuries each year.

ALS, or Lou Gehrig's Disease is a degenerative disease that affects the nerve cells in the brain and spinal cord — 30,000 are living with this.

Dental Pulp Stem Cell (DPSC) Milestones

2007
NDPL begins to store DPSCs for private banking.

2007
DPSC 1st animal studies begin for bone regeneration and dental treatments.

2008
DPSC 1st animal studies begin for heart treatments, muscular dystrophy, brain tissue regeneration and cranial bone grafting.

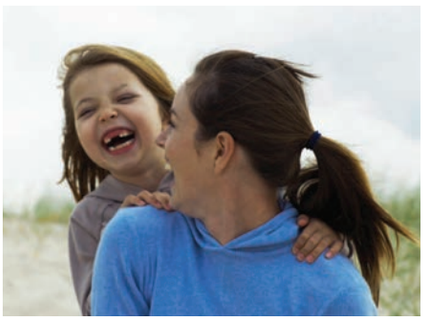
2009
First human use of DPSC in Italy for jaw (mandibular repair).

We have always known that stem cells could potentially play a key role in finding a treatment for diabetes sometime in the future. Having the opportunity to store some of Abi's own stem cells seemed like a really smart option."

-Maria McGlone

We hope to never have to utilize the cells for anything, but it ends up being about $10 a month, so it's not much more than having coffee every day. In the event that, as a family, you have something really dramatic to contend with, if for that amount of money you are able to mitigate the medical issues, that's good [peace of mind]."

- Carla Mond



"I think that this is an opportunity that should not be missed and it's so affordable! Banking Rachel's dental stem cells alleviates some anxiety for me, knowing we have stem cells that are a perfect match."

-Nancy Carver

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For more information, visit us online
www.ndpl.net
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