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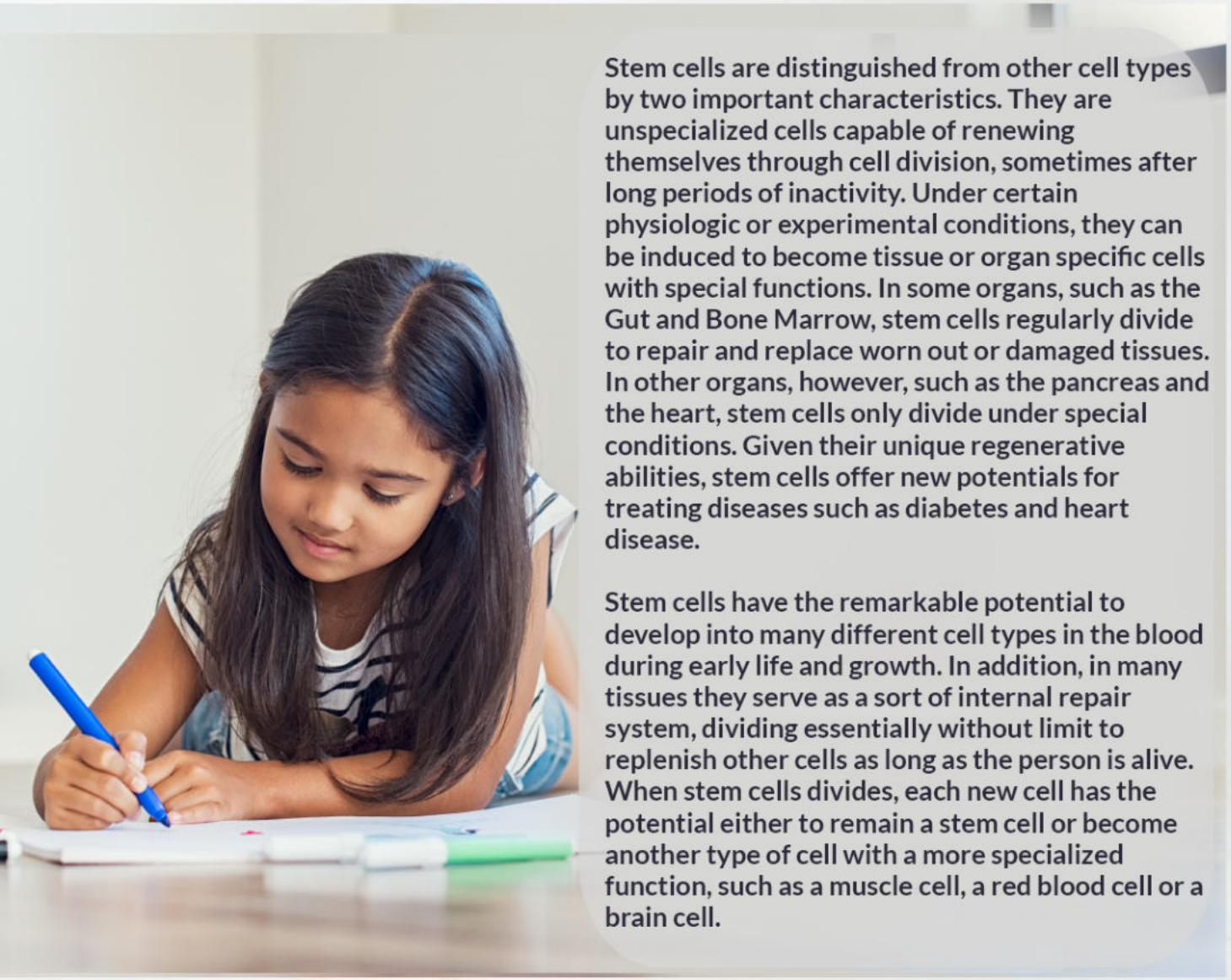
Dental Stemcells

Future Of Life Protection

WHAT IS STEMCELL ?



Stem cells are distinguished from other cell types by two important characteristics. They are unspecialized cells capable of renewing themselves through cell division, sometimes after long periods of inactivity. Under certain physiologic or experimental conditions, they can be induced to become tissue or organ specific cells with special functions. In some organs, such as the Gut and Bone Marrow, stem cells regularly divide to repair and replace worn out or damaged tissues. In other organs, however, such as the pancreas and the heart, stem cells only divide under special conditions. Given their unique regenerative abilities, stem cells offer new potentials for treating diseases such as diabetes and heart disease.

Stem cells have the remarkable potential to develop into many different cell types in the blood during early life and growth. In addition, in many tissues they serve as a sort of internal repair system, dividing essentially without limit to replenish other cells as long as the person is alive. When stem cells divides, each new cell has the potential either to 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.

TYPES OF STEMCELLS

Hematopoietic Stem Cells (Blood Cells)	Mesenchymal Stem Cells (Tissue Cells)

SOURCES OF STEMCELLS

1) Umbilical Cord Blood & Tissue during birth
2) Milk Tooth between 5-11 years of age
3) Bone Marrow (Invasive)
4) Adipose Tissue during surgeries (Invasive)

Umbilical Cord & Dental stem cells have largely successful because of their Non-invasive procedures as both are bi-products.

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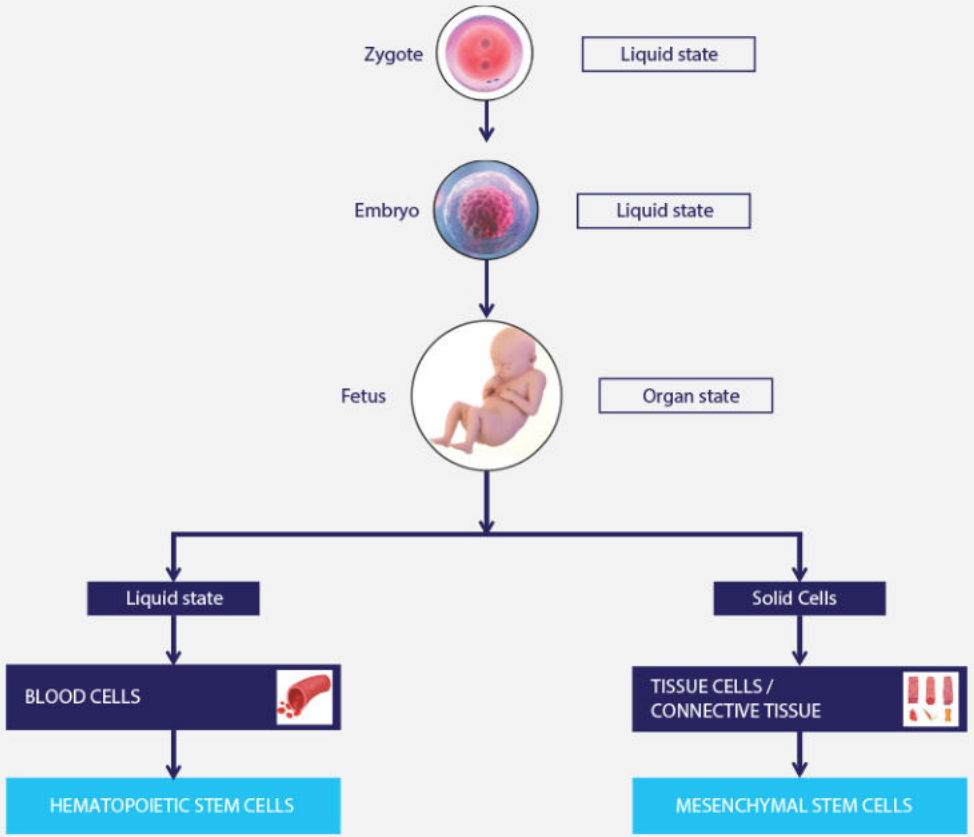
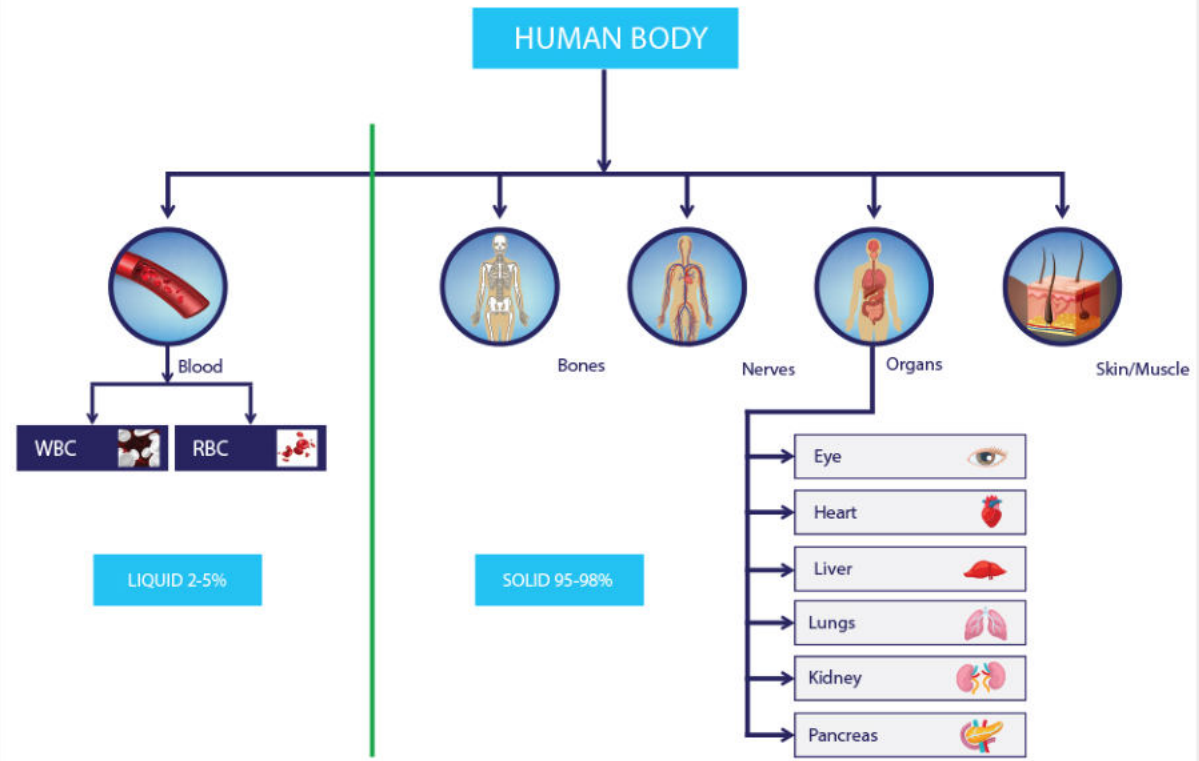
"Stem cell research holds enormous promise for easing human suffering, and federal support is critical to its success." - *Tom Harkin*

STEM CELL ORINATION AND ANATOMY OF HUMAN BODY





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"Stem cell research holds out the promise of finding cures and treatments for a wide range of diseases."

- Tom Allen

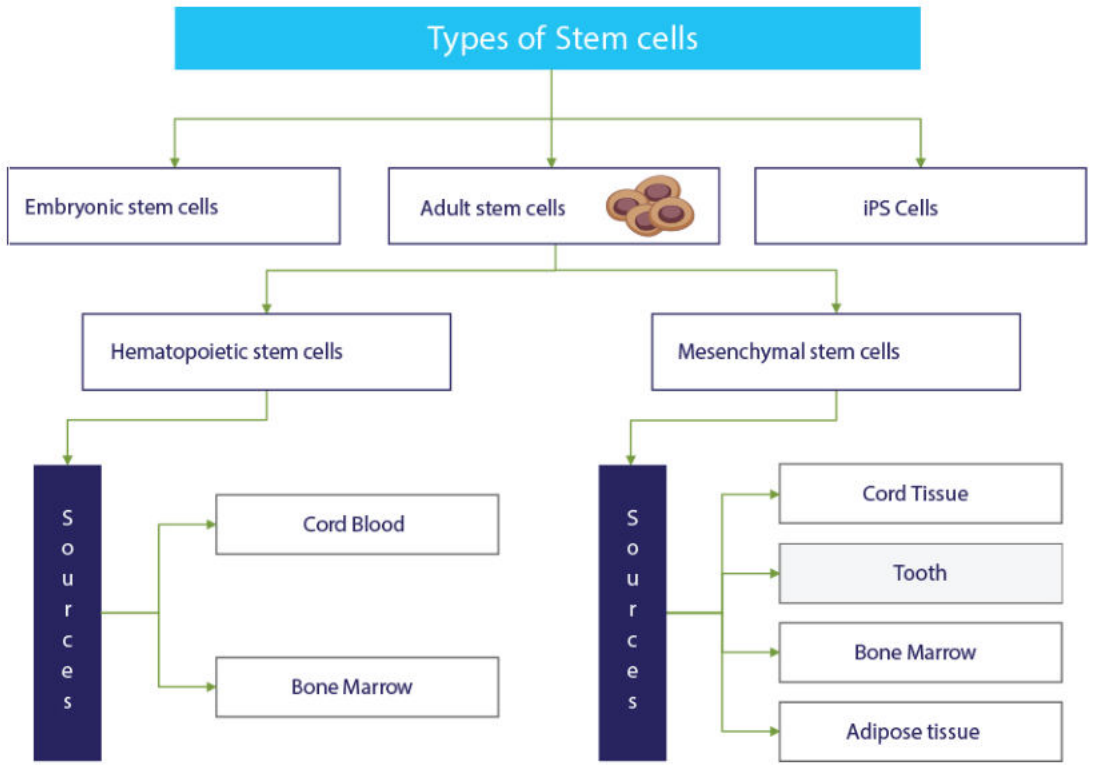
BASIC TYPES OF STEM CELLS

Embryonic stem cells - are characterized by the qualities of pluripotence, the ability to give rise to cell types representative of all the tissues of the embryo and adult when differentiated, and immortality, or unlimited proliferation.

Adult stem cells - are undifferentiated cells found throughout the body that divide to replenish dying cells and regenerate damaged tissues. Also known as somatic stem cells, they can be found in children, as well as adults.

iPS Cells - are derived from skin or blood cells that have been reprogrammed back into an embryonic-like pluripotent state that enables the development of an unlimited source of any type of human cell needed for therapeutic purposes.

Stem cells are immature, unspecialized cells that have the potential to develop into many different cell lineages via "SELF RENEWAL" and "MULTI - LINEAGE DIFFERENTIATION".



"Adult stem cells have shown great potential and have effectively helped patients. These are a neglected resource that could be used to treat a diverse body of people." - Jim Ryun

STEM CELL POSSIBILITIES

Role of Stem Cells

Stem cells, by virtue of their properties mentioned above, play a vital role in the genesis and maintenance of our bodies.

In Normal Human Body

Normal development of the organs from embryo to entire baby (Foetus).

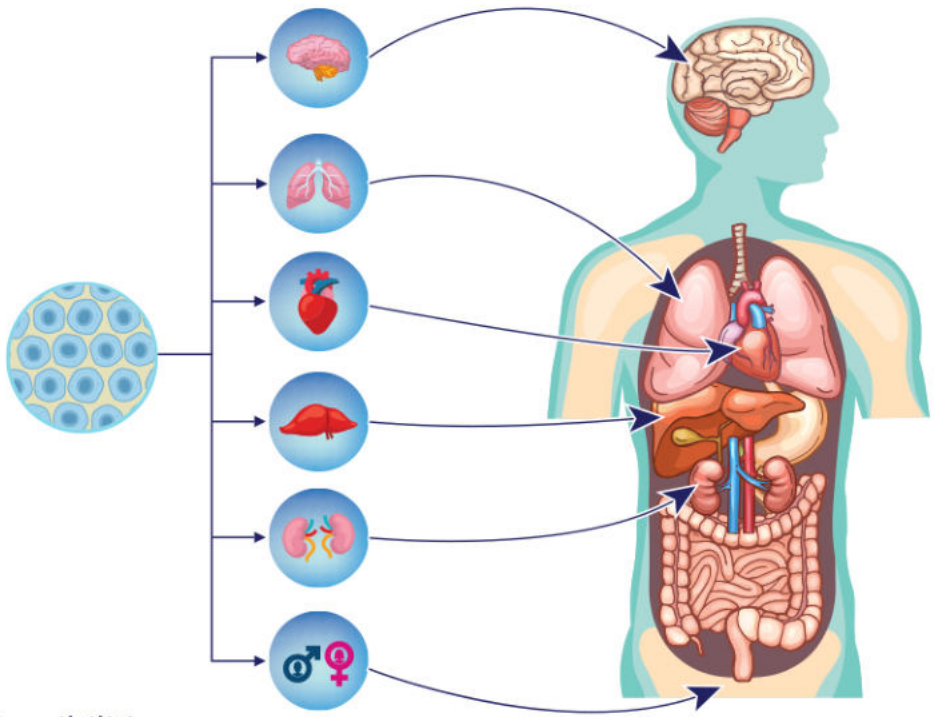
Normal day-to-day growth, development and repair maintenance of tissues.

In Diseased Human Body

Repair and Maintenance of different tissues after injury.

Regeneration and replacement of specific tissues in organs in particular diseases.

| Stemcell potentials



Stemcell Possibilities

A Stem cell can become any one of the 220+ different cells in the body

DISEASES TREATED WITH STEM CELLS* AND THEIR POTENTIAL APPLICATION

With headways in stem cell* research, the likely utilization of undifferentiated organisms keeps on developing. Clinical preliminaries are one of the key main thrusts behind clinical discoveries, and they speak to seek after families with conditions that at present have no known fix.

Contingent upon the malady, stem cell* medicines that are as of now experiencing clinical preliminaries may slow the movement of the infection or open new clinical choices that are at present inaccessible.

There are likewise illnesses where stem cell* medicines may help impact a fix, however further examination is expected to decide the best up-and-comer patients for immature microorganism treatment, ideal foundational microorganism dose, and technique for cell conveyance, and so on.

Patients with hard to treat or right now "hopeless" illnesses, for example, AIDS and specific kinds of malignant growth, might need to seek after investment in clinical exploration preliminaries if standard treatments are not compelling.

DISEASES TREATED WITH STEM CELLS* AND THEIR POTENTIAL APPLICATION

Eczema (Atopic Dermatitis)
Encephalopathy
Epidermolysis Bullosa
Erectile Dysfunction
Eye Diseases
Fistula
Gaucher's Disease
Global Developmental Delay
Graft versus Host Disease (GvHD)
Hearing Loss (Acquired Sensorineural)
Heart Failure
Hereditary Ataxia

Cardiomyopathy
Cartilage injury
Cerebral palsy
Cleft Palate Repair
Critical Limb Ischemia
Crohn's disease
Diabetes, Type 1
Diabetes, Type 2
Diabetic Foot Ulcer
Diabetic Peripheral Neuropathy
Duchenne Muscular Dystrophy
Dysplasia (BPD)
(Lung disorder due to premature birth)

Acute Myocardial Infarction
(Heart Attack)
Acute Respiratory Distress
Syndrome (ARDS)
Aging Frailty
Alopecia Areata
Alzheimer's Disease
Amyotrophic Lateral Sclerosis
Ankylosing Spondylitis
Autism
Broncho Pulmonary

Potential Applications of Dental (Mesenchymal) Stem Cells

DISEASES TREATED WITH STEM CELLS* AND THEIR POTENTIAL APPLICATION

Hypoplastic Left Heart Syndrome
Intraventricular Hemorrhage
Ischemic Heart Disease
Kidney Failure
Liver cirrhosis
Liver Failure
Lupus
Lysosomal Storage Diseases
Metabolic Syndrome
Multiple Sclerosis
Non-Union Fractures
Osteoarthritis
Osteochondral Lesion
Ovarian Cancer
Parkinson's Disease
Peripheral Arterial Disease (PAD)
Peyronie's Disease
Premature Ovarian Failure
Psoriasis
Rheumatoid Arthritis
Severe Combined Immunodeficiency
Spinal cord injury
Spinal Fusion Surgery
Spinal muscular atrophy
Stroke
Surgery for Congenital Heart Defects
Systemic Sclerosis
Tay-Sachs Disease
Testicular Tumour
Traumatic Brain Injury
Ulcerative Colitis
Uterine Scars
Wounds

*Stem cells mentioned here clinical trials listed above may be using other lines of stem cells, and not only Mesenchymal stem cells.

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Step-in to World's Dental Stem cell Update

TOOTH IS A SPECIAL ORGAN

Tooth normally originates once baby was delivered whereas all the other organs forms when the baby is inside the mother's womb.

Tooth is the only one organ which replaces.

Tooth is youngest organ in the human body as it will grow even after other organs stopped growing (wisdom tooth can erupt at 20 + years also) And hence Mesenchymal stem cells derived from tooth are highly immature and very aggressive.

Tooth is originated from the Ecto- lineage of the human body, Mesenchymal stem cells derived from tooth are more potential for Ecto - lineage originated organs (neurons, sensory organs) related degenerative conditions.

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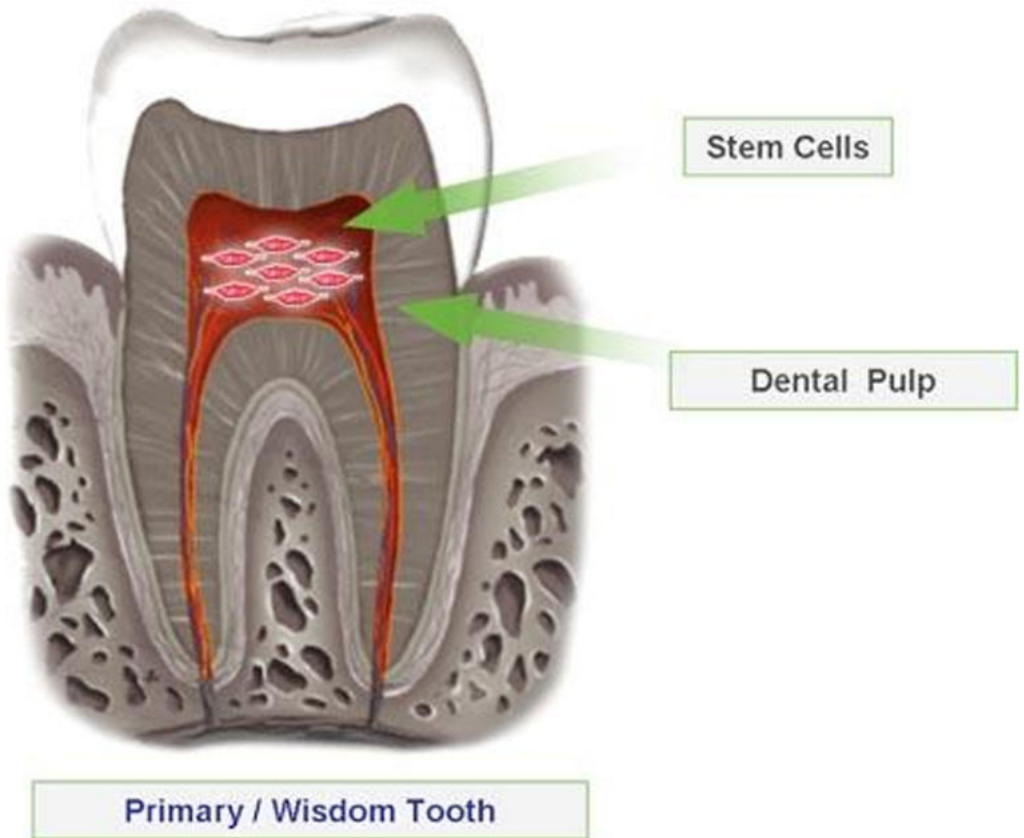
"We are not made of drugs, we are made of cells."

- Cade Hildreth

Studies have identified several niches of multipotent mesenchymal progenitor cells, known as " Dental Pulp Stem Cells ", which have a high proliferative potential for self renewal.

Dental pulp is the soft live tissue inside a tooth. Dental pulp contains stem cells, known as Dental Pulp Stem Cells.
The finest Dental Pulp Stem Cells are found in a baby teeth or milk teeth. The stem cells from the milk teeth are 'Mesenchymal' type of cells i.e. cells that have the ability to generate a wide variety of cell types like chondrocytes, osteoblasts and adipocytes.

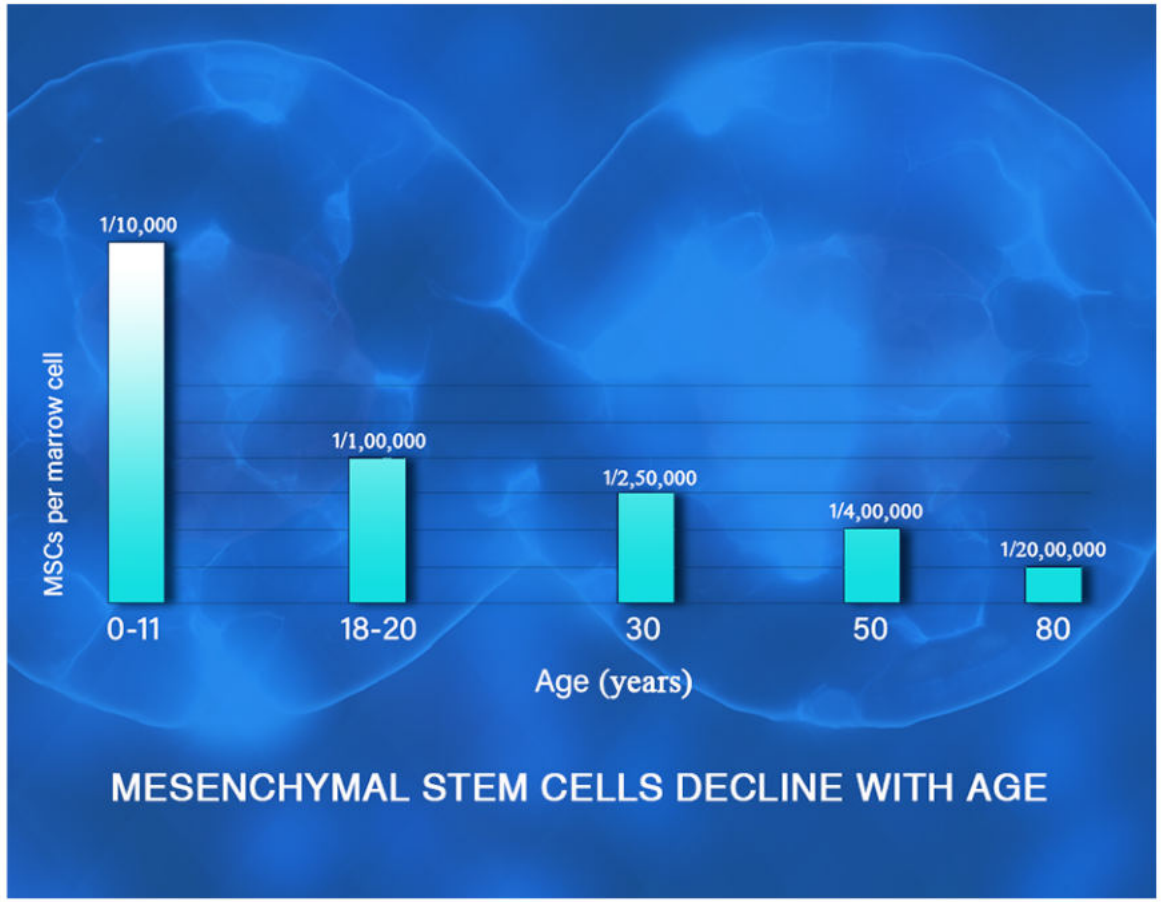
The pulp of exfoliated deciduous teeth have been researched extensively and have found to contain mesenchymal stem cells. All of these cell types hold enormous potential for the therapeutic treatment.



"Stem cells have the potential to be used to treat and better understand some of the world's most deadly and disabling diseases." - *Mark Udall*

MESENCHYMAL STEM CELLS HOLD THE PROMISE OF REGENERATING DAMAGED ORGANS/ TISSUES

Traditionally bone marrow is a very rich source of hematopoietic stem cells, but it is not that great source for mesenchymal stem cells. MSC's availability drastically reduces in the bone marrow with the age. Researchers state mesenchymal stem cells decline with age. As illustrated in the below graph, per marrow we can found 1 mesenchymal stem cell in every 10,000 cells when the child is under 11 years. When the child's age becomes 18 plus years, the availability of mesenchymal stem cells goes down 10 times and we can only found 1 mesenchymal stem cell in every 1,00,000 marrow cells and so on... Therefore, preserving mesenchymal stem cells from the dental pulp during the younger ages of the child is the best opportunity for the parents.



DENTAL STEM CELL BANKING IS LESS EXPENSIVE AND PAINLESS

Those cute "baby teeth" (popularly known as milk teeth) are as important for babies and toddlers as permanent teeth are for older children and adults. Not only these milk teeth help the child in speech, eating and appearance; but they also have a very important job of guiding the incoming permanent teeth growing below it, are ready to come out of the gums to their respective positions.

Normally, a child has 20 milk teeth that appear anytime between 6 months and 1 year of age. They continue to grow till 3 or 4 years of age. When the permanent teeth are ready to come out, milk teeth make way for them by dropping out. The falling starts at the age of 6 years with the two front lower teeth. By the age of 10 to 13 years of age, a child loses all milk molars.

However, these Milk teeth have been proven to be an abundant source of stem cells. These stem cell research is now at the forefront of medical science and has led to advances in the potential to treat or cure a wide variety of illnesses and medical conditions which were previously thought to be "incurable" like Alzheimer's, Parkinson's disease, Spinal cord injuries, Type 1 Diabetes, Muscular dystrophy, etc.

WHAT MAKES DENTAL PULP STEM CELLS SO UNIQUE?

Dental pulp stem cells differ from other stem cells in many ways and score high in terms of therapeutic advantages like: producing cells, etc. owing to their multipotency. Dental pulp stem cells have demonstrated interactivity with biomaterials, making them ideal fortissue reconstruction.

Dental pulp stem cells are expandable and they can be multiplied under controlled conditions.

Dental pulp stem cells are plentiful and easy to collect. Unlike harvesting bone marrow stem cells which require invasive surgery and cord blood stem cells which are available only at birth; dental pulp stem cells can be collected from milk teeth which would otherwise be discarded as biomedical waste.

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"Without a doubt, stem cell research will lead to the dramatic improvement in the human condition and will benefit millions of people."- Eli Broad

WHAT ARE THE ADVANTAGES OF DENTAL PULP STEM CELL PRESERVATION?

Dental pulp stem cell preservation has the following advantages, which are one of its kind:

- The duration available for harvesting healthy dental pulp stem cells is long, since it can be done for children in the age group of 5-12 years.
- The collection of stem cells from the pulp of the tooth is easy, painless, quick, highly efficient, as it involves a simple process of extraction of the tooth.
- Easy retrieval process.
- Precious as public banks don't exist for storing dental pulp stem cells.

" Protect your child's future uncertainties by storing stemcell which can cure 80+ disorders. "

WHY SHOULD I PRESERVE MY CHILDREN'S DENTAL PULP STEM CELLS ?

Dental stem cell banking is a golden opportunity for the parents who missed banking the stem cells at birth. On the surface, stem cells might seem irrelevant to you because you are not suffering from disorders like Alzheimer's disease, Myocardial infarction, Parkinson's disease, Type 1 Diabetes, etc. But an individual may suffer from these conditions in the future given the current lifestyle conditions.

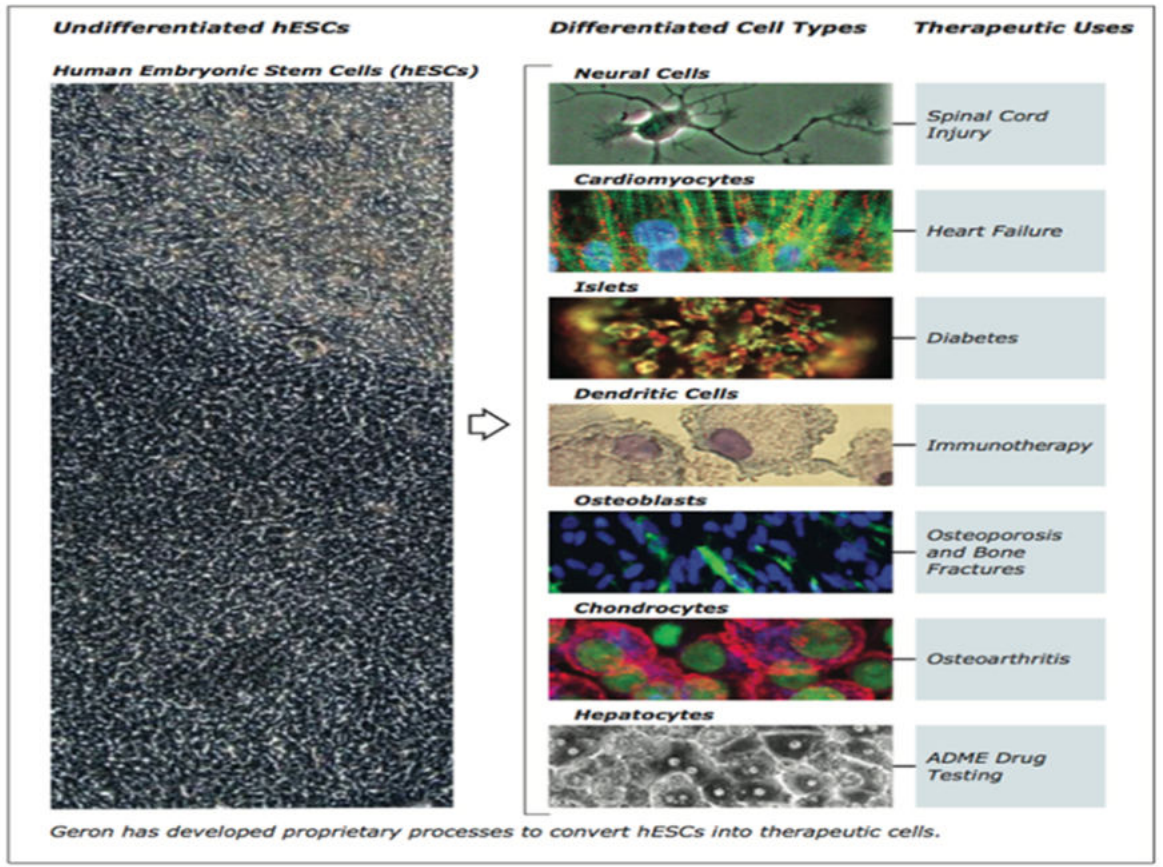
These cells could one day improve or even save your child's life. Storing cells today means they are available tomorrow and anytime throughout your child's life.

Your child's own cells are their only perfect cell match. Using their own cells means no rejection and no chance of contracting another's disease or genetic disorder. After all, they are a natural part of them.
The best cells are young cells before they can deteriorate through age or disease. Banking your child's cells today preserves them in their prime, the best they will ever be.

FACTS: There is usually no negative side effect from a therapy involving stem cells.

POTENTIAL APPLICATIONS OF DENTAL (MESENCHYMAL) STEM CELLS

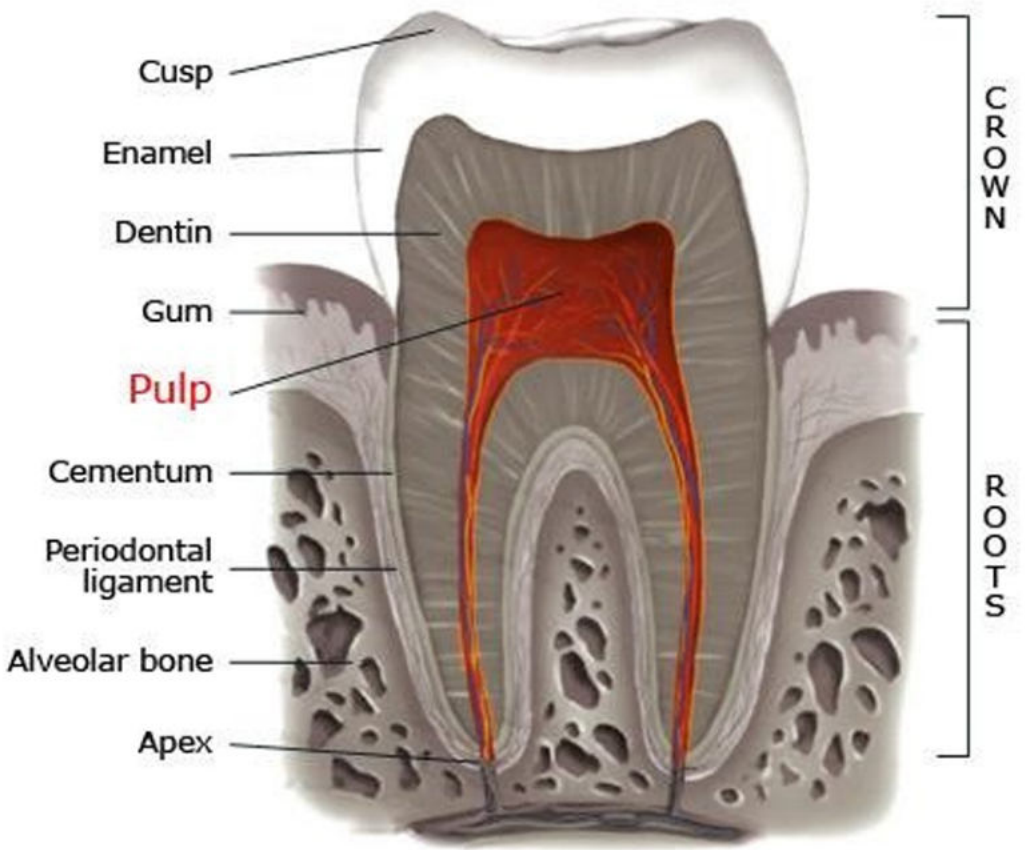
- Alzheimer's Disease
- ALS
- Autism
- Brain Damage
- Cerebral Palsy
- Cosmetic & Anti Ageing Applications
- Crohn's Disease
- Corneal Repair
- Diabetes
- Eye Diseases
- Hair regeneration
- Kidney Diseases
- Liver Diseases
- Macular Degeneration
- Multiple Sclerosis
- Parkinson's Disease
- Myocardial Infarction
- Muscular Dystrophy
- Rheumatoid Arthritis
- Scleroderma
- Spinal Cord Injuries
- Stroke
- Skin Repair
- Sports Injuries
- Wound Healing



DENTAL PULP STEM CELLS & THEIR POTENTIAL APPLICATIONS

Dental Stem cell banking is a golden opportunity to the parents who missed banking the stem cells at birth. Dental pulp is the soft living tissue inside a tooth. Dental pulp is a gold mine for Mesenchymal stem cells. This particular type of stem cells has a potential to differentiate into a variety of other cell types including (as below)

Myocardiocytes to repair damaged cardiac tissue following a heart attack	Myocytes to repair muscle
Neuronal to generate nerve and brain tissue	Adipocytes to generate fat
Osteocytes to generate bone	Bone and tissue from the oral cavity
Chondrocytes to generate cartilage	Gum (mouth) cells to regenerate periodontum



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MESENCHYMAL STEM CELL THERAPY COULD BEAT COVID-19

Stem cell treatment in the UAE sees 'favorable' outcomes for coronavirus patients

- A new treatment that helps relieve coronavirus symptoms could be brought to market in three months' time if further trials go well, according to Dr. Fatima al-Kaabi of the Sheikh Khalifa Medical City in the UAE.

- To date, there are no known vaccines or specific antiviral medicines against Covid-19.

- U.S. health officials say developing a vaccine will take at least 12 to 18 months.

Dr Fatima Al Kaabi

Source: Emirates News Agency. | Published on Mon 08-06-2020 17:36 PM

RESEARCHERS GAIN IP PROTECTION FOR NEW STEM-CELL TREATMENT FOR COVID-19

UAE researchers gain IP protection for new stem-cell treatment for COVID-19, confirm success of original trial.

A team of doctors and researchers at the Abu Dhabi Stem Cell Centre, ADSCC, led by Dr Yendry Ventura, Inventor and Principal Investigator, announced last month they had discovered a unique new treatment for patients of COVID-19, which appeared to help the body fight the virus and make the disease less harmful. The treatment involves extracting stem cells from the patient's own blood and reintroducing them as a nebulizing mist after reactivating them.

Dr Yendry Ventura

Source: Emirates News Agency. | Published on Mon 08-06-2020 17:36 PM

UAE RESEARCHERS GAIN IP PROTECTION FOR NEW STEM-CELL TREATMENT FOR COVID-19, CONFIRM SUCCESS OF ORIGINAL TRIAL

"The patients that received stem cells therapy improved faster than those who received the standard treatment only. Patients who received the stem cells treatment demonstrated clinical improvement within the first four days of treatment as evidenced by lower severity scores. The standard treatment group took eight days to show similar findings," said Dr Fatema Alkaabi, Co-Principal Investigator and Specialist Hematologist at Sheikh Khalifa Medical City.

"For severe patients the duration of hospitalization for those who received the stem cells treatment was six days at the median - significantly lower than among similar patients who received the standard treatment, who spent a median of 22 days in hospital." Further analyses revealed that patients treated with the stem cells treatment are 3.1 times more likely to recover in less than seven days than those treated with standard therapy, and 67 percent of the patients who received the stem cells treatment owe this recovery to the new treatment.


Protect Your Child From Over 80+ Disorders!
BANK YOUR CHILD'S DENTAL STEM CELL WITH MOTHERCELL
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ABOUT MOTHERCELL

WELCOME TO WORLD'S BIGGEST DENTAL STEM CELL BANK

Mothercell Biosciences is the world's biggest **Dental Stem Cell Bank** equipped with the most advanced cutting edge technologies embedded in every aspect of the laboratory. Established by the most experienced and highly qualified, passionate team on 2016 in its own property at Hyderabad. Mothercell's stem cell banking laboratory meets the international standards without any compromises.

33,000 Sq Ft four storied dedicated dental stem cell bank for all the present & future needs with unmatched facilities made Mothercell is the world's biggest **Dental Stem Cell Bank.**

World's Biggest Dental Stem Cell Bank

"Stem cell research can revolutionize medicine,more than anything since antibiotics."

- Ronald Reagan

MOTHERCELL WORLD'S BIGGEST DENTAL STEM CELL BANK

Laboratory was constructed beside the forest academy – green belt and forest lands and hence life time pollution free area.
Most sophisticated and advanced high end machinery and equipment imported form world's leading brands like Eppendorf – Germany , Taylor Wharton – USA , Planer Plc – UK , Thermo Scientific – USA, Olympus – Japan etc. Dedicated large elevator (9' * 9') for LN2 Tank movement. 2500 plus Mothercell approved Dentist/Dental clinics pan India for providing Tooth collection services is one of the prime strength of Mothercell. **Bunkers for Liquid Nitrogen (LN2) supply to LN2 tanks.**

Mothercell takes pride in providing world class logistics services for sample transport by partnering with global logistics leaders for both national & international sample transport to end from the laboratory.

Machinery and Equipment at Mothercell Lab

MOST ADVANCED EQUIPMENT

Mothercell is the world's biggest Dental Stem Cell Bank with 33,000 Sq Ft large, state of the art laboratory with unmatched quality & international standards based at Hyderabad, India. Most advanced equipment from globally reputed brands have been imported from 6 countries - USA, UK, Germany, Japan, etc...

Mothercell is a QBD (Quality By Design) structure, which means the laboratory is designed & constructed exclusively for the purpose of Dental Stem Cell Banking as per International Standards. Mothercell is strategically constructed in the most safest non-seismic zone in India and hence there is no possibility of major earthquakes. It is constructed behind forest acedamy lands and so it is also life time pollution free. It is also a Fire-resistant construction & non-flood area (Hyderabad being 400 meters above the sea level). Mothercell owns the premises both the laboratory and the land. Internationally proven proprietary technology, handled by highly qualified, most experienced & skilled team which completely is the back bone to Mothercell.

Mothercell has its presence across the country with experienced and knowledgable field force & also has corporate tie-ups with all major medical institutions in India to cater its banking services effectively to every needy individual.

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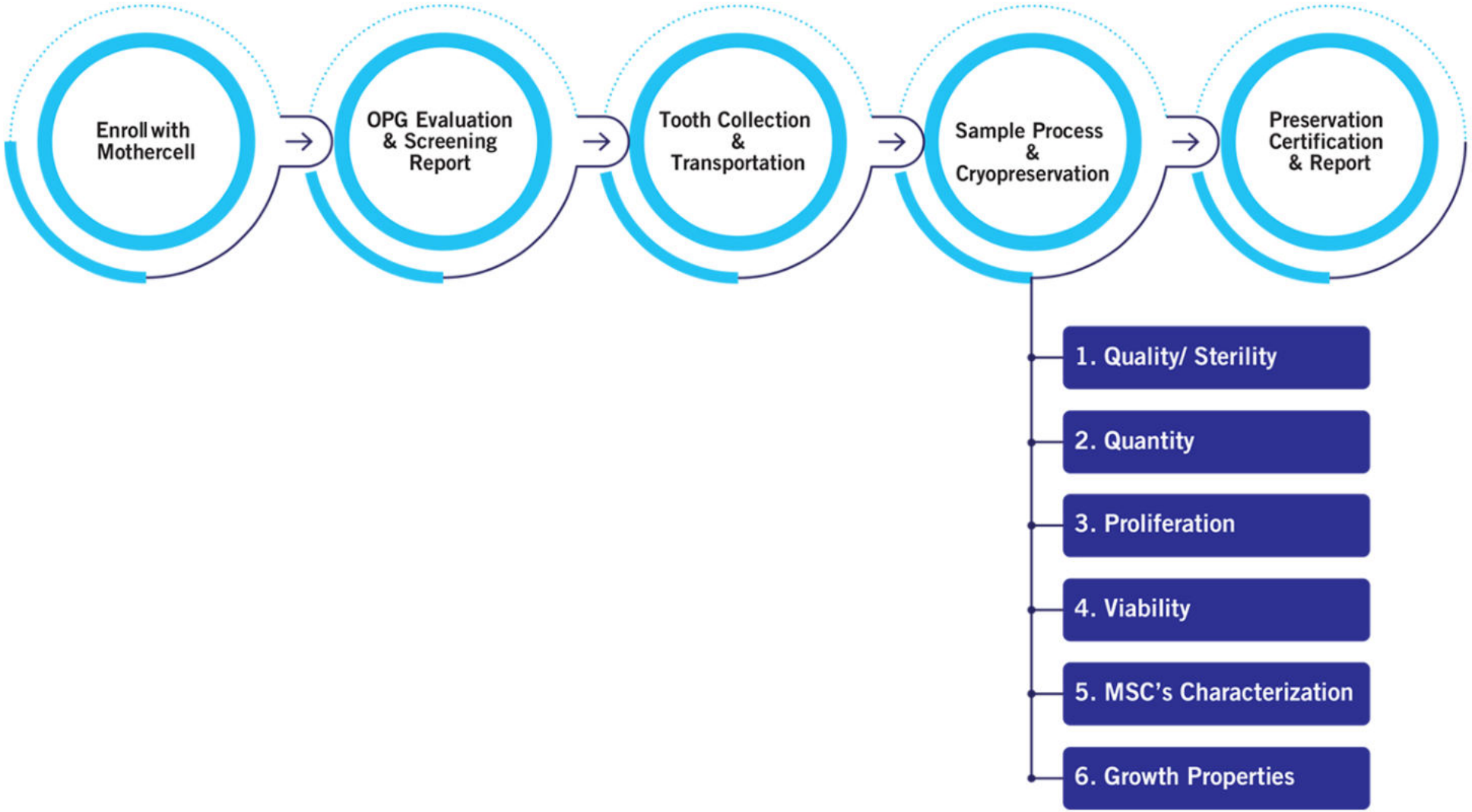
How To Enroll With Us?



ENROLL WITH MOTHERCELL

Initiate the process of Dental Stem Cell Banking by enrolling with Mothercell. Before you enroll, our team will ensure that you have understood the concept comprehensively including the benefits, payment plans, modes of payment for Stem Cell Banking. Pick the payment plan that is convenient for you and we will set you up for the next step. A unique and exclusive IBN (International Barcode Number) is allocated for every child.

"I think regenrative medicine obviously is a busy field that has a tremendous amount of promise."

- Gary Sender

OPG EVALUATION & SCREENING

Dental OPG is a full mouth X-Ray which provides an insight into the eruption stages of the permanent teeth and exfoliation stage of the milk teeth. It is an important tool in identifying the ideal tooth for stem cell banking.

Determination of the ideal tooth for stem cell banking is a critical step in the entire process. We have a panel of specialists who go through the Dental OPG, decide the ideal tooth and ideal time for tooth collection. We shall then co-ordinate this with you to fix up an appointment for tooth collection, which is convenient for you and the doctor.

Determination of the ideal tooth for stem cell banking is a critical step in the entire process. We have a panel of specialists who go through the Dental OPG, decide the ideal tooth and ideal time for tooth collection. We shall then co-ordinate this with you to fix up an appointment for tooth collection, which is convenient for you and the doctor.

TOOTH COLLECTION & TRANSPORTATION

All the tooth collections are done in completely sterile conditions in state-of-the-art dental clinics by highly skilled and qualified specialists on the day of tooth collection, we personally oversee the entire process in the dental clinic. Our team member will be present to ensure that every protocol is followed to give a non-painful and pleasant tooth collection experience to your child. Transportation is another critical and quality dictating step in the entire procedure. Mothercell's logistics team is highly capable of transporting a sample from any part on the globe without compromising the quality of the sample. This is achieved by our proprietary transportation kit which maintains the viability of the sample by regulating the temperature between 2-8 degrees centigrade for 48-72 hours. This gives us ample time to deliver the sample from the dental clinic to our processing room.

"This field (stem cell research) isn't growing, it's EXPLODING."

- Barth Green

SAMPLE PROCESSING AND CRYOPRESERVATION

Growth Properties: We check & certify the growth properties and morphology of the mesenchymal stem cells that are going to be preserved. Once the sample tests positive for all the above procedures it will proceed for cryopreservation. If the sample fails any of the above-mentioned tests, it will be rejected and the next available tooth is collected. Cryopreservation is done in liquid nitrogen tanks with temperatures ranging from -172˚C to -196˚C. The sample is never preserved on the child's name. It is preserved on the with IBN assigned for every child to avoid duplication.

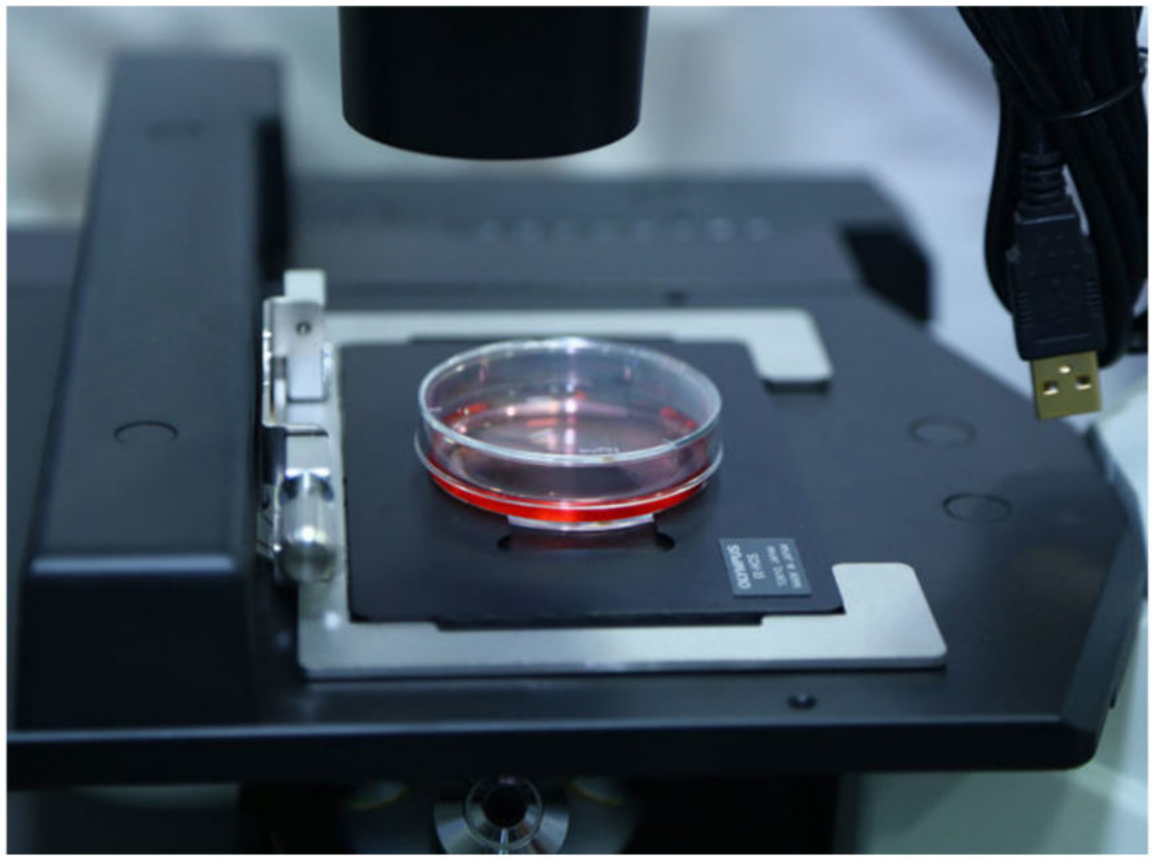
SAMPLE PROCESSING AND CRYOPRESERVATION

The Processing Protocol followed by our scientists is the USP of Mothercell. Every sample goes through a series of tests before it becomes eligible for cryo-preservation.

Sterility: The sample is tested for its sterility for the presence of any micro-organisms like bacteria & fungi.

Quantity: The sample is tested for the basic threshold number of stem cells. This depends on the age of the child, the tooth that is collected and the amount of pulp harvested from the sample.

Proliferation: The sample is tested for the capacity of stemcells to multiply without losing their stem cell nature. This is reported in terms of Passages (P1, P2, P3....), Stem cells should be able to proliferate without losing their stem cell characteristics and also without undergoing any mutations. This test also provides a stability standard for the sample.



"The regenerative medicine revolution is upon us. Like iron and steel to the industrial revolution, like the microchip to the tech revolution, stem cell will be the driving force of this next revolution." - Cade Hildreth

SAMPLE PROCESSING AND CRYOPRESERVATION

Viability: Viability is defined as the ability of the cells that survived in the process before cryopreservation. As mentioned earlier the stem cells are preserved at -172°C to -196°C. But for clinical applications, the stem cells are brought back to the room temperature. This process is called thawing. Few cells of the sample do not survive in the process. So before preserving the sample, we check the viability of the sample. It should be equal to or more than 92% to be eligible for preservation.

MSCs (Mesenchymal Stem Cells) Characterization: MSCs are characterized by their response towards certain surface cluster-differentiation (CD) markers. MSC's from any tissue source must react positively for CD73, CD90 & CD105 surface markers and negatively for CD34 & CD45 markers. Mothercell protocol mandates this test for every sample.

"Stem cells are probably going to be extremely useful."

- Joseph Murray

PRESERVATION CERTIFICATE & REPORT

Once the sample is successfully preserved, a report of all the tests performed on the sample and a preservation certificate is issued which will be delivered to you by one of our Mothercell team members.

If the sample is rejected for cryo-preservation at the laboratory because of any of the reasons, then one more sample will be collected as per the OPG evaluation without any additional finance charges and we will inform the same to the customer in writing.

THANK YOU FOR READING!

Are You Intrested To Bank Your Child's Dental Stem Cell?

Contact Us!

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