

Enhance



Your Life

WITH MESENCHYMAL STEM CELL THERAPY

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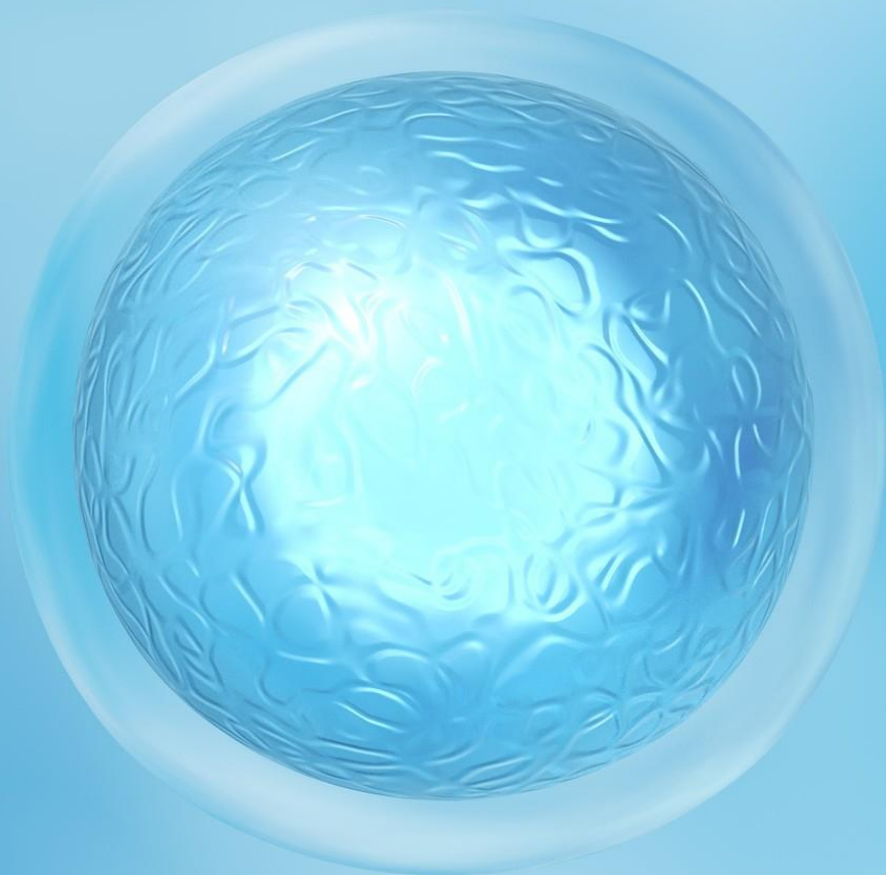
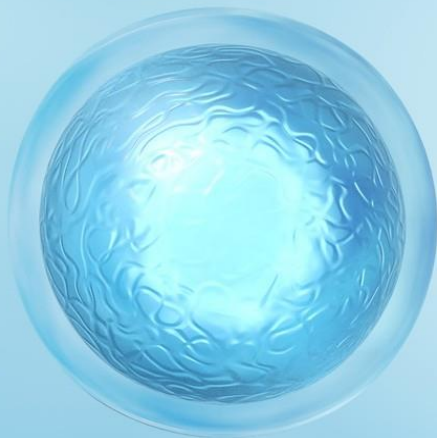
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What is Stem Cell Therapy?

Mesenchymal stem cell (MSC) therapy utilises human stem cells to help repair, regenerate and replenish damaged body tissues or organs in the body.

It is a less-invasive procedure and can also be administered directly to target sites, depending on the patient's disease or condition. This makes it different from conventional treatment, as only isolated stem cells are infused into the patient and not whole tissues or organs.

The potential healing properties of MSC therapy include, but are not limited to, regenerating nerves, regrowing cartilage, reducing inflammation and repairing damaged tissues.

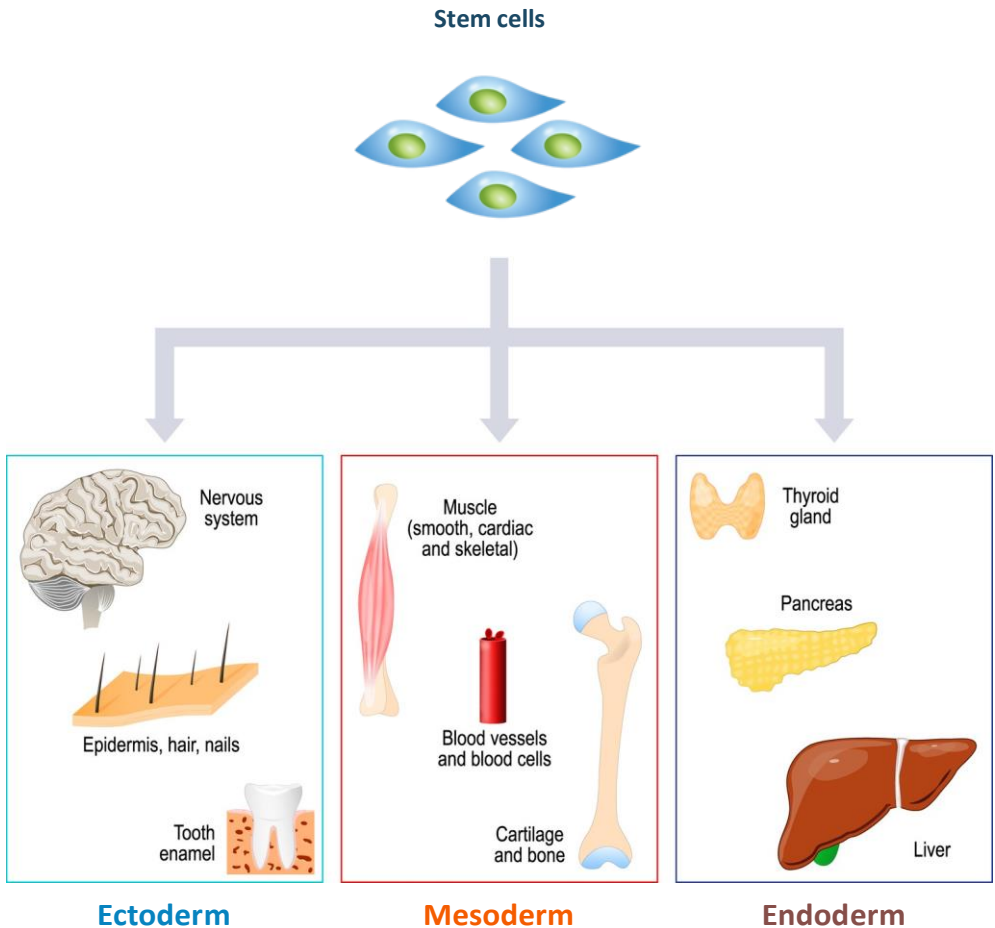
How Does Stem Cell Therapy Work?

MSCs have an intrinsic property which attracts them to inflammation sites in the body. The stem cells then help to regenerate damaged or diseased tissues, reduce inflammation and modulate the immune system.

These stem cells influence tissue repair through cell signalling or direct cell-to-cell contact, in order to change the behaviour of existing cells and induce positive changes in the body.

Multiple Differentiation Potential of MSCs

MSCs have the capacity to self-renew by dividing and developing into specialised cell types in specific tissues or organs, which include:





Medical Conditions That Could Benefit From Stem Cell Therapy

Studies have shown that with MSC therapy, patients have seen regenerative improvements associated with symptoms of diseases and conditions, such as those listed below.

Amyotrophic lateral sclerosis (ALS)

Alzheimer's disease

Arthritis

Avascular necrosis

Chronic obstructive pulmonary disease

Crohn's disease

Degenerative disc disease

Diabetes

Erectile dysfunction

Hair loss

Hearing loss

Heart disease

Kidney failure

Knee injury

Liver disease

Lung disease

Macular degeneration

Multiple sclerosis

Muscular dystrophy

Myasthenia gravis

Non-union fracture

Optic nerve degeneration

Osteoarthritis

Parkinson's disease

Psoriasis

Rotator cuff

Scleroderma

Skin burn

Spinal cord injuries

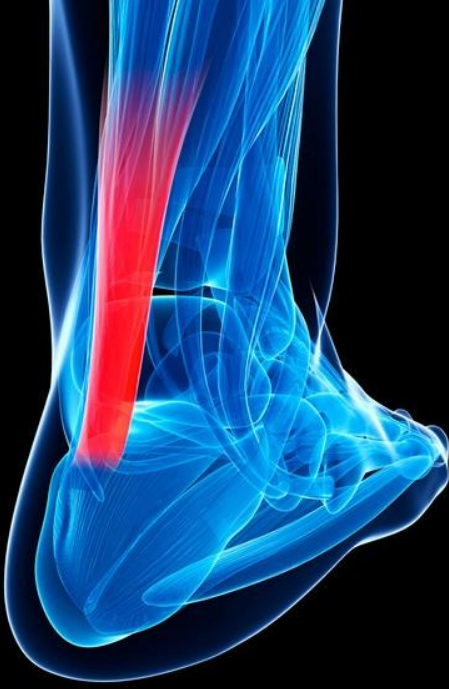
Torn ligaments

Tennis elbow

Tendinitis

Stroke

Vasculitis



Advantages of MSCs

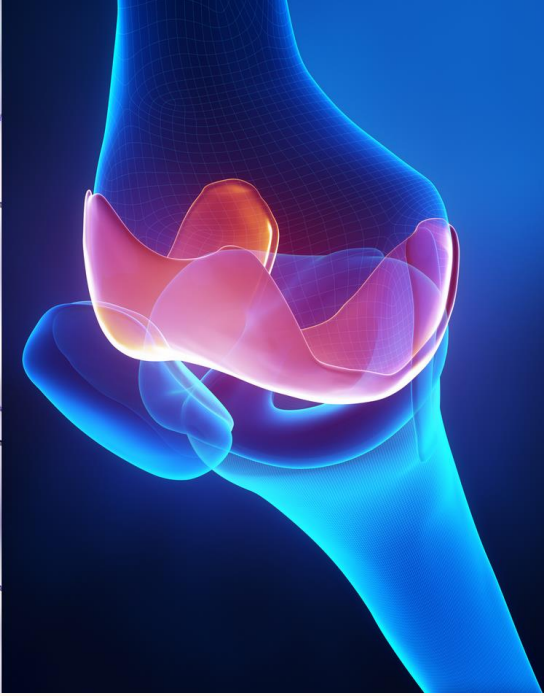
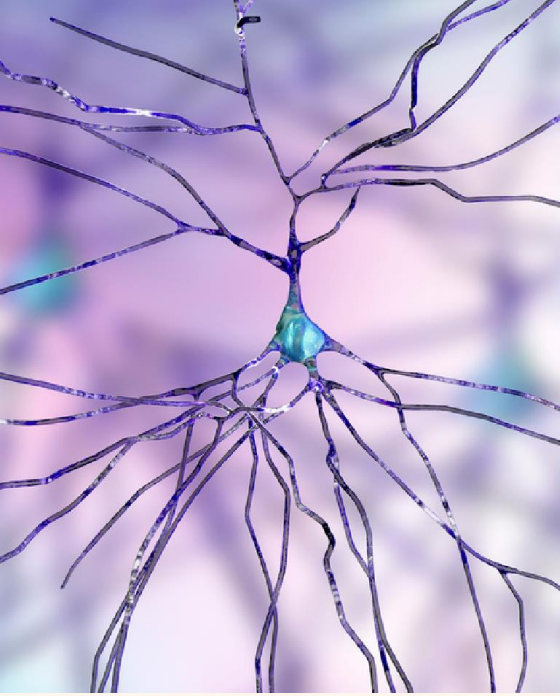
Compared to other types of stem cells, MSCs have the following advantages:

Diverse Differentiation Potential

MSCs can be differentiated into a variety of cell types in the laboratory, including but not limited to nerve, tendon, ligament, bone, skin, fat, cartilage, muscle and marrow stroma cells.

Immune Privileged

MSCs have shown to not elicit a negative response from a person's immune system. This allows the cells to be transplanted into the body without rejection, making them a universal source of stem cells.



Ethical and Legal

MSCs avoid ethical issues surrounding embryonic stem cells, as they can be derived from readily available sources that include donated umbilical cord tissues.

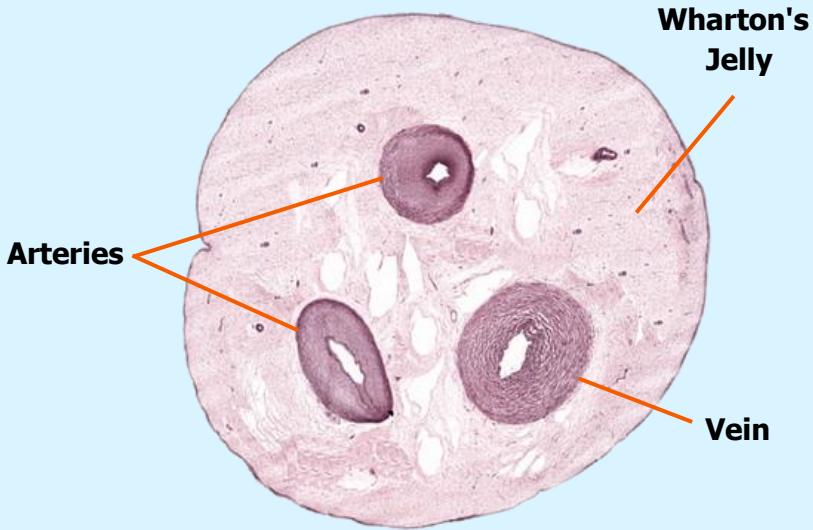
Flexible Propagation

MSCs can be grown and propagated in culture for extended periods of time, without losing their differentiation potential.

Large-Scale Expansion

MSCs can be easily expanded, in accordance with Good Manufacturing Process (GMP) requirements, to a desired amount of cells for clinical applications.

Source of Our Stem Cells



Cross Section of an Umbilical Cord

Although MSCs can be isolated from different sources, which include umbilical cord tissue, bone marrow, fat, or amniotic fluid, our stems cells are obtained from the Wharton's jelly taken from donated umbilical cords. Sourcing the MSCs from donated cord tissues makes them readily available, safe, ethical and legal.

These highly competent young MSCs have significant potential to be transformed into whatever type of cells that are necessary to supplement a person's stem cell count after transplantation. They can also replicate at a faster rate, and have the ability to differentiate into other types of cells and multiply, resulting in improved healing effects in the body.

Quality Control

Sterility	Sterility Test (United States Pharmacopeia 71)
Endotoxin	Limulus Amebocyte Lysate (LAL) Endotoxin Test Using Gel-clot Method (European Pharmacopeia 6.0)
Mycoplasma	Mycoplasma Test Using MycoProbe Mycoplasma Detection Assay (United States Pharmacopeia 63)
Immunophenotyping	Immunophenotyping Test Using BD FACSCelesta (Dominici et al., 2006)
Differentiation	Chondrogenesis Differentiation Test Using Safranin O Staining Osteogenesis Differentiation Test Using Alizarin Red Staining
Cell Count	Cell Count and Viability Test Using Countess Automated Cell Counter (European Pharmacopeia 9.0)
Karyotyping	Karyotyping Test Using Giemsa Staining (Govindasamy et al., 2010)

Stem Cell Production Process



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Our Lab: Malaysian Genomics Resource Centre Berhad (MGRC)

MGRC was founded in 2004 and listed on the ACE Market of Bursa Malaysia Securities in 2010.

As a leading genomics and biopharmaceutical company in Southeast Asia, we have pioneered genome sequencing, bioinformatics analysis, genetic screening services, and cancer immunotherapy in the region.

We have an established track record of delivering on large-scale projects for the Government of Malaysia, as well as local and international research centres, public institutes, academia and corporations from pharmaceutical and various other sectors. Some notable customers have included Novartis, Brigham & Women's Hospital (of Harvard Medical School) and Washington University of Medicine, among many others.

Our extensive experience in healthcare, especially in genomics, genetics and clinical diagnostics extends to translational medicine, which is the transferring of knowledge and technology from research domains to clinical use by doctors in clinics and hospitals.

Utilising our high-throughput sequencing lab, advanced microarray facility, and new state-of-the-art cell processing lab, we are committed to improving access to the latest in precision and personalised healthcare solutions.



Our new facility consists of two state-of-the-art laboratories - a specialised cell processing laboratory and a molecular biology laboratory for genetics and genomics analysis.

Our cell laboratory is the first privately owned Biosafety Level 2 (BSL-2) and Current Good Manufacturing Practice (CGMP) laboratory in Malaysia to produce CAR T-cells for solid cancer immunotherapy in the region, as well as stem cell production and other cell engineering services.

The BSL-2 and CGMP laboratory certifications indicate that a facility follows a stringent set of biocontainment standards to protect laboratory personnel, the surrounding environment, and the community.

We have also obtained three ISO certifications under the Integrated Management System:

- ♦ ISO 9001:2015
- ♦ ISO 15189:2014
- ♦ ISO 17025:2017



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