

Stem Technology: An Overview

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EDITORIAL

What are the stem cells?

Our body is made up of many different types of cell. Most cells are specialised to perform functions. Stem cell is a cell with the unique ability to develop into specialised cell types in the body. Stem cells are the raw materials of the body. They may be used to replace tissues and cells that have been damaged or lost due to the disease. They have two unique properties that enable them to do this. Stem cells provide new cells for the body as it grows. Stem cells divide to form more cells called daughter cells and these daughter cells either become new stem cells or become specialized cells with a more specific function, such as blood cells, brain cells, heart muscle cells or bone cells. As they divide, they can change into the other types of cell that make up the body.

Types of stem cells

There are three main types of stem cells:

- Embryonic stem cells
- Adult stem cells
- Induced pluripotent stem cells

Embryonic stem cells: These stem cells come from embryos that are three to five days old. Embryonic stem cells supply new cells for an embryo. It grows and develops into a baby. These stem cells are said to be pluripotent stem cells means they can be divided into more stem cells or can become any type of cell in the body. And these stem cells to be used to repair and generate organs and diseased tissue.

Adult stem cells: These stem cells are found in little numbers in most grown-up tissues like bone marrow or fat. Compared with embryonic stem cells, adult stem cells have a more limited ability to give rise to various cells of the body. In any case, arising proof proposes that grown-up adult stem cells might have the option to make different kinds of cells. For example, bone marrow immature microorganisms might have the option to make bone or heart muscle cells. Stem cells are supposed to be multipotent, which implies they can just change into certain cells in the body.

Induced pluripotent stem cells: Induced pluripotent stem cells are the cells that scientists make in the laboratory. These stem cells also have the ability to change into specific cells. 'Actuated' implies that they are made in the lab by taking ordinary grown-up cells, similar to skin or platelets, and reconstructing them to become stem cells. They are pluripotent so they can develop into any cell type. Scientists have distinguished undifferentiated organisms in examples of amniotic liquid attracted from pregnant ladies to test for anomalies – a method called amniocentesis.

Uses of stem cells

Stem cells can be used to –

- Research – To assist us with understanding the fundamental science of how living things work and what occurs in various sorts of cell during infection.
- Therapy – To supplant lost or harmed cells that our bodies can't supplant normally.
- Grow new cells in a laboratory to replace damaged organs or tissues.
- Correct parts of organs that don't work properly.
- Research causes of genetic defects in cells.
- Research how diseases occur or why certain cells develop into cancer cells.
- Test new drugs for safety and effectiveness.

Stem cell research exploration is hoping to more readily comprehend the properties of stem cells so we can: understand how our bodies grow and develop, find ways of using stem cells to replace cells or tissues that have been damaged or lost. Stem cell research is progressing at colleges, research organizations, and clinics around the globe. Scientists are right now zeroing in on discovering approaches to control how immature microorganisms transform into different kinds of cells.

Stem cell therapy

Stem cell therapy also known as regenerative medicine. promotes

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the repair response of diseased and injured tissue using stem cells or their derivatives.

In medical conditions that may potentially be treated with embryonic stem cells include:

- Stroke
- Severe burns
- Rheumatoid arthritis
- Heart disease
- Traumatic spinal cord injury
- Hearing loss
- Retinal disease
- Huntington's disease
- Parkinson's disease