

## Glossary.

**Allogeneic** means cells, tissues, or organs derived from antigenically dissimilar individuals from the same species.

**Articular cartilage** is a specialized connective tissue located at the end of long bones.

**Autologous chondrocyte implantation** is a tissue engineering strategy in which articular cartilage cells are collected, expanded and re-implanted into a cartilage defect.

**Autologous** means cells, tissues, or organs derived from the same individual.

**cancellous bone** also called trabecular bone, is the meshwork of trabecular tissue of adult bone found at the ends of the long bones or at the core of vertebrae in the spine.

**Chondrocytes** are the only cells found in healthy cartilage with the function to produce and maintain the cartilaginous matrix.

**Chondroinductive** means the property to induce cartilage growth.

**Chondron** is the combination of a chondrocyte and its associated pericellular microenvironment.

**Cortical bone** refers to the outer hard layer of the bone.

**Critical size defects** are bone defects typically larger than 2.5 cm that will not heal within a patient's lifetime.

**Dedifferentiation** is a process by which cells become less specialized and return to an earlier cell state within the same lineage.

**Endochondral ossification** is a process of bone formation in which bone replaces a cartilage matrix.

**Induced pluripotent stem (iPS) cell** is a type of pluripotent stem cell generated directly from a somatic cell by expressing the transcription factors Oct 4, Sox2, Klf4 and c-Myc.

**Intramembranous ossification** is a process in which bone is laid down by direct apposition within stromal connective tissue.

**Microfracturing** is a bone marrow stimulation technique achieved by subchondral bone perforation to recruit autologous mesenchymal stem cells to a cartilage defect.

**Osteo-arthritis** is a type of degenerative joint disease that results in the breakdown of joint cartilage and the underlying bone.

**Osteoblasts** are specialized mesenchymal cells that synthesize bone matrix and coordinate the mineralization of the skeleton.

**Osteoclasts** are giant cells containing between 10 and 20 nuclei which are involved in remodeling of bone matrix.

**Osteoconductivity** is the property of a material to support bone tissue ingrowth.

**Osteocytes** are cells that lie within the substance of fully formed bone.

**Osteogenicity** means the extent to which something (a material, a cell or a growth factor) allows bone formation.

**Osteoinductivity** is property of a material to stimulate osteoprogenitor cells to differentiate into osteoblasts.

**Osteons** are the basic units of compact bone, and are made of a hollow central canal (Haversian canal) surrounded by concentric bone layers named lamellae. Blood vessels and nerves run longitudinally through the Haversian canals.

**Periosteum** is a membrane that covers the outer surface of all bones, except at the articular surfaces.

**Phenotypic markers** are the observable characteristics of a cell resulting from the interaction of its genotype with the environment. For example, the production of cell specific proteins.

**Regeneration** is the process of renewal, restoration, and tissue growth.

**Terminal differentiation** is a state where a precursor cell formerly capable of cell division, permanently leaves the cell cycle, dismantles the cell cycle machinery and often expresses a range of genes characteristic of the cell's final function (e.g. the presence of myosin and actin in a muscle contractile cell).

**Traumatic injury** is any injury that has the potential to cause prolonged disability or death.

**Xenograft** is the transplant of an organ, tissue, or cells to an individual of another species.

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