Glossary

**Angioblast** is a type of endothelial precursor cell derived from mesoderm.

**Angiogenesis** is the physiological process through which new blood vessels form from pre-existing vessels.

**Anterior** is the Latin placeholder for a body part that lies in front of another, similar body part.

**Apical** isan anatomical term of location denoting the area of an epithelial or endothelial cell that faces the blood or intestinal fluid.

**Articular chondrocytes** are specialized cells of articular cartilage that are in charge of the development, maintenance, and repair of its extracellular matrix.

**Autocrine** is a phenomenon where cells produce a substance that has an effect on the same cell secreting said substance.

**Basement membrane** is a special type of extracellular matrix that lines the basal side of epithelial and endothelial tissues. The basal side opposes the apical side of these cells.

**Basolateral** is an anatomical term of location referring to an item situated below and towards the side.

**Body plan** is a set of morphological features common to many members of a phylum of animals.

**Canaliculi** arem**icroscopic canals between the lacunae of ossified bone**

**Cell homing** is a phenomenon where cells migrate toward target tissue sites prior to their proliferation and expansion.

**Chondrocyte** is ametabolically active cell found in the cartilage that synthesizes and degrades a large volume of extra cellular matrix components.

**Developmental** **engineering** is a tissue engineering process design strategy in which lessons from developmental biology are used to develop rules for in vitro tissue development.

**Dorsal** is an anatomical term referring to the back or upper side of an organism. The dorsal side lies opposite to the ventral side.

**Ectoderm** is the outermost of the three primary germ layers in early embryonic development. It originates from the outer layer of germ cells and is the precursor of the skin and neural system and associated organs like the eye and the neural crest.

**Embryogenesis** is a complex and sequential series of cell division and growth events leading to the development of an embryo.

**Endochondral ossification** is one of the two essential processes by which bone tissue is created, in this case by ossification of a chondral precursor tissue.

**Endoderm** is the innermost of the three primary germ layers in early embryonic development and is the precursor of organs such as the gastro-intestinal tract.

**Extracellular matrix** is a three-dimensional network consisting of extracellular macromolecules, such as collagen, enzymes and glycoproteins that provide structural and biochemical support to surrounding cells.

**Gastrulation** is a phase early in  embryonic development where a single-layered hollow sphere of cells called blastula is reorganized into a multilayered structure through cell migration.

**Gestation(al)** isthe time between conception and birth.

**Intramembranous ossification** is the direct conversion of mesenchymal tissue into bone.

**Mesoderm** is the middle of the three primary germ layers in early embryonic development. Precursor of muscle and connective tissue, cartilage, bone, notochord, blood, bone marrow, lymphoid tissue, and the epithelia (surface, or lining, tissues) of blood vessels, lymphatic vessels, body cavities, kidneys, ureters, gonads (sex organs), genital ducts, adrenal cortex.

**Modularity of the tissue architecture** is a phenomenon where several units of tissue intermediates are combined to form a larger tissue.

**Morphogens** are signaling molecules that act directly on cells to produce specific cellular responses depending on their local concentration.

**Mural cells** are vascular smooth muscle cells that provide support to blood vessels.

**Neural crest cells** originate between the neural plate and non-neural ectoderm during embryonic development.

**Nucleus pulposa** is a soft and gelatinous inner core of the vertebral disc that moves within the disk with changes in posture.

**Organogenesis** isthe process by which the embryonic cells of the three germ layers develop into organs.

**Osteoblast** is aspecialized mesenchymal cell that synthesizes bone matrix and coordinates the mineralization of the skeleton.

**Osteoclast** is a giant cell containing between 10 and 20 nuclei, involved in remodeling bone matrix.

**Paracrine** is a type of cellular communication in which a cell produces a signal to induce changes in nearby cells, altering their behavior. Factors are secreted into the immediate extracellular environment.

**Pluripotent** refers to the property of cells that make them capable of giving rise to cells of the ectoderm, mesoderm and endoderm lineages.

**Primary ossification center** is the first area during endochondral ossification to start forming bone tissue.

**Remak fibers** are a class of nerve fibers that carry sensory information and are unmyelinated.

**Secondary ossification center** is the area of the ossification center that appears after the primary ossification center.

**Systemic factors** are substances that affect the whole body and not specific tissues/organs.

**Trophic (factors)** are substances that allow a cell to grow.

**Vasculogenesis** is the process of blood vessel formation in the embryo, occurring by *de novo* production of endothelial cells.

**Vernix caseosa** isa white, creamy, naturally occurring biofilm covering the skin of the fetus during the last trimester of pregnancy.

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