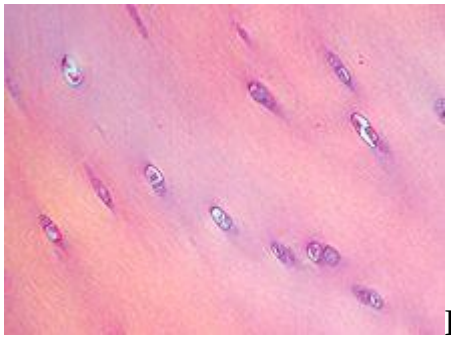
Animal tissues[]

Stylized cutaway diagram of an animal cell (with flagella)

The kingdom Animalia contains multicellular organisms that are heterotrophic and motile (although some have secondarily adopted a sessile lifestyle). Most animals have bodies differentiated into separate tissues and these animals are also known as eumetazoans. They have an internal digestive chamber, with one or two openings; the gametes are produced in multicellular sex organs, and the zygotes include a blastula stage in their embryonic development. Metazoans do not include the sponges, which have undifferentiated cells.[]

Unlike plant cells, animal cells have neither a cell wall nor chloroplasts. Vacuoles, when present, are more in number and much smaller than those in the plant cell. The body tissues are composed of numerous types of cells, including those found in muscles, nerves and skin. Each typically has a cell membrane formed of phospholipids, cytoplasm and a nucleus. All of the different cells of an animal are derived from the embryonic germ layers. Those simpler invertebrates which are formed from two germ layers of ectoderm and endoderm are called diploblastic and the more developed animals whose structures and organs are formed from three germ layers are called triploblastic.[16] All of a triploblastic animal's tissues and organs are derived from the three germ layers of the embryo, the ectoderm, mesoderm and endoderm.

Animal tissues can be grouped into four basic types: connective, epithelial, muscle and nervous tissue.

 Hyaline cartilage at high magnification (H&E stain)

Connective tissue**[]**

Connective tissues are fibrous and made up of cells scattered among inorganic material called the extracellular matrix. Connective tissue gives shape to organs and holds them in place. The main types are loose connective tissue, adipose tissue, fibrous connective tissue, cartilage and bone. The extracellular matrix contains proteins, the chief and most abundant of which is collagen. Collagen plays a major part in organizing and maintaining tissues. The matrix can be modified to form a skeleton to support or protect the body. An exoskeleton is a thickened, rigid cuticle which is stiffened by mineralization, as in crustaceans or by the cross-linking of its proteins as in insects. An endoskeleton is internal and present in all developed animals, as well as in many of those less developed.[]