Histology 0308214

GENERAL OBJECTIVES:

* To Understand the basics of tissue preparation and study.
* To list and understand the basics of light and electron microscopes.
* To comprehend to the basic structure and function of the cell.
* To describe different types of basic tissues (Epithelium, connective tissue, Muscle and nervous tissues).
* To describe special types of connective tissue (cartilage and bone).
* To discus the basic molecular aspects of certain cellular and tissue components (Membrane, Cytoskeleton, Martix).

RECOMMENDED TEXTBOOK:

* Basic histology. By Luis Janquiera 9th ed.

 - Any Good Histology Atlas.

IMPORTANT NOTES:

* Attend your assigned lab sessions.
* Lab coat and histology atlas is a must.
* For your exams, bring 2H or HB pencil, erasre and a sharpner.

Specific Objectives (Anatomy Lectures):

* Histology Techniques and Microscopy:
* Describe the most common methods used for tissue preparation for microscopic examination.
* Discribe the principles of different types of microscopy.
* Describe the moss\t common techniques used to study tissue and cell such as autoradiography, cell and tissue cultures, cell fractioning, histochemistry and immunocytochemistry.
* Cell:
* Compare between the eukaryotic cells and prokaryotic cells.
* Identify the main components of the eukaryotic cells: cell membrane, cytoplasm and nucleus.
* Understand the structure of the cell (plasma) membrane.
* Understand the structure of the differenet cytoplasmic organelles such as ribosomes, rough endoplasmic reticulum, smooth endoplasmic reticulum, mitochondria, Golgi apparatus, lysosomes, peroxisomes, cytoskeleton etc.
* Understand the structure of the nucleus.
* Cell Division:
* Compare between mitosis and meiosis.
* Describe the changes that occur during each of the phases of mitosis.
* Describe the first and second meiotic dicisions.
* Epithelium:
* Describe the general features of the epithelial tissue.
* Classify the epithelium into two main types: surface epithelium and glandular epithelium.
* Describe the features of the different types of surface epithelium and identify their location.
* Describe intercellular junctions between epithelial cells such right junctions, adhering junctions and gap junctions.
* Describe epithelial cells specialisations such as cilia, microvilli and sterocilia and identify their location.
* Describe the different types of glands and their locations.
* Connective Tissue (CT):
* Describe the general features of the C.T.
* Describe the different cell types of the C.T.
* Describe the different types of fibers in the C.T.
* Describe the structure of the basement membranes.
* Describe the structure and features of the different types of C.T suct as Loose C.T , dense C.T., adipose tissue etc, and identify the location of each type.
* Cartilage:
* Describe the general struture and features of cartilage.
* Describe the struture of each type of cartilage: hyaline, elastic and fibrous cartilags and identify the location of each type.
* Bone:
* Describe the general struture and features of bone.
* Describe the struture of compact and spongy bones and identify their location.
* Muscle:
* Describe the struture of the skeletal muscles and the sliding theory of muscle contraction.
* Describe the struture of the cardiac muscles.
* Describe the struture of the smooth muscles and identify their location.
* Compare the structure of the three types of muscles: skeletal, cardiac and smooth.
* Nerve tissue:
* Describe the general features of nerve tissue.
* Describe the struture of nerve cells (neurons).: cell body, dendrites, axons and synapses including motor and plates.
* Classify the nerve cells into subtypes.
* Describe the process of myelination.
* Describe the different types of glia cells: astrocytes, oligodendrocytes, microglia, ependymal cells and schwaan cells.
* Describe the structure of meninges and choroid plexus.
* Describe the peripheral nervous system components: nerves, ganglia and sensory receptors .