

# Histology

System	Histological Features	Histopathological Changes & Disorders
<b>General Histology</b>	- Basic tissue types (epithelial, connective, muscle, nervous) - Cellular components (nucleus, cytoplasm, organelles) - Extracellular matrix composition (collagen, elastin, glycoproteins) - Staining techniques (H&E, PAS, trichrome, immunohistochemistry)	- Dysplasia and metaplasia (Barrett's esophagus, cervical dysplasia) - Tumor histopathology (benign vs. malignant) - Inflammatory tissue changes (acute vs. chronic inflammation)
<b>Hematopoietic &amp; Lymphoreticular</b>	- Bone marrow (hematopoietic stem cells, megakaryocytes) - Lymph node architecture (cortex, paracortex, medulla) - Spleen and thymus histology	- Leukemia and lymphoma histopathology - Reactive lymphadenopathy - Bone marrow failure (aplastic anemia)
<b>Central &amp; Peripheral Nervous</b>	- Neurons (cell body, axon, dendrites, Nissl bodies) - Glial cells (astrocytes, oligodendrocytes, microglia) - Meninges and blood-brain barrier	- Neurodegenerative diseases (Alzheimer's plaques, Parkinson's Lewy bodies) - Demyelination in multiple sclerosis - Glioblastoma histology (pseudopalisading necrosis)
<b>Skin &amp; Connective Tissue</b>	- Epidermal layers (stratum basale, spinosum, granulosum, corneum) - Dermis (collagen, fibroblasts, blood vessels) - Hair follicles, sebaceous and sweat glands	- Psoriasis (epidermal hyperplasia, parakeratosis) - Bullous diseases (pemphigus vulgaris, bullous pemphigoid) - Melanoma histopathology
<b>Musculoskeletal</b>	- Skeletal muscle (striations, multinucleated fibers) - Smooth muscle (spindle-shaped, single nucleus) - Cartilage types (hyaline, elastic, fibrocartilage) - Bone histology (osteoblasts, osteocytes, osteoclasts)	- Osteoporosis (trabecular bone thinning) - Osteosarcoma (malignant osteoid production) - Rhabdomyosarcoma histology
<b>Respiratory</b>	- Trachea and bronchi (ciliated columnar epithelium, goblet cells) - Alveoli (pneumocytes type I and II, alveolar macrophages) - Pulmonary capillary network	- Asthma (smooth muscle hypertrophy, mucus plugging) - Pneumonia (alveolar exudates, neutrophil infiltration) - Lung cancer histology (small cell vs. non-small cell carcinoma)
<b>Cardiovascular</b>	- Cardiac muscle (intercalated discs, branching fibers) - Blood vessel layers (intima, media, adventitia) - Capillary and endothelial structure	- Atherosclerosis (foam cells, fibrous cap) - Myocardial infarction (coagulative necrosis, inflammatory infiltrates) - Hypertrophic cardiomyopathy histology
<b>Gastrointestinal</b>	- Esophageal mucosa (stratified squamous epithelium) - Gastric glands (parietal, chief cells) - Small intestine (villi, crypts, Paneth cells) - Colon (goblet cells, absorptive cells) - Liver (hepatocytes, sinusoids, Kupffer cells) - Pancreas (exocrine acini, islets of Langerhans)	- Barrett's esophagus (intestinal metaplasia) - Peptic ulcer disease (mucosal erosion, neutrophil infiltration) - Cirrhosis (fibrosis, regenerative nodules) - Pancreatic adenocarcinoma histology
<b>Renal/Urinary</b>	- Glomerulus (podocytes, capillary loops, mesangium) - Tubular epithelium (proximal, distal, collecting ducts) - Urothelium (transitional epithelium)	- Nephrotic syndrome (podocyte effacement, proteinuria) - Acute tubular necrosis (tubular epithelial cell loss) - Bladder cancer histology (urothelial carcinoma)
<b>Reproductive</b>	- Testes (seminiferous tubules, Leydig and Sertoli cells) - Ovarian follicles (primordial, primary,	- Testicular cancer histology (seminoma, embryonal carcinoma) - Ovarian carcinoma

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	secondary, Graafian) - Endometrium (proliferative, secretory phases) - Placental histology (chorionic villi, trophoblast layers)	histopathology - Endometriosis (ectopic endometrial glands and stroma) - Hydatidiform mole (grape-like villous structures)
<b>Endocrine</b>	- Pituitary (acidophils, basophils, chromophobes) - Thyroid (follicles, parafollicular C cells) - Adrenal gland (cortex layers: zona glomerulosa, fasciculata, reticularis) - Pancreatic islets ( $\beta$ -cells, $\alpha$ -cells, $\delta$ -cells)	- Hashimoto's thyroiditis (lymphocytic infiltration, Hurthle cells) - Cushing's syndrome (adrenal cortical hyperplasia) - Diabetes mellitus (islet cell depletion in Type 1) - Pheochromocytoma histology (chromaffin cells, Zellballen pattern)