Tissue Lab Important Answers

Epithelial Tissues

Simple Squamous
S – Single layer of flattened cells
F – Diffusion & Osmosis
L – Lining of Alveoli (lung air sacs), interior surface of all blood vessels.

Simple Cuboidal
S – Single layer of cube shaped cells
F – Secretion & Filtration of blood
L – All Glands, Tubules of kidneys

Simple Columnar
S – Single layer of elongated cells
F – Secretion and Absorption
L – Lining of digestive tract, lining of uterus

Pseudostratified Ciliated Columnar
S – Appear to be layered but are not. All cells touch basement membrane. Those that reach free surface have moveable cilia.
F – Filtration of air, Movement of female ovum (egg)
L – Lining of air passages, lining of Fallopian tubes

Stratified Squamous
S – Many layers, Flattened on free surface, cuboidal near basement membrane. May contain Keratin in free surface cells - Keratinized
F – Protection
L – Skin, Lining of mouth, lining of vagina

Stratified Transitional
S – Many layers of cells which change shape. Flattened when stretched, cubiodal when relaxed.
F – Expandable barrier, prevention of any diffusion or osmosis.
L – Lining of urinary bladder and urinary tubes

Connective tissues

Areolar
S – Widely spaced cells in a matrix of random, loose collagen and elastin fibers.
F – Binding
L – Under skin, Between most internal organs

Adipose
S – Unusually dense cells with almost no matrix. Cells contain huge vacuole full of lipids.
F – Energy storage, padding, insulation
L – Under skin (concentrations vary by sex), around heart, within muscle

Dense Regular (White Fibrous)
S – Very few cell, matrix of very dense large collagen fibers arranged parallel
F – Attach bone to bone, muscle to bone
L – Ligaments, Tendons

Hyaline
S – Moderately spaced cells in a matrix of thick protein gel. Few if any fibers.
F – Bone formation, Joint lubrication, Semi-rigid framework
L – Fetal skeleton, Caps ends of most bones at joints, Tip of nose

Elastic
S – Struct. Similar to hyaline but with many random elastin fibers in matrix
F – Provides flexible framework
L – Framework of external ears, rings of trachea

Fibro-cartilage
S – Very few cells, Matrix of very dense, fine collagen fibers arranged Woven.
F – Shock absorption
L – Intervertebral disks, Pads in knee and hip joint

Osseous
S – Moderately spaced cells in a matrix of Calcium salts and collagen fibers arranged in concentric rings (Haversian system)
F - Rigid framework, mineral storage, blood production
L – All bones of skeleton

Vascular
S- cells in a matrix of liquid plasma
F – transport & nourishment
L – only in blood vessels & heart chambers

Muscle Tissues

Skeletal
S – Cells elongated with squared off ends. Multinucleated, Many mitochondria, have striations.
F – Voluntary movement of body p arts
L – Any muscle attached to bone

Smooth
S – Cells elongated and taper to a point on ends. Single nucleus, no striations.
F – Involuntary movement of all structures except the heart.
L – The walls of all hollow organs (Stomach, Arteries, bladder, Uterus, etc.)

Cardiac
S – Cells elongated and branched. Multinucleated, many mitochondria, have striations.
F – Involuntary contractions of the heart.
L – Walls of the heart.

Nervous
S – Central cell body with branching outgrowths
F – transmit messages from one part of body to another
L – In all tissues, Most numerous in brain, spinal cord and peripheral nerves