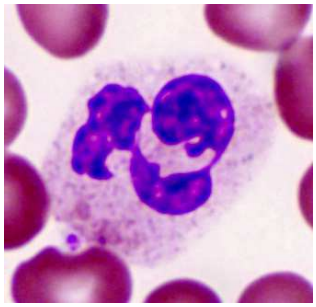
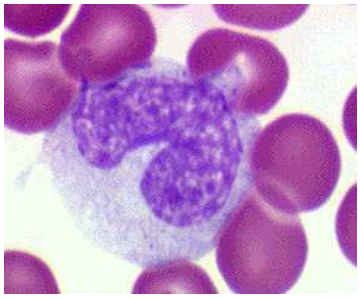
Worksheet

Hematoxylin & Eosin (H&E) stain of a neutrophil, macrophage, and foreign body giant cell.



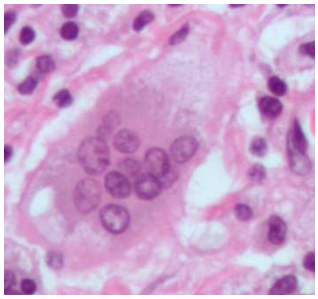
(Caceci)

Neutrophil



(Caceci)

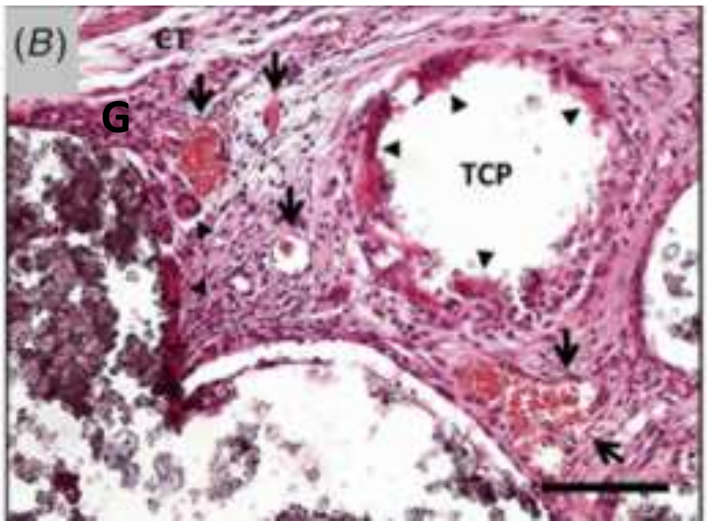
Macrophage



(Krishna)

Foreign Body Giant Cells

Neutrophil: Granules in the cytoplasm and "3-lobed" nucleus.
Macrophage: Larger than neutrophils, no granules in the cytoplasm, and one nucleus. Nucleus may be pinched in center, as shown above, or circular.
Foreign Body Giant Cell: Have many nuclei within one cell. FBCs are much larger than macrophages.



(Ghanaati, 2012)

G=Granulation Tissue, **Arrows**=Blood Vessels, **TCP**=Beta-Tricalcium Phosphate Particles
Triangles=Multi-Nucleated Giant Cells, **CT**=Connective Tissue

Table 1 lists common components in tissue and the color they become after an H&E stain.

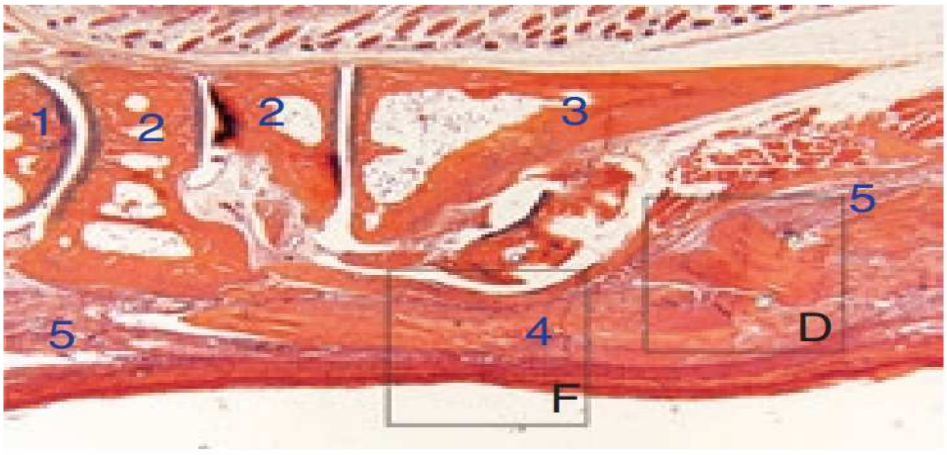
Cell Component	Color Stained
Nuclei	Deep Blue
Erythrocytes (Red Blood Cells)	Red
Collagen	Pale Pink
Muscle	Deep Pink
Basophilic Cytoplasm	Purple
Acidophilic Cytoplasm	Red

(Table 1)

Table H&E Stain Data

Treatment	Day 3	Day 7	Day 14	Day 21
Slowly Degrading + Pepducin + MSC				
Quickly Degrading + Pepducin + MSC				
Saline Delivery of Pepducin + MSC				

Alcian Blue & Orange G Stain of Bone/Cartilage



(Basile, 2008)

Bone: Sections 1-3. Dark orange, all one color. **Tendon Allograft:** Section 4. Smooth muscle, all one color, lighter than the bone due to less collagen. **Granulation/inflammation tissue**: Section 5. Tissue looks "pebbly" and has cells present (blue and orange color).

Table 2 lists common components in tissue and the color they become after an A&O stain.

Tissue/Structure	Color
Osteocytes	Bright Blue Pericellular Rings
Cartilage	Blue/Purple
Bone	Orange
Tendons/Muscle	Lighter Orange or Pink

(Table 2)

Recording the Inflammatory Response for Each Image

Use the following tables to write descriptions about each image. Make sure to include which of the following cell types are present and the relative amount of each cell type: neutrophils, macrophages, foreign body giant cells. In addition, note the presence (if any) of granulation tissue and collagen. Also, based off which cell and tissue types are dominant, think about which stage of the inflammatory response is shown.

Table, Alcian Blue & Orange G Data

Treatment	Day 3	Day 7	Day 14	Day 21
Slowly Degrading + Pepducin + MSC				
Quickly Degrading + Pepducin + MSC				
Saline Delivery of Pepducin + MSC				