

ME 498 / ME 599

Biological Frameworks for Engineers

Class Organization

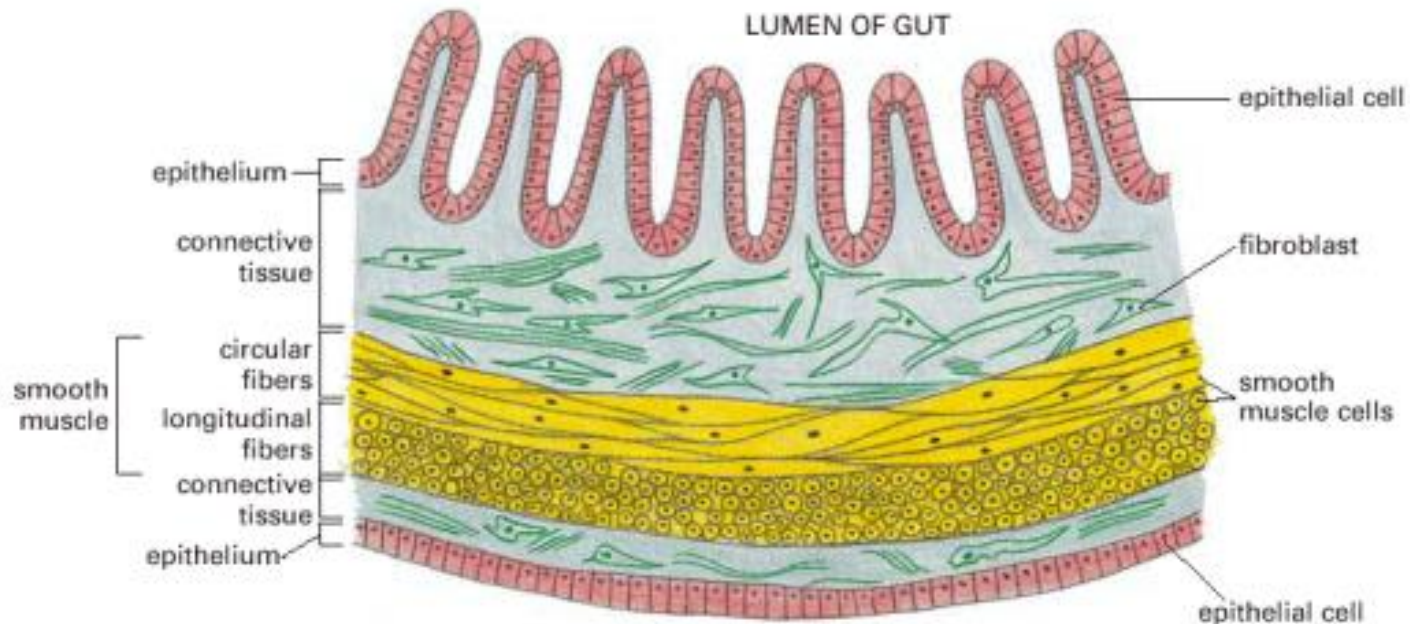
- HW5 assigned
- Lab 3 – Muscle Lab
 - MEB 127

ME 498 / ME 599

Integrating Cells into Tissue

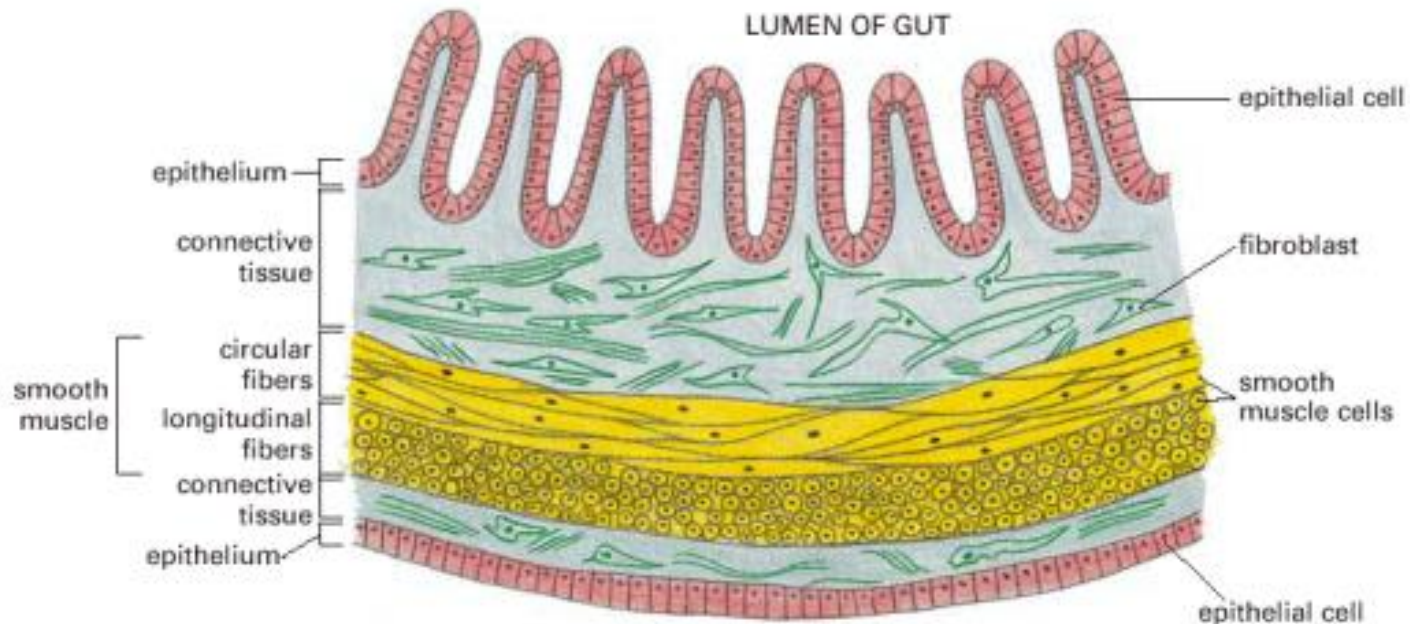
What is a Tissue?

- An association of cells of a multicellular organism.
- Common embryological origin or pathway.
- Similar structure and function.

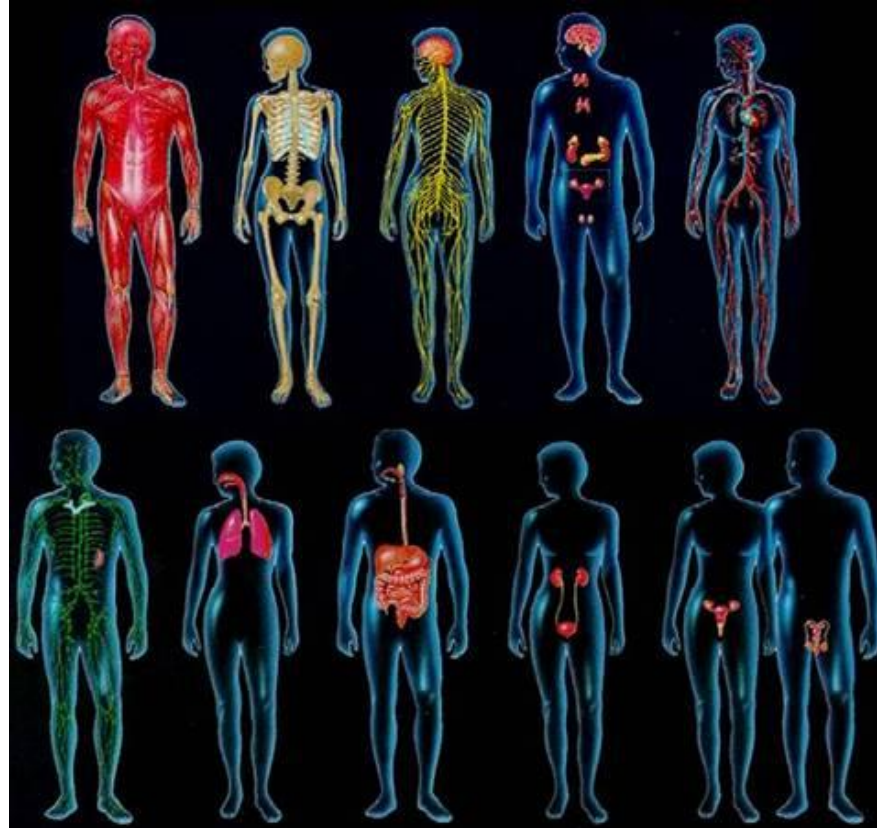


Examples & Jobs

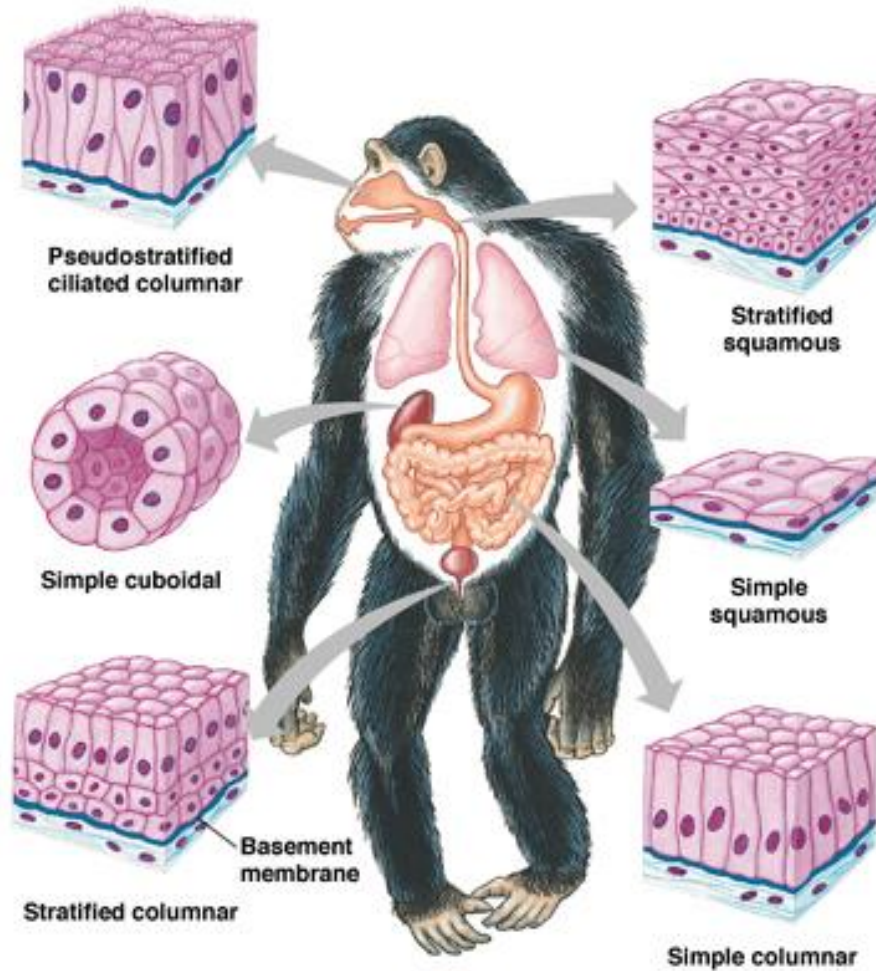
- Epithelium – barrier coating
- Connective Tissue – binds and supports other tissue
- Muscle – contraction



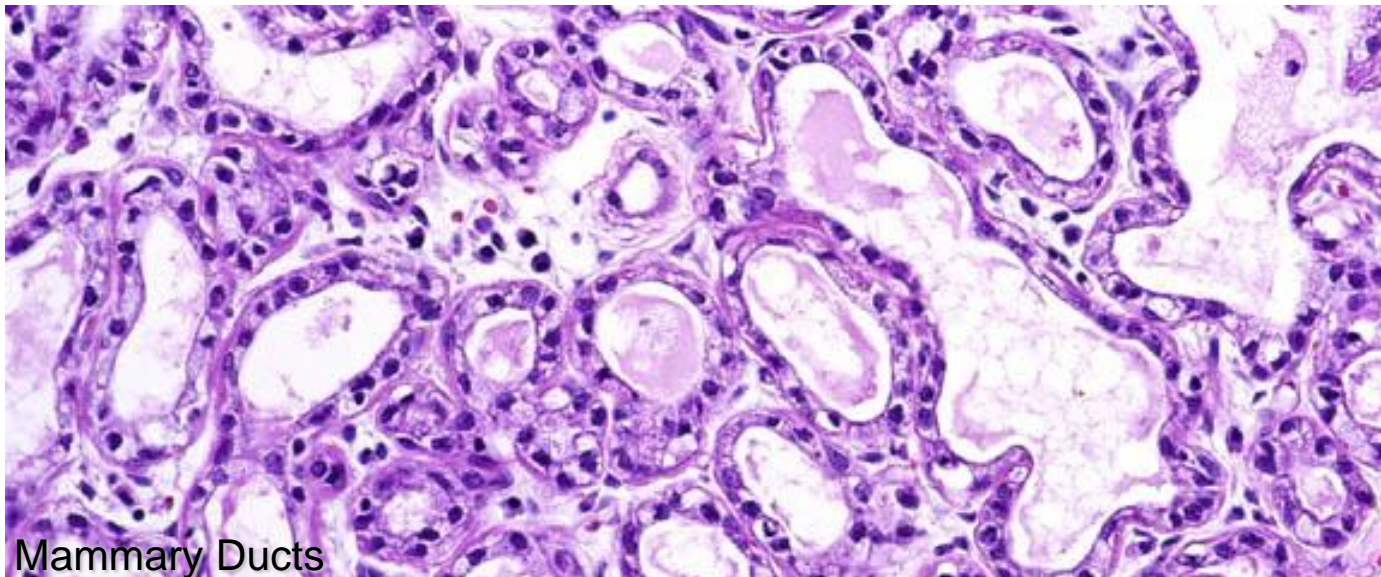
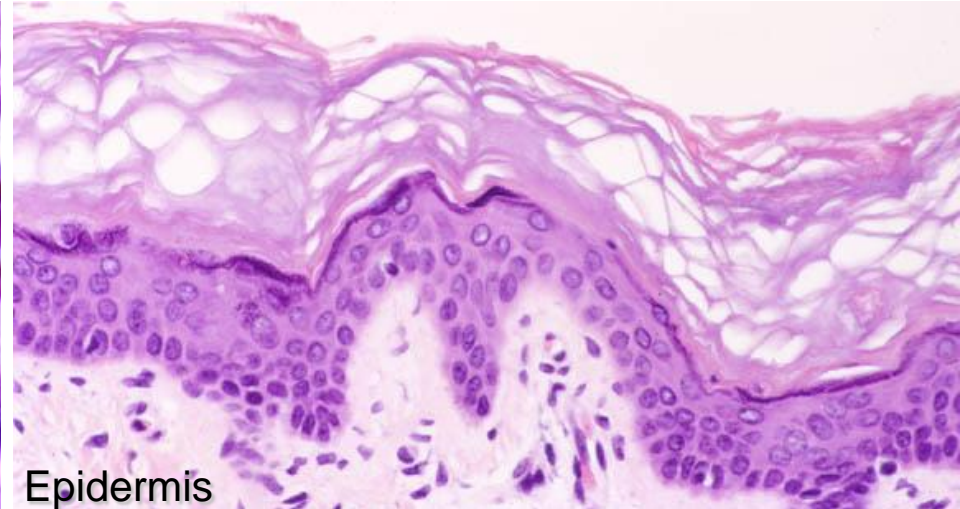
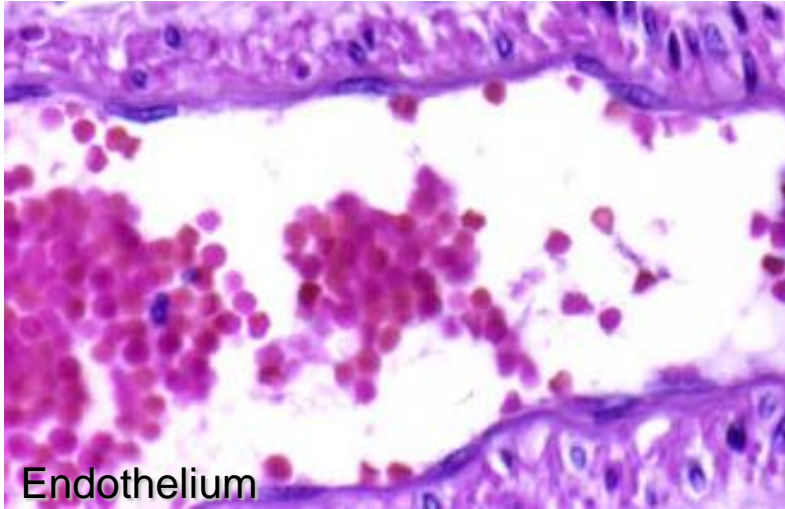
Division of Labor



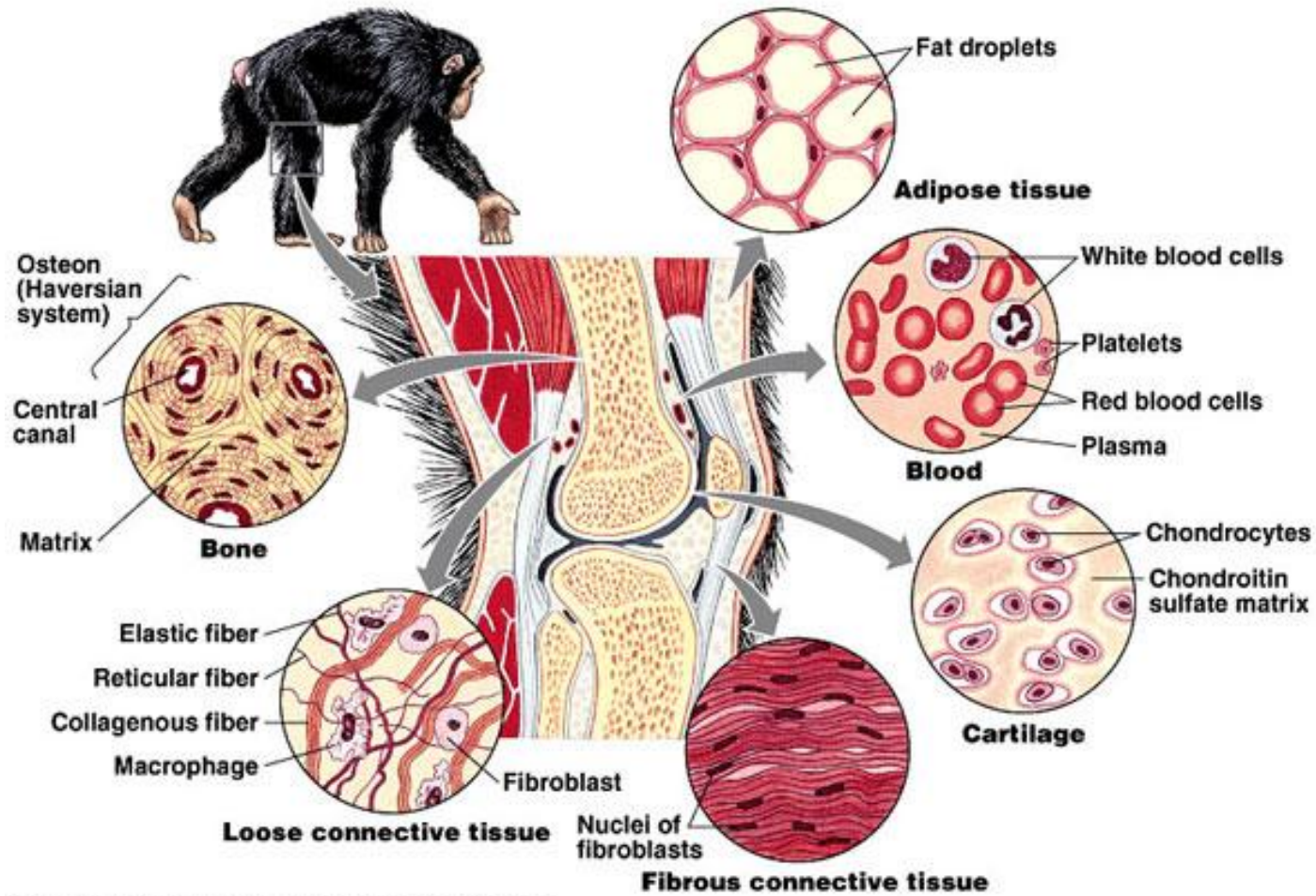
Epithelial Tissue



Epithelial Tissue

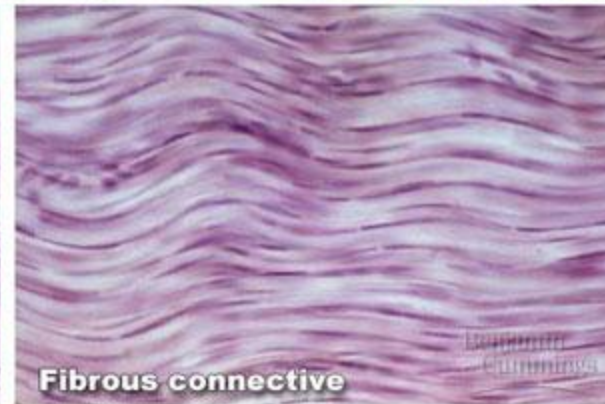
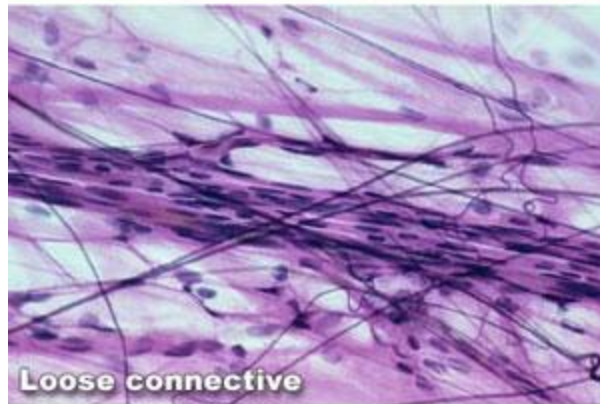
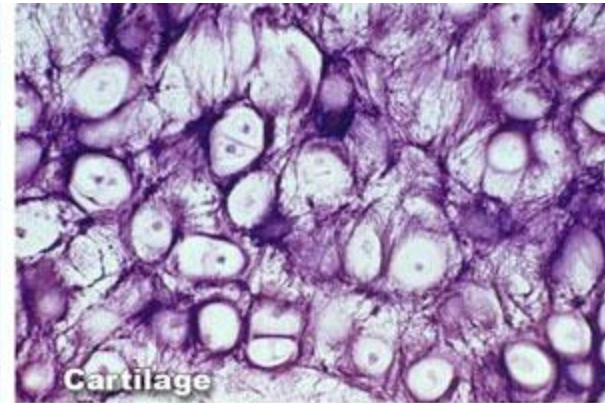
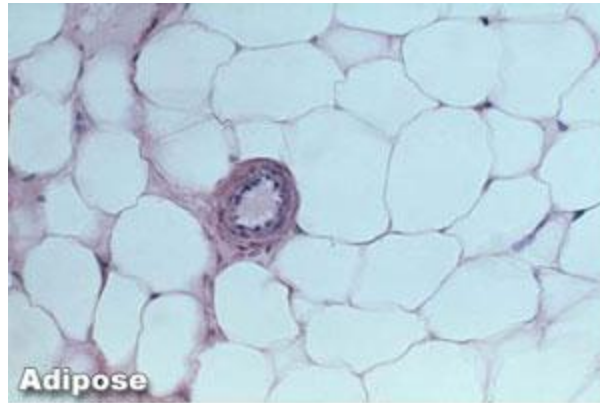


Connective Tissue



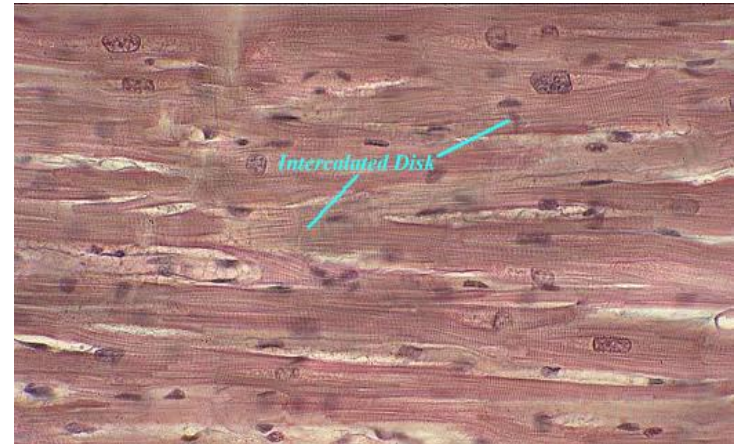
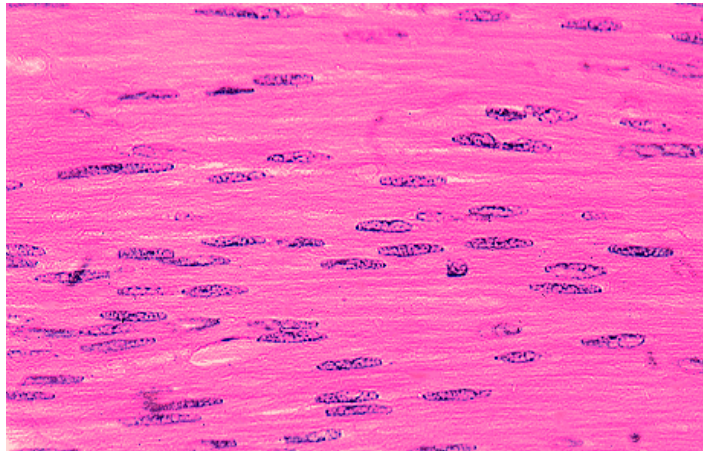
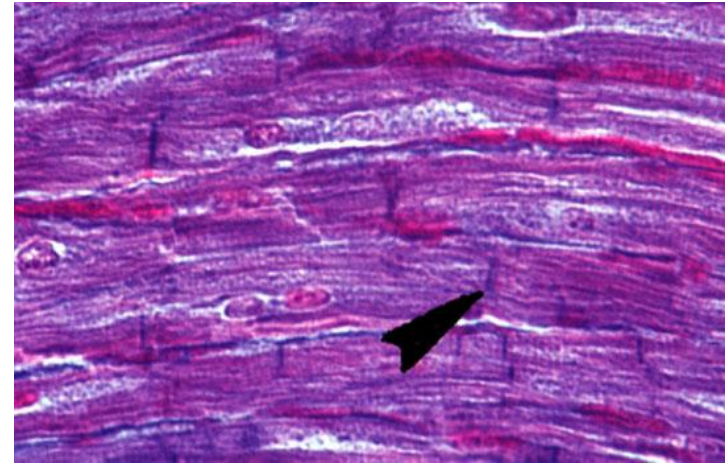
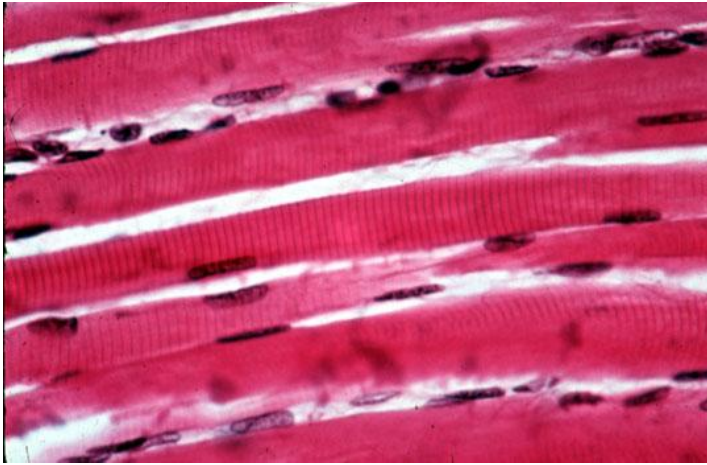
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Connective Tissue

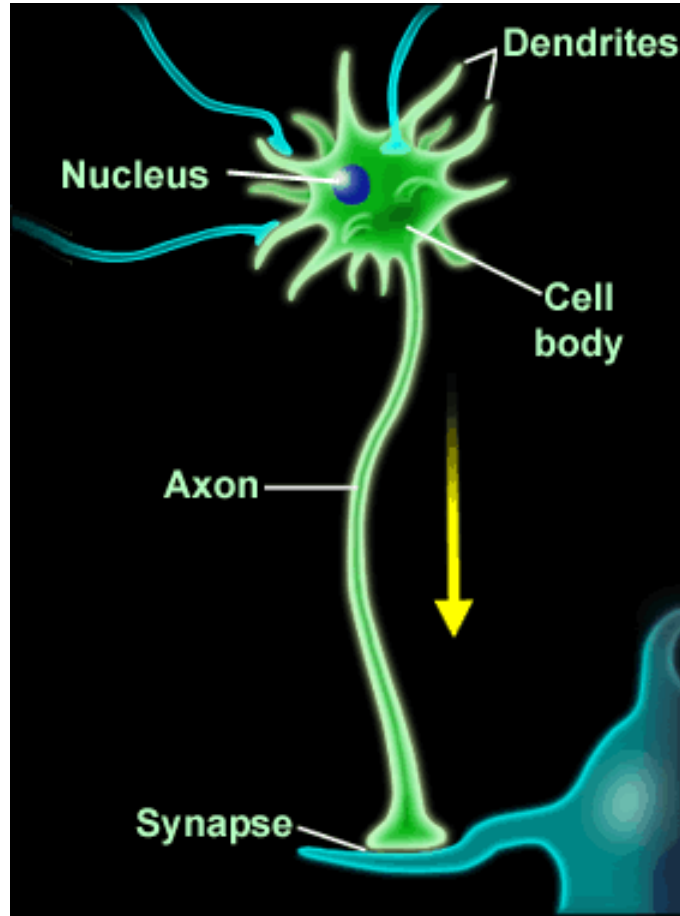


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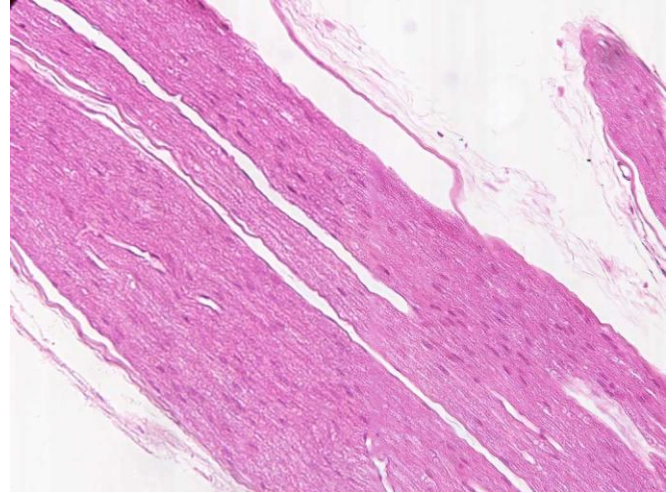
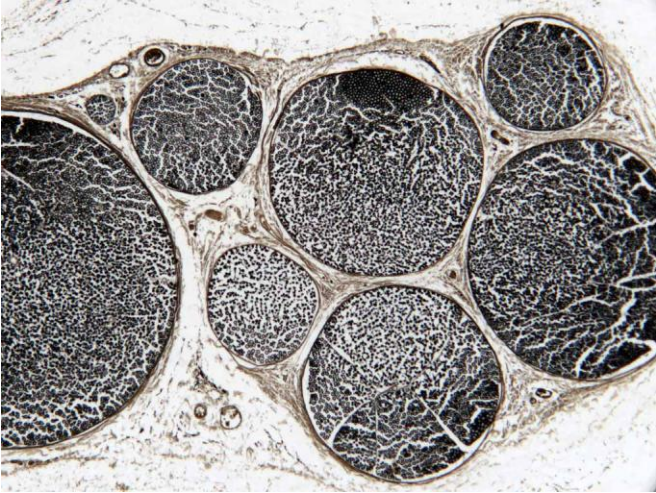
Muscle Tissue



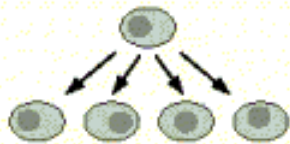
Neural Tissue



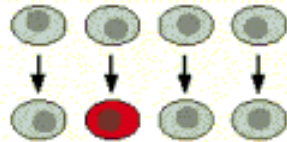
Neural Tissue



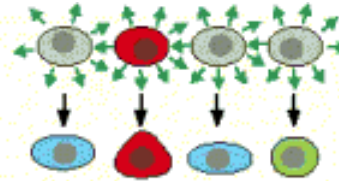
Tissue Development



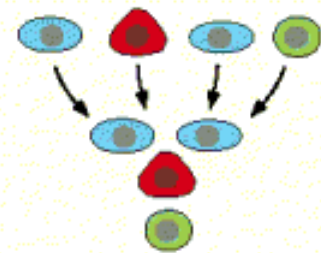
CELL PROLIFERATION



CELL SPECIALIZATION



CELL INTERACTION



CELL MOVEMENT

Could a cell...

- alter the sequence of the gene coding for protein P?
- alter the concentration of RNA polymerase in the cell?
- alter RNA polymerase's access to the promoter of the gene coding for protein P?
- alter RNA polymerase's ability to move forward along the gene coding for protein P?
- alter the rate at which the mRNA coding for protein P exits the nucleus and enters the cytoplasm?
- alter the rate at which the mRNA coding for protein P is degraded?
- alter the concentration of ribosomes in the cell? alter the ribosomes' access to the ribosome binding site of the mRNA coding for protein P?
- alter the concentration of tRNA in the cell?
- alter the rate at which protein P is degraded by proteasomes?

Questions?