

# Assignment 4: Tissue Organization and Dynamics

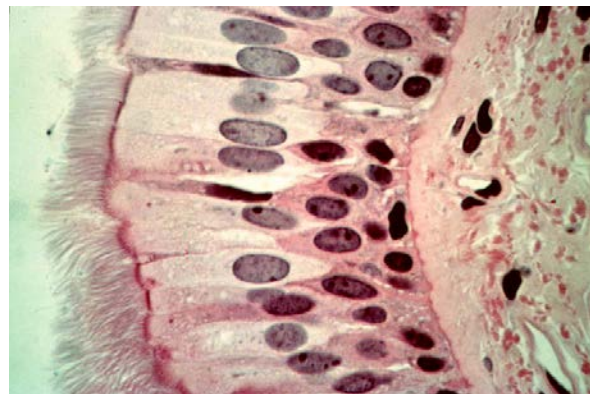
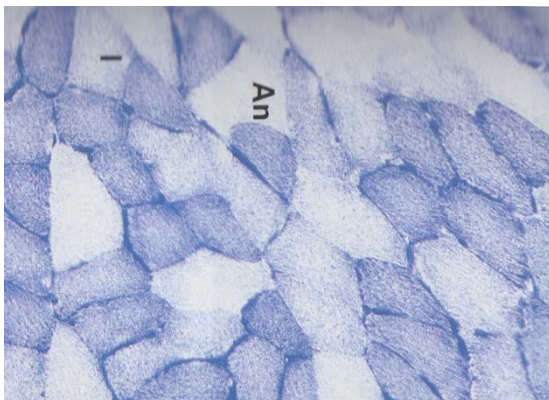
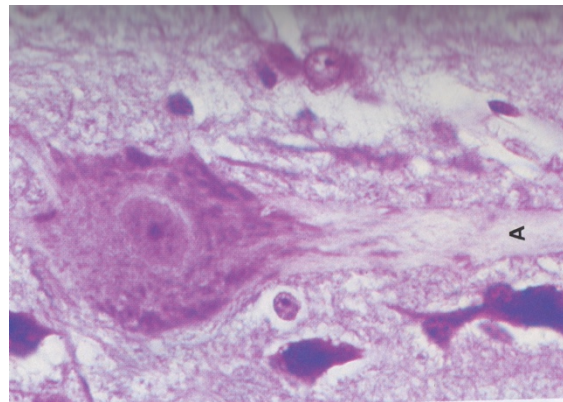
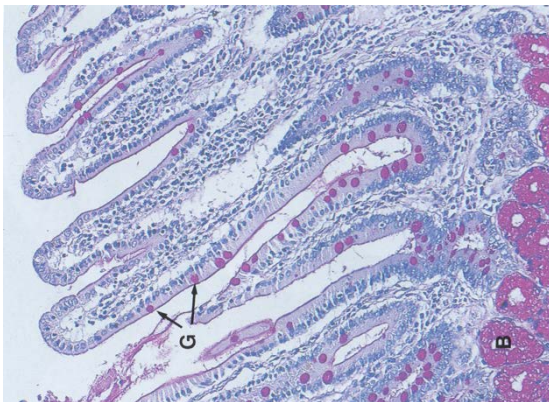
## Cell and Tissue Engineering

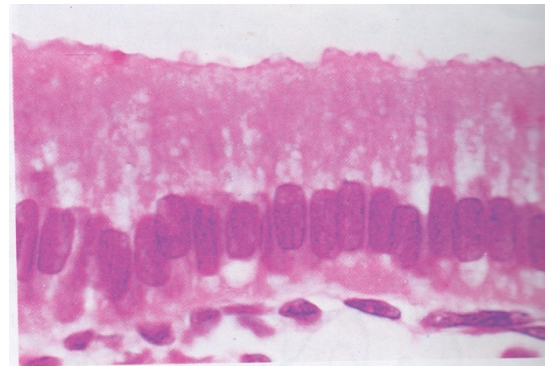
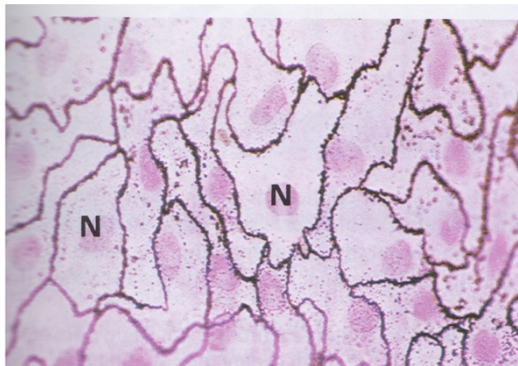
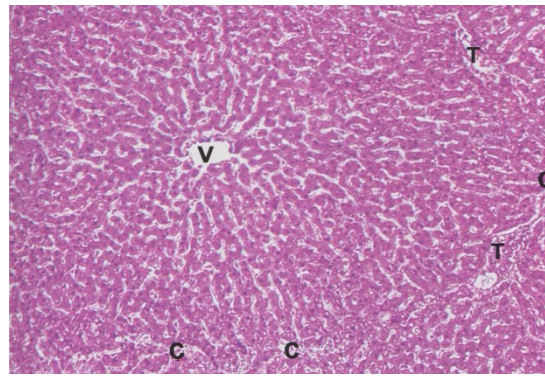
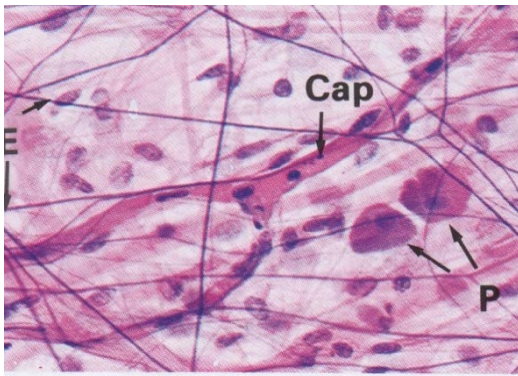
1. Name that tissue and structure! Assign every word from the word bank below to an image or structure within an image. Please use arrows and circles to point to the structure you are labeling when necessary. Note there are 2 bonus images. Correct identification of the structure/tissue is worth 1.5 bonus points each.

Cilia  
Microvilli  
Skeletal muscle  
Columnar epithelium  
Liver sinusoid  
Myelin

Neuron  
Simple squamous  
epithelium  
Stratified squamous  
epithelium

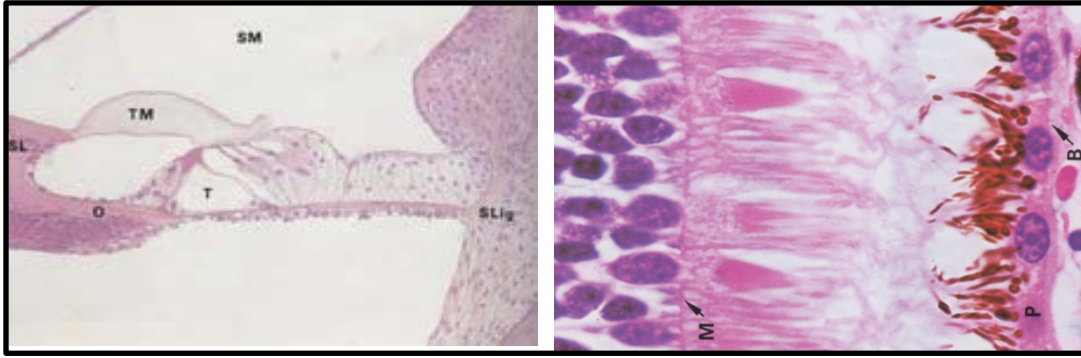
Stratified cuboidal  
epithelium  
Elastin  
Cryptus  
Basement membrane



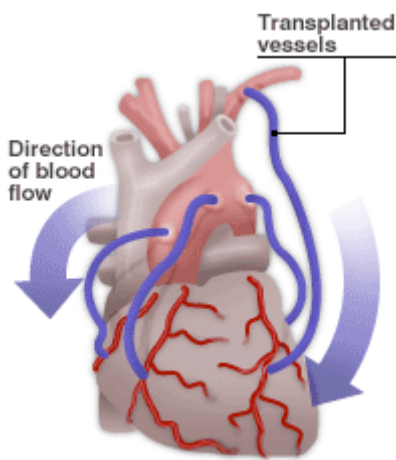




## BONUS IMAGES



2. Atherosclerosis ("hardening of the arteries") is a disease hallmarked by the build-up of plaques in blood vessels. These plaques make it more difficult for blood to flow, which blocks the vital delivery of nutrients to downstream tissue. Complications from atherosclerosis include clots, heart attack and stroke. This disease can manifest in many locations including the coronary artery (when its termed "coronary artery disease"), the cerebral or peripheral vasculature. One way to treat extreme coronary artery disease is through surgery – a Coronary Artery Bypass Graft (CABG). In this surgery a healthy artery from elsewhere in the body is taken and use to bypass the segment of blocked vessel. The disease can become so progressed that it necessitates quadruple or even quintuple bypasses and typically the patients in this state do not have enough healthy vessels to sacrifice (see image where purple vessels indicate typical locations of bypass for the red coronary arteries).



- What is the most common alternative vessel used when there are no arteries left for CABG?
- What are the problems with this solution? What properties of this vessel are unmatched to the needed function? Please describe differences in both form and function.
- Why does this not end up being a problem for many patients in the long run?
- Describe 3 desirable design properties of tissue engineered blood vessels.

Reference for image: [www.indiasurgery.indicure.com](http://www.indiasurgery.indicure.com)

### Assignment Rubric

Question	Component	Total Point Value
1	1pt each	13
2	A	5
	B	4
	C	4
	D	4

Total Point Value = 30