

Laboratory Exercise I: Histology

Introduction

During lab you will carry out Exercise 6A in the Human Anatomy and Physiology Laboratory Manual. To prepare yourself for the lab you should read Exercise 6A before coming to lab. Chapter 4 in your lecture text is also a useful reading. In addition to this, a number of other resources are available to you for preparation, and you will have to complete the pre-lab and turn it in at the **BEGINNING** of your lab session.

Objectives

You will be able to identify the specific tissues listed below, and provide examples of their function and location in the body:

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|--|-------------------------------------|-------------------|
| • simple squamous epithelium | • mesenchyme | • bone |
| • simple cuboidal epithelium | • loose areolar connective tissue | • blood |
| • simple columnar epithelium | • adipose tissue | • skeletal muscle |
| • pseudostratified columnar epithelium | • dense irregular connective tissue | • cardiac muscle |
| • stratified columnar epithelium | • dense regular connective tissue | • smooth muscle |
| • stratified cuboidal epithelium | • hyaline cartilage | • nervous tissue |
| • stratified columnar epithelium | • elastic cartilage | |
| • transitional epithelium | • fibrocartilage | |

Preparation for lab:

The following are available resources to study histology – you are not required to use all of these, but should come into lab prepared - your microscope work will be much more productive and you will be able to finish your lab exercise more readily.

1. Biology 235 Histology presentation: this Power Point presentation is available in the Public Folders (Public—Academic—Biology—Manuel Campos—Biology235.F01—Histology) or under the Laboratory Resources link of the Biology 235 web page.

2. Histology notes: available in Lab notes/assignments link of Biology 235 web page.

3. PhysioEx CD provided with your lab manual has a histology exercise with several informative images. Refer to Exercise 6B in the Human Anatomy and physiology Laboratory Manual (p. P-15) for instructions on the use of the histology module on the CD. The following images are relevant and of good quality; pay attention to different magnifications, the accompanying text and the labels feature:

Simple squamous epithelium	Simple cuboidal epithelium	Simple columnar epithelium
Pseudostratified epithelium	Stratified squamous epithelium (non-keratinized)	Skin - example of stratified squamous epithelium, keratinized

Stratified cuboidal epithelium	Kidney – example of simple cuboidal epithelium	Small intestine – example of simple columnar epithelium
Lung – example of simple squamous epithelium	Areolar connective tissue (CT)	Mesenchyme (primitive areolar CT)
Adipose tissue	Dense regular CT	Dense irregular CT
Hyaline cartilage	Elastic cartilage	Fibrocartilage
Bone compact	Skeletal muscle	Cardiac muscle
Smooth muscle	Blood general	Blood basophil
Blood monocyte	Trachea – example of hyaline cartilage and ciliated pseudostratified epithelium	Uterine tube – example of simple ciliated columnar epithelium
Cerebellum – example of nervous tissue	Spinal cord smear – example of nervous tissue	Cerebrum – example of nervous tissue
Epididymis – example of pseudostratified epithelium	Transitional epithelium	

4. Histology Atlas in Human Anatomy and Physiology Laboratory Manual, pp.687-697.

The following plates are of interest: 1-5, 32, 33, 34, 35, 36, 37, 38, 58-63.

5. Laboratory Resources, Biology 235 web page. Links to various histology databases on the web. The Lumen series has particularly good images and informative text and labels.