

## LAB 3 – TISSUES AND INTEGUMENT

**In this lab you and your partner will be issued a set of tissue slides that you will use for the remainder of the semester. These will be used extensively today. It is your responsibility to keep these slides in order and in good condition. If a slide breaks or is defective, let me know.**

### *Slide viewing tips:*

In studying tissue types, I would advise you to initially view the slide on the scanning objective or intermediate power to observe the general layout. When you see an area that is characteristic of the tissue, tune in with high power for details. Most of you will have some difficulty in locating the "correct" region on the slide to view. You will have several reference sources to help you. Review lab book page 50 “**Examining Epithelial Tissue**”, and page 56, “**Examining Connective Tissue**”, for some helpful advice. Read these sections before you proceed with your slides. Make sure that you are aware of the angle of the cut tissue.

### *Identification resources:*

There will be several resources available in lab for your assistance, including several books addressing "microscopic anatomy" with color photographs of the same images you should be seeing on the slides. Your lab manual also has excellent pictures with each tissue type. Also, we will review some of the slides on the video microscope. Please consult these diagrams while you have the slide on the microscope.

**\*\*\*You should know locations and functions of all tissue types!\*\*\***

### *Some specific pages in your books:*

RUST, 2-12

TEXT, CH. 4

LAB MANUAL - EXERCISE 6A and EXERCISE 7- make sure you **read** the descriptions in the lab manual about each tissue that you view in lab today.

## **TISSUES -\_Epithelial and Connective**

**EPITHELIUM** - Examine the following tissue types on the slides designated. In some cases, two slides are given. **It is not essential that you view both slides if the first is satisfactory.**

1. *Simple squamous* – Lung - Box 2, Slide #7. Lab p.52. Note flattened cell shape. Your lung slides may show a different view from Figure 6.3 (a) on

page 51 of your lab manual. What are functions of these cells? How does their structure permit this function?

2. *Simple cuboidal* - ,kidney- Box 2, slide 18. Rust: Fig.2a, 4b, lab Fig. 6.3(b) p. 51.  
Note spherical nucleus, lumen of tubule (central cavity), basement membrane
3. *Simple columnar* – Stomach fundus - Box 2, Slide 12. line rugae, or folds of stomach. Rust Fig. 3c, lab p. 52. Note cell shape, nuclei  
Where is the fundus in the stomach?
4. *Stratified squamous* – Esophagus - Box 1, slide 4. Note nuclei, shape change of cells, basement membrane. Where is the connective tissue?. Rust Fig.3a-b, Lab, p. 53. Also Box 2, slide 20 (vagina) Rust Fig. 89a.
5. *Transitional* - Lining of bladder. Note stratified appearance of cells, yet they are rounded and in various shapes. Note connective tissue, serosa, lamina propria.  
Box 2 slide 19, bladder, Rust Fig. 4a, lab p.54.

TERM: Lamina propria- connective tissue network underlying **mucosa**.

6. Pseudostratified ciliated columnar – Trachea - Box 1, slide 3. Note lumen of trachea, cilia, basal and columnar cells, varying heights of cells and nuclei in pseudostratified area. Cells are from human trachea. Rust Fig. 3d, lab p. 52.

## CONNECTIVE TISSUE

1. *Loose CT, Areolar*- artery-vein - Box 1, slide 22. Loose ct around vessels. Note fibroblasts, adipocytes, elastic and collagen fibers. Lab p.57. Rust Fig. 5c. Also - **view demo slide.**

What is collagen?

2. *Dense regular CT* – tendon - Box 1, slide 9. Extremely dense collagen fibers. Also look for fibrocyte nuclei. Lab p.59, Rust Fig. 5d
3. *Adipose* - Fat cells - Box 1, slide 8. Try to find nuclei, fat storage area. Rust Fig.6b, lab p. 58.
4. *Elastic fibers* - Aorta - Box 1, slide 21,. Elastic fibers appear black. Note nuclei, and springlike "shock absorbing tissue" Rust Fig. 6c-d.

5. *Reticular* - Box 1, slide 24. Fiber cells appear blue, are interwoven between cells. Form framework of spleen and lymphoid tissue. Rust Fig. 5a-5b. Lab p.58.
6. *Hyaline cartilage* – Trachea - Box 2, slide 8. Note matrix, chondrocyte, lacunae. Rust 7d, lab p. 60.

## **MEMBRANES**

1. Vagina, box 2 slide 20. You should note the mucosa, or inner lining, and the serosa, or outer lining. If not visible on your slide, check your neighbors! May also observe on uterus, bladder, or other organs.

You must know the 4 types of membranes found in the human body – discussed in lecture.

## **TISSUES OF THE INTEGUMENTARY SYSTEM**

Slides 1-4, Box 1 Lab p.67-74. You may wish to examine any or all of these slides for the structures below.

### **A. Skin Histology : Epidermis, dermis, hypodermis (subcutaneous layer)**

Identify layers: -Rust p. 46, lab p.68, 69, 73

Find as many structures as possible - locate hair follicle, hair bulb, sebaceous glands, sweat glands, stratum basale (germinativum) - what is its function?, basement membrane, stratum corneum

What is keratin? Can you recognize keratinized tissue?

**B. Sebaceous gland-** - slide 1 box 2, scalp. Rust p.46b, Lab p. 74. Remember you are looking at a section of a three dimensional structure!! Text 159.

**C. Sudiferous glands** - coiled tubular - Box 2, slide 1 scalp. Lab p.74.Text p.156. Are these endocrine or exocrine glands?

**REVIEW DEMOS ON SIDE BENCH!!!!!!** - On the side bench in the lab are microscopes with slides. Each microscope has a card with a description. Be able to identify these slides on your lab exam. There are also several pamphlets about skin diseases. Attached to each pamphlet is a card, please answer the questions on the index card.

For the practical, I will give you slides of tissues to identify. You may be asked to give a location where these tissues can be found, describe their function, or discuss structure-function relationships.