

## Lab 4

### Lymphatic System

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#### **Slide 2-4-1 Tonsil:**

\*There are four groups of tonsillar tissue: Palatine, Pharyngeal (also called Adenoids), Tubal, and Lingual. This is a slide of the Palatine Tonsil (the one you can see in the mirror).

- **Pharyngeal Tonsil**
  - Tonsils are a lymphoid tissue in the oropharynx and nasopharynx. They are not fully encapsulated by their capsule.
  
- **Tonsillar Crypt**
  - Tonsils have a **capsule** which breaks apart as it descends down the **tonsillar crypts**. The lack of a capsule allows your immune system cells to have easy access to any particulates or microorganisms in the tonsillar crypt.
  - tonsillar crypts can trap debris for long periods resulting in the formation of a **tonsillolith** or get infected (**tonsillitis**).
  
- **Lymphoid Follicle with a Germinal Center**
  - site of B lymphocyte proliferation.

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#### **Slide 2-4-2 Thymus:**

\*Bilobed thymus is found in the inferior neck and extends into the superior thorax. It is one of the organs found in the space known as the Superior Mediastinum. This location is basically “on top of the heart”.

- **Thymus**
  - Thymus is made of a cluster of **Thymic Lobules**.
  - Thymic lobules each contain:
    - cortex — contains dividing T lymphocytes.
    - medulla — location of **Hassall’s Corpuscles**.
  
- **Hassall’s (Thymic) Corpuscles**
  - solid centric whorls of keratinized epithelial cells that look like “*tiny pink spheres*”.
  - function is still being researched.

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### **Slide 2-4-3 Spleen:**

\*The spleen is a single organ about the size of your fist (or heart) which is located in the left upper quadrant of the abdomen, beneath the diaphragm and behind the stomach. The red & white pulp of the spleen are named after their appearance on a “freshly dissected spleen”. The stains used to make the slides will alter the natural coloration.

#### □ **Spleen**

- surrounded by a fibrous capsule.
- site for lymphocyte proliferation.
- site for immune surveillance and response.
- cleans blood by removing:
  - old, defective RBCs
  - old, defective platelets
  - other cellular debris
  - any foreign matter (microorganisms)
- other functions of the spleen:
  - stores iron (from recycled hemoglobin)
  - stores blood platelets

#### □ **White Pulp**

- area of mostly lymphocytes surrounding 1 or more **central arteries** (branches of the **splenic artery**).

#### □ **Red Pulp**

- areas “*around the white pulp*” made of blood sinusoids and splenic cords (macrophages on reticular loose connective tissue eating old RBCs and any pathogens.
- makes up a large amount of the spleen interior.

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### **Slide 2-4-4 Peyer’s Patches:**

\*Peyer’s Patches (also called aggregated lymphoid nodules) are organized lymphoid follicles which are an example of MALT (Mucosa - Associated Lymphoid Tissue). MALT is subdivided into various locations:

- **GALT** — **Gut - Associated Lymphoid Tissue**. This location is also known as **Peyer’s patches**.
- **BALT** — Bronchus - Associated Lymphoid Tissue.
- **NALT** — Nasal - Associated Lymphoid Tissue.
- **CALT** — Conjunctival - Associated Lymphoid Tissue.
- **LALT** — Larynx - Associated Lymphoid Tissue.
- **SALT** — Skin - Associated Lymphoid Tissue.
- **VALT** — Vulvovaginal - Associated Lymphoid Tissue.
- **TALT** — Testis - Associated Lymphoid Tissue.

#### □ **Peyer’s Patches**

- Location
  - distal Jejunum (of the Small Intestine)
  - entire **ileum** (of the Small Intestine)... about 46% of all Peyer’s Patches are concentrated in the distal 25 cm of the Ileum.
  - **Appendix**
- B lymphocytes dominate the cell types found here.

#### □ **Lymphoid Follicle with a Germinal Center**

- site of B lymphocyte proliferation.

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**Slide 2-4-5 Lymph Nodes:**

\*Hundreds of lymph nodes, with some of them clustered near the surface of the body in the inguinal, axillary, and cervical (neck) areas. This bean-shaped organ is about 1 inch long and has a dense fibrous capsule with portions of that capsule projecting inward (trabeculae). Reticular Loose Connective tissue makes up the stroma (internal framework).

- **Lymph Node**
  - filter the lymph fluid traveling through the lymphatic vessels.
  - the lymph node has 2 histologic regions:
    - Cortex
    - Medulla
  
- **Lymph Node Cortex**
  - Lymphoid Follicles with a Germinal Center located here.
  - Subcapsular Sinus just deep to capsule.
  
- **Lymphoid Follicle with a Germinal Center**
  - site of B lymphocyte proliferation.
  
- **Lymph Node Medulla**
  - Medullary Cords & Medullary Sinuses.