

# Lymphatic System

Pg 187

# Lymphatic System

- Works with the circulation system
- Exchanged between cell and blood take place in the liquid that surrounds them
- This Liquid is called EXTRACELLULAR FLUID
- Extracellular fluid is the basis for the Lymphatic System

# Extracellular Fluid

- AKA interstitial fluid
- Contains:
  - Water and other substances from blood plasma
  - White blood cells
- Think of a hose that has holes all along it, capillaries constantly leak water and other substances through pores in the membrane
- ~ 3 litres of liquid a day exits the capillaries

# Extracellular Fluid

- WBC leave the capillaries in a process known as DIAPYCNOSIS
- Normally WBC cells cannot pass through pores (too big), BUT they can alter their shape and squeeze through
- Fig 6.40

# Lymph

- Our cells would die if the waste they produced was kept
- Extracellular fluid expels the waste → lymphatic system returns them to the blood and transports → to organs that will eliminate them from the body
- Lymphatic vessels contain lymph (the fluid)
- Their job is to carry the lymph to the blood

# Lymphatic System

- No heart to transport the lymph from place to place, so it relies on MUSCULAR CONTRACTION and VALVES to keep it going in the right direction

# Protect our BODIES

- Invaders are viruses and bacteria from the external world
- Once the ‘invaders’ make their way into our bodies they are generally found in the extracellular fluid, lymph or blood
- All of these liquids contain WBC and are ‘defenders’ (ninjas!)

# Defending our BODIES

- Fig 6.43
- The lymph circulates the body (how?) through Lymph nodes (variously placed EX: neck) which filter it
- Lymph node= filter lymph
- Inside nodes are high concentrations of WBC
- Lymph nodes = battlegrounds where enemies are fought



# White Blood Cells Pg. 189

- Can defend the body in 2 ways:
  - Phagocytosis
  - Antibodies
- Phagocytosis: WBC ingest and destroy bad microorganisms (search and kill)
- Fig 6.44
- Think Pac Man 😊

# White Blood Cells Pg. 189

- Antibodies: recognize antigens, elements attached to the invader
- Antibodies attach themselves to the antigens (neutralizing it) and prevents reproduction or attacking other cells
- Once neutralized the invaders are eliminated
- Antibody : \_\_\_\_\_
- Antigen: \_\_\_\_\_
- Next slide!

# Antibodies

- Pg. 190 Fig 6.45
- Antibodies produced by WBC have 2 features:
  - they are specific: can only recognize the antigens that they were produced \*\*this means that a different antibody needs to be produced for each new antigen\*\*
  - they are immunizing: WBC remember (sometimes forever) how to produce a particular antibody  
\*that's why we have certain diseases that we can only get once in our life times (ie: measles)

# Summary

- Name the main parts of the lymphatic system
- Explain the role of the lymphatic system
- Describe 2 ways of acquiring active immunity

# Homework

- Due next class
- On loose leaf
- Pg. 194 #s 16 and 17