

Copy of Exam 1 - Results

Exit Preview

Attempt 1 of 3

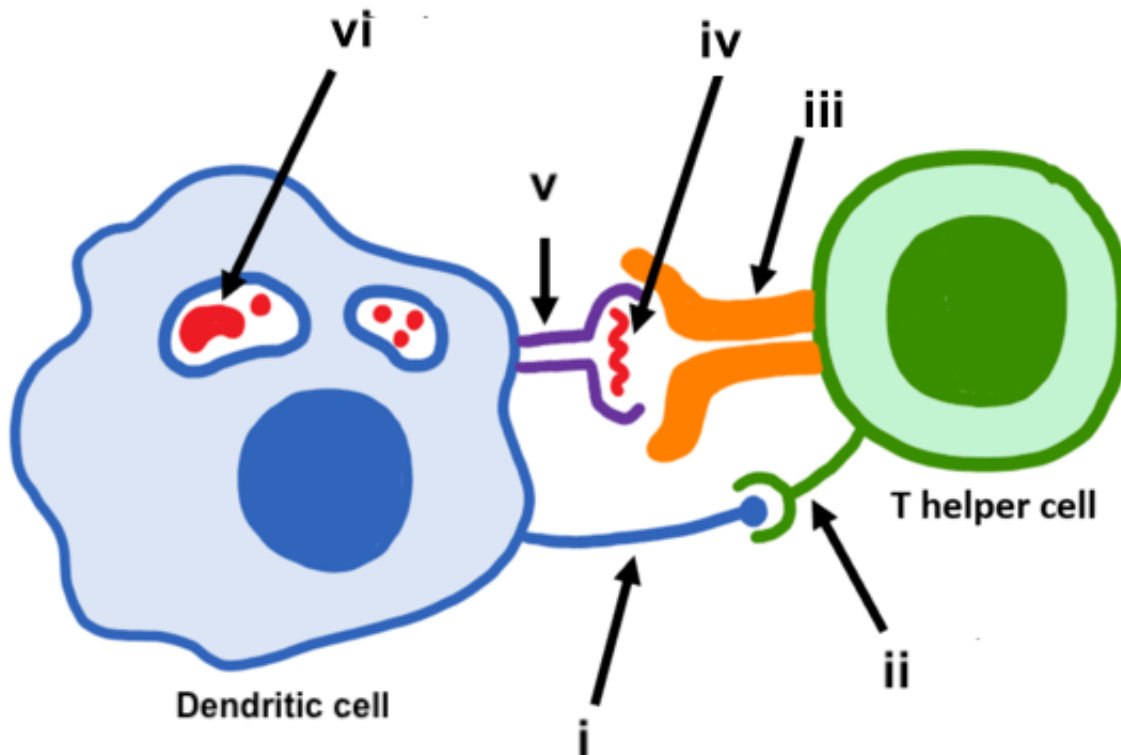
Written Feb 28, 2024 10:15 AM - Feb 28, 2024 10:15 AM

Your quiz has been submitted successfully.

Attempt Score 0 / 20 - 0 %

Question 1

0 / 1 point



In the figure above, the label iv is

- ☐ a cytokine
- ☐ antigen
- ☐ a bacterium
- ☐ co-stimulatory ligand
- ☐ interferon

Question 2

0 / 1 point

The tissue lining the wall of body tubes, including the respiratory tubes, the urinary tubes, the blood vessels, and the gastrointestinal tract, is

- ☐ serous membrane tissue
- ☐ muscle tissue
- ☐ adipose tissue
- ☐ epithelial tissue
- ☐ connective tissue

Question 3**0 / 1 point**

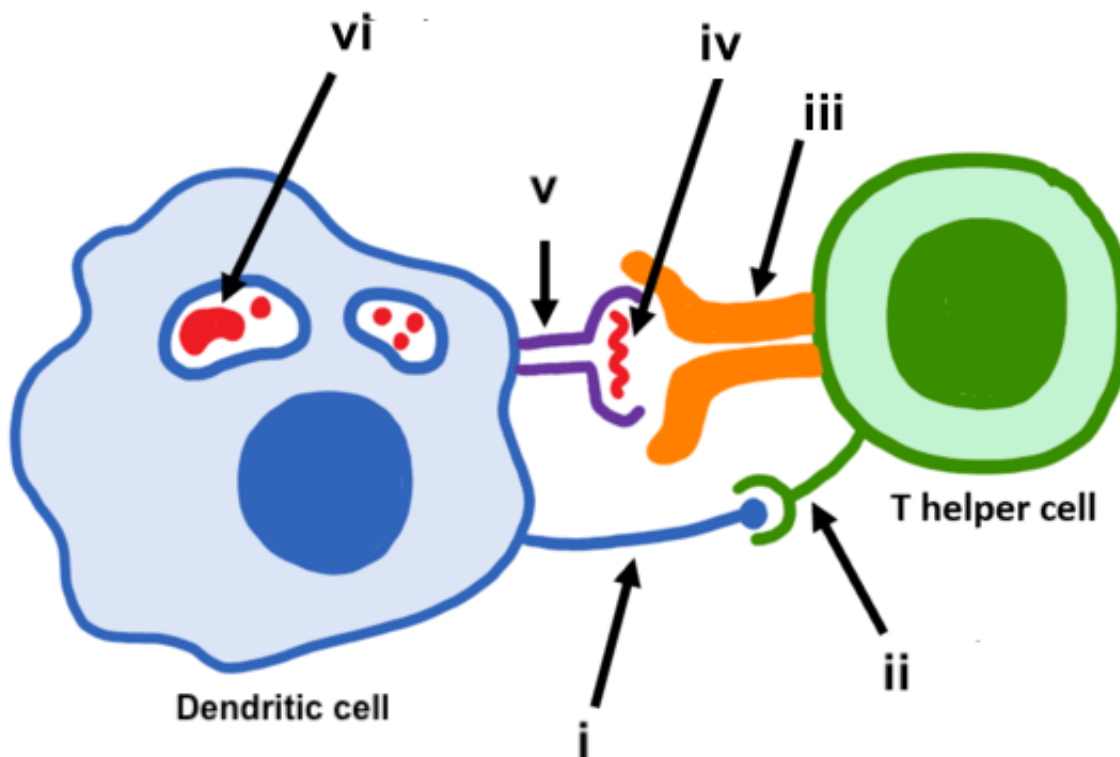
What is a paracrine signal?

- ☐ a lipid signaling molecule whose receptor is intracellular instead of bound to the plasma membrane
- ☐ a signaling molecule between adjacent cells
- ☐ a signaling molecule secreted by a neuron
- ☐ a signaling molecule secreted into the lymph
- ☐ a signaling molecule secreted into the blood

Question 4**0 / 1 point**

Lymph capillaries

- ☐ are specialized blood capillaries in lymphoid organs
- ☐ are thin walled tubes that connect afferent to efferent lymph vessels in lymph nodes, and are the site of lymph filtration
- ☐ are vessels intimately bound to blood capillaries and are the site of blood filtration, creating the lymph fluid
- ☐ occur near blood capillaries and are the start of the lymph vessels
- ☐ are branches of blood capillaries that carry excess blood plasma to the organs of the lymph system in order to clean the blood

Question 5**0 / 1 point**

In the image above

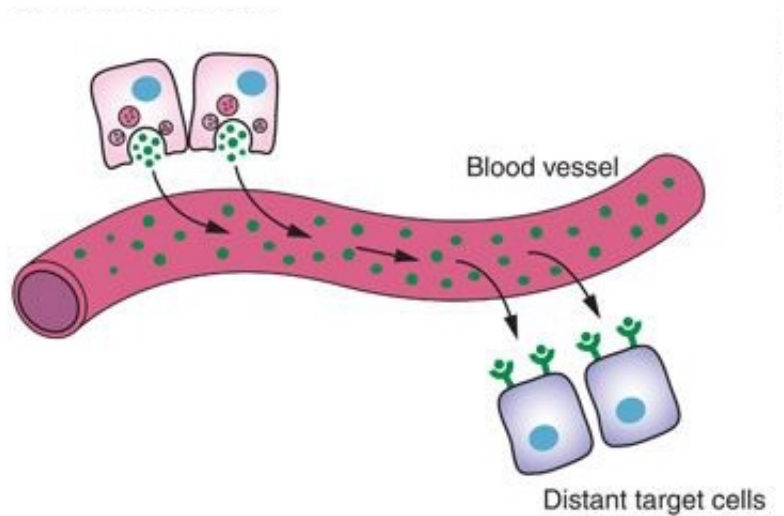
- ☐ the dendritic cell is binding to the T helper cell and will transport it to the site of colonization
- ☐ The dendritic cell is presenting antigen to and activating the T helper cell
- ☐ The dendritic cell has been invaded by bacteria. The helper T cell is binding to the dendritic cell to help kill the dendritic cell by apoptosis
- ☐ The dendritic cell has been invaded by bacteria. The helper T cell is binding to the dendritic cell in order to kill the dendritic cell by phagocytosis
- ☐ The helper T cell is presenting antigen to and activating the dendritic cell

Question 6**0 / 1 point**

The theory that there exist many millions of lineages of lymphocyte, each expressing a unique lymphocyte receptor that can bind to a unique antigen, but that a line is not activated until a naive lymphocyte in the line binds to an APC presenting the matching antigen, and that all progeny of the activated lymphocyte will only express the specific lymphocyte receptor and/or antibody, is called

- ☐ hypersensitive response
- ☐ clonal selection
- ☐ V(D)J recombination
- ☐ immune tolerance
- ☐ immune surveillance

Question 7**0 / 1 point**



The signaling molecule illustrated in this figure is a

- ☐ second messenger
- ☐ paracrine
- ☐ ion
- ☐ lipid
- ☐ hormone

Question 8

0 / 1 point

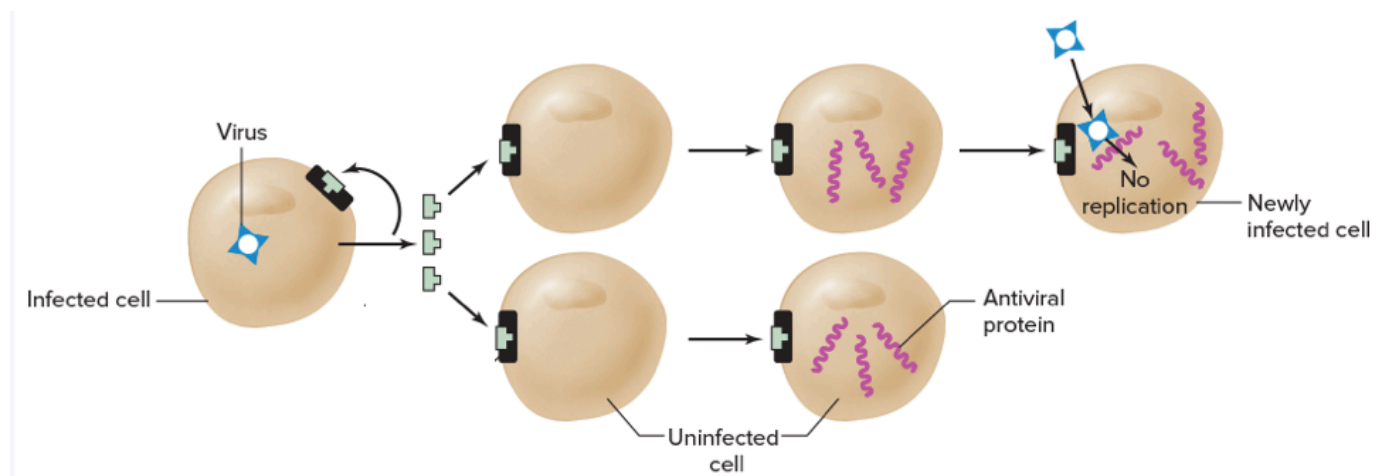
"engulfment of particles by a cell" is a textbook definition of

- ☐ opsonization
- ☐ immune surveillance
- ☐ phagocytosis
- ☐ edema
- ☐ apoptosis

Question 9**0 / 1 point**

The biceps muscle is an organ. It is composed of

- ☐ adipose tissue
- ☐ muscle and bone tissue
- ☐ muscle and connective tissue
- ☐ muscle tissue
- ☐ muscle, connective, nervous, and epithelial tissues

Question 10**0 / 1 point**

What's going on in this image?

- ☐ a cell infected by virus is secreting Type I interferons, which binds to neighboring cells. The binding signals the neighboring cells to upregulate antiviral proteins, which inhibit viral reproduction.
- ☐ A B-cell infected by virus secretes antibody. The antibody binds to antibody receptors on other cells and signals the upregulation of antiviral proteins, which inhibit viral reproduction
- ☐ virus reproduction in an initial, infected cell creates new virus that infects neighbor cells. When a critical mass of neighbor cells are infected they begin upregulation of antiviral proteins, which inhibit further viral reproduction
- ☐ A cytotoxic T-cell infected by virus secretes granzymes that bind to receptors on other cells and signals the upregulation of antiviral proteins, which inhibit viral reproduction
- ☐ a cell infected by virus activates circulating complement proteins. The binding of complement to other cells signals the cells to upregulate antiviral proteins, which inhibit viral reproduction.

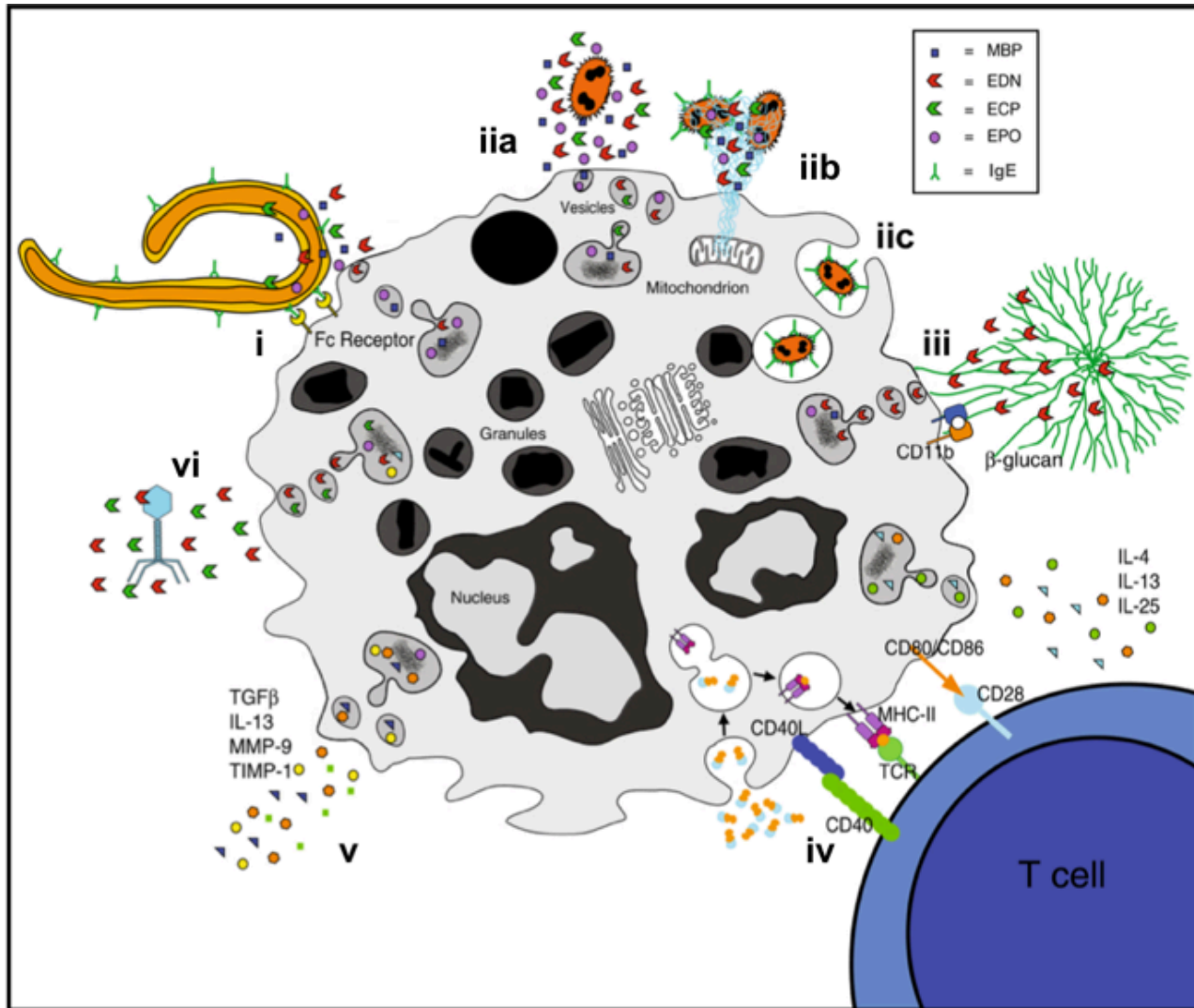
Question 11**0 / 1 point**

the fluid compartment that includes all fluids that are outside of our cells is known as

- ☐ plasma
- ☐ extracellular fluid
- ☐ cytosol
- ☐ lymph
- ☐ chyme

Question 12

0 / 1 point



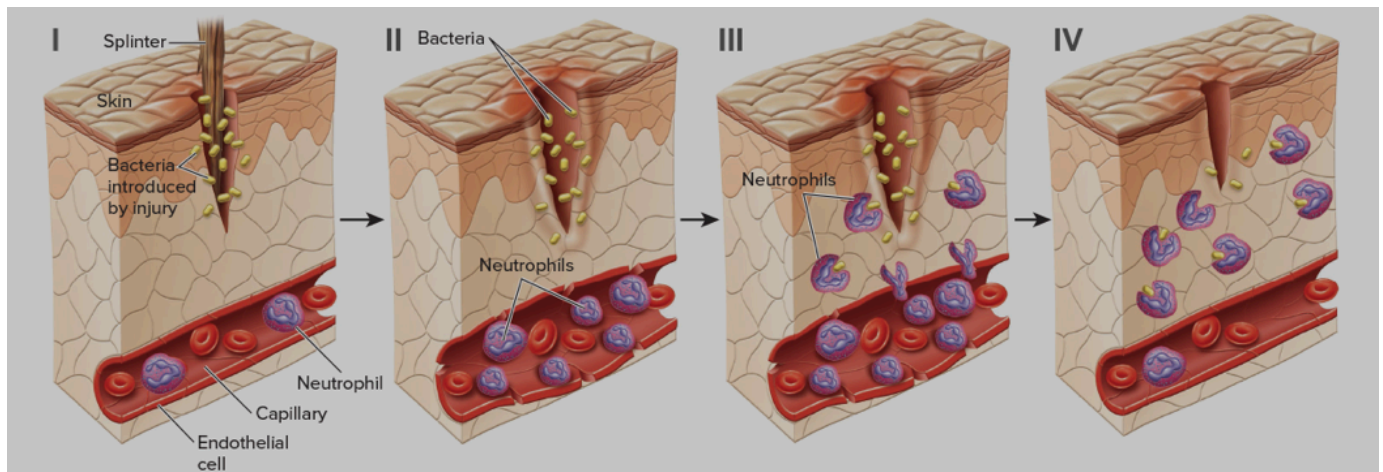
A textbook function of the gray cell in the image above is killing helminths.
A helminth is

- ☐ any of the multicellular fungi (shown by iii)
- ☐ A T or B cell that attacks our own tissues (shown by iv)
- ☐ any of the gram-negative bacteria (shown by ii)
- ☐ any of the DNA viruses (shown by vi)
- ☐ any parasitic worm (shown by i)

Question 13**0 / 1 point**

Several processes contribute to adaptive immunity, including

- ☐ the formation of memory T and B cells that are quickly responsive upon reexposure to an antigen
- ☐ maintaining a high density of neutrophils
- ☐ upregulation of immune surveillance
- ☐ reprogramming neutrophils to recognize bacteria that we've been exposed to
- ☐ increased ability of macrophages to sense pathogens

Question 14**0 / 1 point**

Step III in the image above shows neutrophils moving toward the site of injury, where bacteria can enter the body. The mechanism for this directed movement is called

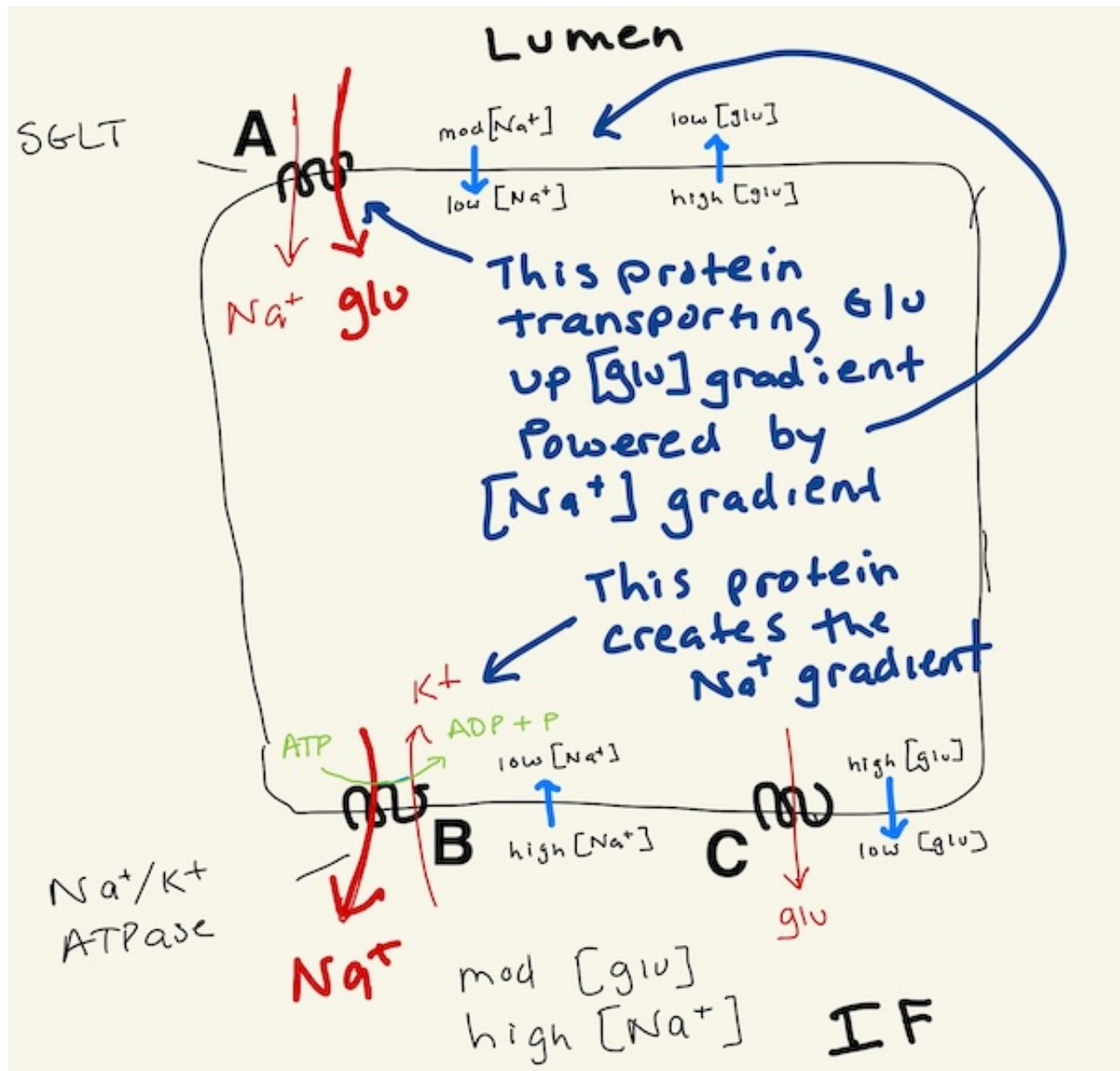
- ☐ diffusion
- ☐ bulk flow
- ☐ diapedesis
- ☐ pressure gradient
- ☐ chemotaxis

Question 15**0 / 1 point**

This cell type is resident in the connective tissue deep to epithelia of the skin, digestive, and respiratory tracts and is among the initial immune cells that respond to invading pathogens. This response includes secreting molecules that promote (both initiate and amplify) inflammation, including histamine. This cell type is a

- ☐ Treg (regulatory T) cell
- ☐ eosinophil
- ☐ Th (helper T) cell
- ☐ neutrophil
- ☐ mast cell

Question 16**0 / 1 point**

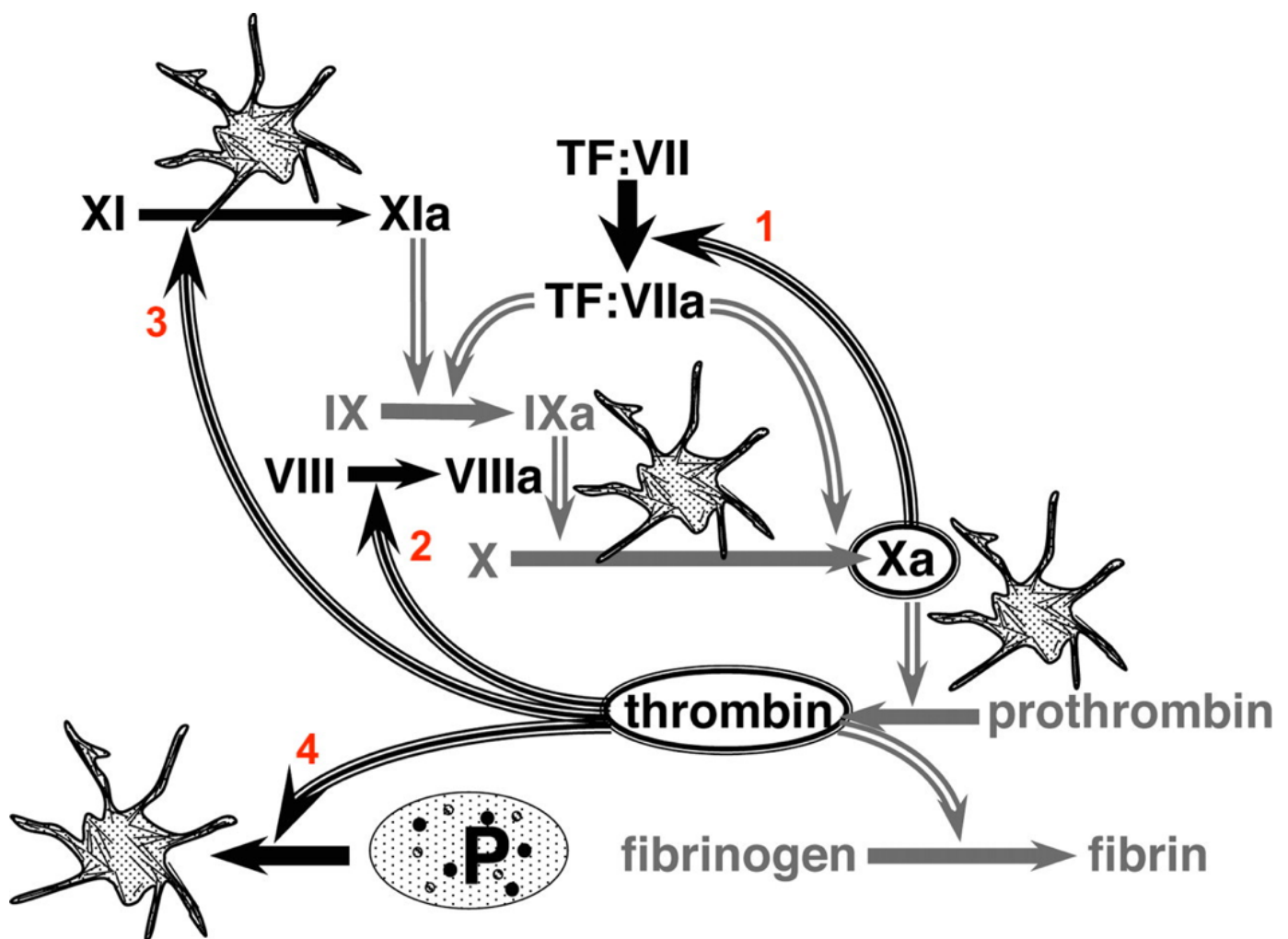


The image above shows 3 transport proteins: A, B, and C. Transport of Na^+ by B is by

- ☐ secondary active transport, because the cell is trying to primarily transport K⁺
- ☐ passive transport, because Na⁺ is moving down its gradient
- ☐ primary active transport, because Na⁺ is necessary for the transport of glucose across the apical membrane
- ☐ secondary active transport, because Na⁺ is moving down its gradient
- ☐ primary active transport, because the protein is hydrolyzing ATP

Question 17

0 / 1 point



The image above shows the activation pathways of the clotting factor

proteins that circulate in the blood. Factors are given roman numeral names and the "a" in the name ("Xa") means it is the activated form. So for example XI is activated to XIa. Prothrombin is a factor too - its activated form is **thrombin**. The activation cascade ends at the conversion of fibrinogen (soluble) to fibrin (insoluble), which clots the blood.

The paths marked by labeled arrows 1-4 are special. For example path 1 shows that Xa activates VII to VIIa. Now look what VIIa does: it activates X to Xa.

The paths marked by labeled arrows 1-4 are examples of

- ☐ inhibition
- ☐ negative feedback
- ☐ redundancy
- ☐ feed forward
- ☐ positive feedback

Question 18

0 / 1 point

What is the expected time of transport by diffusion of a protein the size of hemoglobin across an intestinal enterocyte, from the apical to basal side (about 50 μm) [The diffusion calculator is at https://www.physiologyweb.com/calculators/diffusion_time_calculator.html]

- ☐ 18.1 microseconds
- ☐ 18.1 hours
- ☐ 18.1 minutes
- ☐ 18.1 seconds
- ☐ 18.1 milliseconds

Question 19**0 / 1 point**

in osmosis

- ☐ there is net transport of water and solutes up the solute concentration gradient across a membrane
- ☐ there is net transport of solutes down the solute concentration gradient across a membrane
- ☐ there is net transport of water up the solute concentration gradient across a membrane
- ☐ there is net transport of water down the solute concentration gradient across a membrane
- ☐ there is net transport of solutes up the solute concentration gradient across a membrane

Question 20**0 / 1 point**

Tc (cytotoxic T) cells are important for

- ☐ phagocytosing viruses
- ☐ secreting toxins to kill worms
- ☐ phagocytosing bacteria
- ☐ stimulating the inflammatory response
- ☐ destroying our cells that have been colonized by virus

Done