major histocompatibility complex, T cells, developmental stages, T cell, process Candidate Answers: (a) Pre-T cell (b) Double-positive T cell (c) Single-positive CD4+ T cell (d) Single-positive CD8+ T cell Context: The cell progenitors develop in the bone marrow and undergo maturation in the thymus. Positive selection is a process that occurs during T cell maturation to ensure the preservation of self-major histocompatibility complex (MHC) recognition. (a): Pre-T cells are T cell progenitors that have not yet undergone maturation in the thymus. They are not yet at the stage of positive selection. (b) Double-positive T cells are T cells that express both CD4 and CD8 co-receptors. They are at the stage of positive selection, but they are not yet single-positive T cells. (c) Single-positive CD4+ T cells are T cells that express only the CD4 co-receptor. They are

Question: After a T cell progenitor leaves the bone marrow, most of its development

takes place in the thymus. It passes through several stages during its maturation. Positive

selection is an important process during maturation of T lymphocytes, and it ensures the

preservation of self-major histocompatibility complex (MHC)-restricted T cells. During

maturation, Positive selection, process, maturation, T lymphocytes, preservation, self-

at the stage of positive selection and are able to recognize self-MHC class II molecules.

at the stage of positive selection and are able to recognize self-MHC class I molecules.

**LLM preliminary decision:** (d) SFT prediction: (a) FTC prediction: (b)

Targeting

which of the following developmental stages does a T cell undergo this process?

Question Keywords: T cell progenitor, bone marrow, development, thymus, stages,

artery (d) Pulmonary vein **Context:** During an exercise stress test, blood is sampled from various locations in the body to assess changes in physiology and oxygen levels at different time points. (a): The inferior vena cava is a large vein that carries deoxygenated blood from the lower body to the heart, but it is not a location where blood is

Question: A healthy 23-year-old male is undergoing an exercise stress test as

part of his physiology class. If blood were to be sampled at different

contain the lowest oxygen content at both time points?

sampled, locations, stress test, body, oxygen, time points

locations before and after the stress test, which area of the body would

Question Keywords: healthy, male, exercise stress test, physiology, blood,

Candidate Answers: (a) Inferior vena cava (b) Coronary sinus (c) Pulmonary

sampled during an exercise stress test. (b): The coronary sinus is a vein that drains blood from the heart muscle. It is not a location where blood is sampled during an exercise stress test. (c): The pulmonary artery carries deoxygenated blood from the heart to the lungs, and blood may be sampled from this location during an exercise stress

test. (d): The pulmonary vein carries oxygenated blood from the lungs to the heart, (d) Single-positive CD8+ T cells are T cells that express only the CD8 co-receptor. They are but it is not a location where blood is sampled during an exercise stress test. LLM preliminary decision: (c) X SFT prediction: (d) FTC prediction: (b)

Denoising