Assignment 7

Topic: T cell development, Negative/positive selection, co-stimulatory molecules

1. Which of the following is the origin of the T cell repertoire?
   A. Thymus
   B. Headnodes
   C. Bone marrow
   D. None of the above

2. Antigen is present
   A. Thymus
   B. Cortex
   C. Contacting medullary junction
   E. None of the above

3. Which one of the following developmental stages of T cells first expresses the CD3 epsilon chain (CD3ε)?
   A. Single positive T cells
   B. CD4+ Gated negative T cells
   C. CD8+ Gated negative T cells
   D. T cells (Double negative T cells)

4. T cells are a minority population of T cells which lack –
   A. CD4
   B. CD8
   C. CD8 and CD4
   D. CD4, CD8, and CD6

5. In which of the following order rearrangement of the T cell receptor takes place?
   A. 3 chain rearrangement followed by 3 chain rearrangement
   B. 3 chain rearrangement occurs simultaneously
   C. 3 chain rearrangement followed by 3 chain rearrangement
   D. 3 chain rearrangement followed by 3 chain rearrangement

6. The stimulus of positive and negative selection is the generation of a mature conventional T cell repertoire that is:
   A. thymus-restricted
   B. thymus-dependent
   C. both A and B
   D. None of the above

7. Unlike innate immune responses, adaptive immune responses are observed in secondary immunological organs. However, the immune response to an infection in a tissue has a prominent role in inducing T cell responses. The non-Antigen-specific T cells in the infected tissues contribute to the response to the infection. The above statement is:
   A. TRUE
   B. FALSE

8. Other mononuclears in the lymphoid organs with an remarkable feature, such as in diphtheria, are also activated by the interactions of cytokine-activated receptors with the microbe. These activated mononuclears will then:
   A. migrate to the margins of the draining lymph node to activate macrophages
   B. increase their phagocytic properties to surround the endocytosis
   C. migrate to the red pulp of spleen where they will remove immune complexes from the circulation
   D. up-regulate NKG2D, CD4 and CD6 molecules to amplify CD8 T cell responses in the lymph node

9. Have T cells scan the stromal cells in the cortical region of the T lymph node as they migrate. The initial encounter of T cells with dendritic cells is mediated by interactions between the T cell receptor and the peptide-MHC complexes on the dendritic cell. The above statement is:
   A. TRUE
   B. FALSE

10. Cytokines affect T cells to produce inflammatory cytokines such as IFN-γ and TNF-α. Once these cytokines are recognized by the T-cell receptor by T-cell interaction, the effect of this cytokine stimulation is to enhance the ability of CD4+Th1 cells to recognize and recruit other immune cells in the nearby vicinity. This enhanced activity is due to:
    A. The increased production of perforin and granzymes by CD8 cells
    B. The up-regulation of IFN-γ class I protein expression by B cells
    C. The enhanced expression of CD8a on CD8 cells
    D. The effect of IFN-γ to enhance viral replication resulting in increased viral antigen presentation