SELECT THE BEST ANSWER FROM THE 5 PROVIDED

1. Which of the following would be the WORST candidate for a therapy for autoimmune disease?
   a. Corticosteroids
   b. Cyclosporin A
   c. Irradiation
   d. Anti-TNFα infusion
   e. Soluble pro-inflammatory cytokine infusion

2. Chediak-Higashi syndrome in humans and the beige mouse mutant are both characterized by defective lysosomes and lysosome-related organelles. What is one of the immune-related consequences of this disease?
   a. Dysregulated cytokine signaling
   b. Impaired natural killer (NK) cell function
   c. Overproduction of immunoglobulins
   d. Lack of mature B and T lymphocytes
   e. Toxic accumulation of adenosine deaminase in T lymphocytes

3. What are superantigens?
   a. Microbial antigens that are recognized by Toll-like receptors
   b. Carbohydrate-binding antigens that cross-link T cell receptors and activate T cells in the absence of antigen presentation by an APC
   c. Antigens that crosslink the T cell receptor with MHC outside the antigen binding cleft
   d. Antigens that elicit hyperproduction of IgG
   e. Antigens that wear a little cape

4. Which of the following processes of the immune response would be most affected by a defect in transporter of antigenic peptide (TAP)?
   a. Accumulation of macrophages and neutrophils at a site of infection
   b. Defective CD4+ T helper responses
   c. Defective killing of CD8+ T cell killing of target cells
   d. Defective response to exogenous antigens
   e. Increased susceptibility to extracellular bacterial infection

5. HIV is an RNA virus. The HIV genome encodes the formation of which of these proteins?
   a. GP120
   b. GP120 antibody
   c. CCR5
   d. CXCR4
   e. Both a and c

6. The MHC is highly polymorphic in most species. When the genetic diversity of the MHC is small, the potential impact on the population could be
   a. more difficulty transplanting allografts between individuals of that species than if it were highly diverse
   b. a higher rate of susceptibility to some forms of infectious disease
   c. the development of chronic inflammation amongst individuals in a more homogeneous population
   d. b and c are correct
7. Downregulation of MHC class I antigens on tumor cells is one way that these cells can avoid cytotoxic T cell-mediated killing. What is the most effective host mechanism to manage this change?
   a. Increasing antibody production
   b. **NK cell mediated killing**
   c. Constitutive activation of complement cascades
   d. Increased cytokine production
   e. Activation of type III hypersensitivity mechanisms

8. Defects in recombinase activating genes (RAG-1 and -2) can dramatically alter the immune competence of mouse. What change or changes would result from this defect?
   a. A reduction in C5 breakdown into C5a and C5b
   b. An increase in cytokine levels in serum
   c. **A decrease in antibody levels and reduced maturation of B cells to produce IgA, IgG, and IgE**
   d. A decrease in PMN numbers at sites of sterile wounding
   e. An increase in tissue macrophage numbers

9. Why were Tasmanian Devil leukocytes treated with Concanavalin A (ConA) in some wells when the authors did the MLR (Mixed leukocyte reaction) assay that tested the allo-reactivity of individual combinations of Tasmanian Devil leukocytes?
   a. ConA will activate NK activity and ensure killing of target cells
   b. ConA is a negative control to make sure that the cells are still alive at the end of the assay
   c. ConA is a critical nutrient that cells need to survive
   d. **ConA will cross-link surface glycoproteins (proteins with carbohydrate side chains) and initiate signal transduction and mitosis to serve as positive control for the competence of the cells to proliferate**
   e. None of the above is correct

10. What evidence shows that transplant tissue rejection is an immunological phenomenon?
    a. Serum proteins are needed to glue transplanted skin to the graft site
    b. Transplanted kidneys must be placed in anatomically correct locations for proper function to occur.
    c. Treatment with injected IL-2 can initiate a cytokine storm
    d. **Prior transplantation with tissue from the same allogeneic source will elicit a second set rejection.**
    e. All of the above