Cell Mediated Immunity

To complete this worksheet, select:

Module: Disease Resistance
Activity: Animations
Title: Cell Mediated Immunity

Introduction

1. Describe receptor variation on T-lymphocyte cells.

2. Distinguish between the two types of T-cells.
   - Helper T-cells
   - Cytotoxic T-cells

Helper T-cell Activation, Proliferation and Activation

3. Explain the role of the Antigen Presenting Cell (APC) relative to T<sub>H</sub> cells.

4. a. What determines if T<sub>H</sub> and MHC-II Antigen can bind together?
   
   b. What is the function of costimulators?
   
   c. What is the function of cytokines?

5. Describe steps of T<sub>H</sub> cell proliferation.
   - Cloning
   - Effector T-cells
   - Memory T<sub>H</sub> cells
Helper T-Cell Action

6. a. Helper T-cells secrete cytokines, which exist in various forms. Different T_h cells secrete different cytokines. Describe the affects of each of the following cytokines:

   Interleukin-2

   Interleukin-4

   Interleukin-5

   Gamma Interferon

b. What determines which cytokine is secreted at any particular time? 

Cytotoxic T-cell Activation, Proliferation, and Differentiation

7. Describe the role of thymus gland with regard to T-cell survival

8. Surviving cytotoxic cells can bind to viral infected cells or tumor cells, but this is not enough to activate them. What additional costimulation is necessary?

9. Describe formation of Effector T_c cells and Memory T_c cells.

Cytotoxic T-cell Action

10. Cytotoxic T-cells destroy cells that have become cancerous or are foreign to the body. Explain the two major mechanisms used to accomplish this task.

   Perforin

   Lymphotoxin