

Specific Host Immune Response

Pages 385 - 411

1. Introduction to Specific (Acquired) Immunity
 - A. Antigens or Immunogens (Ag)
 - i. Antigenic Determinants (Epitopes)
 - B. Immune System Development
 - C. Major Histocompatibility Complex (MHC)
 - i. Class I Major Histocompatibility Complex (Class I MHC)
 - ii. Class II Major Histocompatibility Complex (Class II MHC)
 - D. Antibodies (Ab) or Immunoglobulins (Ig)
 - E. Antibody-Mediated Immunity
2. Classification of Specific Immune Responses/Applications
 - A. Naturally Acquired Active Immunity
 - B. Naturally Acquired Passive Immunity
 - C. Artificially Acquired Active Immunity
 - i. Vaccines

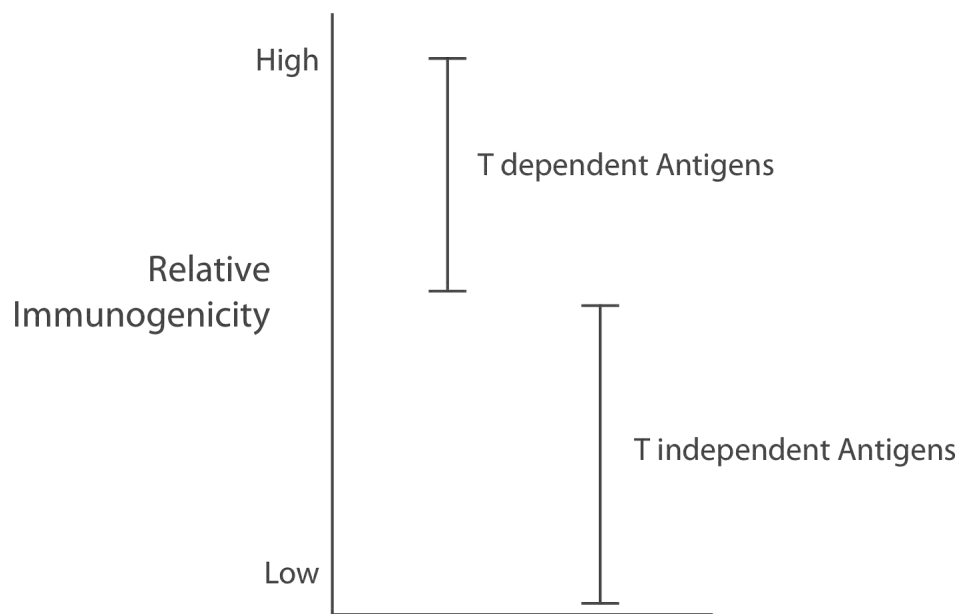
- D. Artificially Acquired Passive Immunity
 - i. Antisera
 - a. Globulins (Immunoglobulins)
 - Gamma Globulins
3. Immune Responses (Page 387, figure 15.1)
 - A. Humeral Immunity (Page 387 - 388)
 - i. B Cells
 - B. Cellular Immunity (Cell-Mediated Immunity) (Page 388)
 - i. T Cells
4. Lymphatic System and Immunity (Pages 389 - 390)
 - A. Essential Functions
 - i. Interstitial Fluid Drainage
 - Lymph
 - ii. Immunity
 - B. Lymph Organs (Pages 389 - 390)
 - i. Lymph Nodes
 - a. Structure
 - b. Locations
 - “Portal of Entry”
 - ii. Tonsils

iii. Spleen

iv. Peyer's Patches

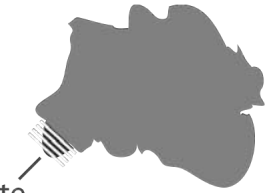
4. Antigens (Pages 390 - 391)

A. Immunogenic Compounds

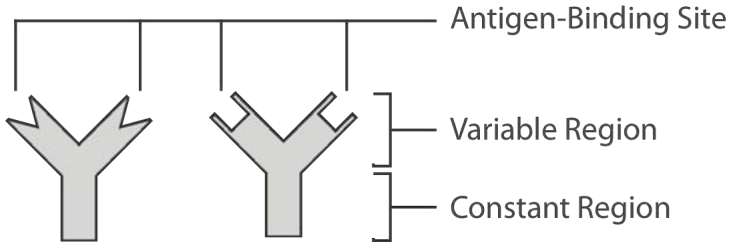


B. Size and Epitope

4. Antibodies (Pages 391 - 394)

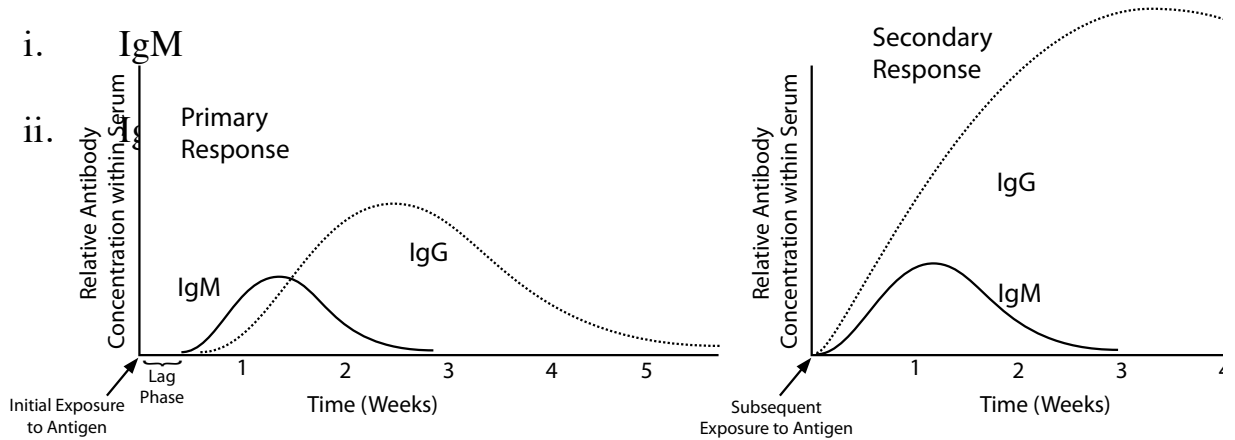


A. Antigen-binding Site

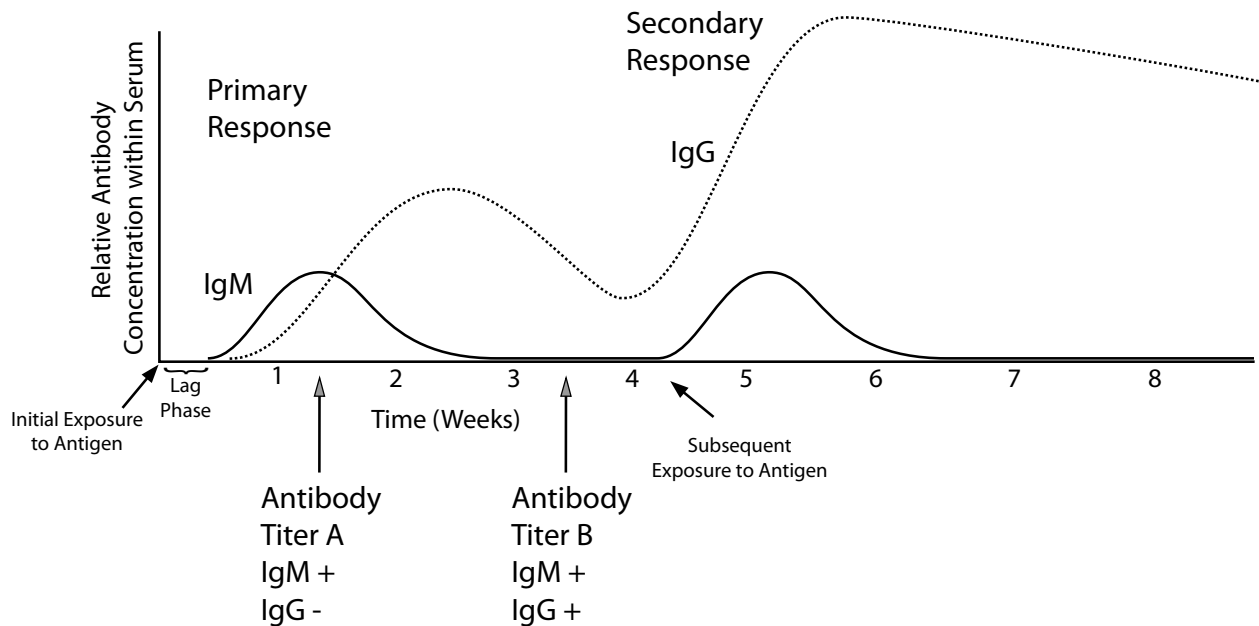


Antigenic Determinate (Epitope)

B. Classification of Antibodies or Immunoglobulins (Ig)



(Graphs adapted from Anatomy and Physiology by Frederic H. Martini, 2004)



- iii. IgA
 - a. blood
 - b. secretions
- iv. IgD
- v. IgE
 - a. Allergies
 - b. Parasitic Infections

6. Immune System Development (See Handout) (Pages 408 - 411)

7. Major Histocompatibility Complex

A. Classification (Pages 397 and 401)

- i. Class I
 - a. Endogenous Antigens
- ii. Class II
 - a. Exogenous Antigens
 - b. Phagolysosome

8. Cellular Immunity (Pages 400 - 407)
 - A. T Cells
 - B. Immunocompetence
 - i. Thymus Gland
 - C. Antigen Presenting Cells (Page 401)
 - i. Cell Types
 - a. Macrophages
 - b. Dendritic Cells
 - ii. Major Histocompatibility Complex (MHC) / Antigen Complex
 - a. Class I Major Histocompatibility Complex
 - b. Class II Major Histocompatibility Complex
 - D. T_H (Helper T Cells); CD4 Functions
 - E. T_C (Cytotoxic T Cells); CD8
 - F. T_R (Regulatory T Cells)
 - G. T_M (Memory T Cells)

9. Humeral Immunity

A. Immunocompetence

B. Class II Major Histocompatibility Complex

C. T_H (Helper T Cells) Involvement

i. T Independent (Page 399 - 400)

ii. T Dependent

IMMUNE PARADIGMS -- SEE HANDOUT

10. Primary Humeral Immune Response (by T-Independent Antigens)

Pull out Handout, “Humeral Immunity T-independent Antigens”

11. Primary Humeral Immune Response (by T-Dependent Antigens)

Pull out Handout, “Humeral Immunity T-dependent Antigens”

- A. Antigen Specific B Cell Recognizes Antigen
 - i. Receptor Mediated Endocytosis

- B. Presentation of Antigen in Conjunction with
Major Histocompatibility Complex class II (MHC class II)

- C. Activated Helper T Cell Binds to Immunocompetence (Activated) B Cell

- D. Secretion of Cytokines (Interlukin II) by Help T Cell

- E. Activated B Cell Divides and Differentiates
 - i. Plasma Cells
 - a. Clonal Proliferation
 - b. Antibody Production

 - ii. Memory B Cells
 - a. Secondary Humeral Immune Response

12. Cellular Immune Response (against intracellular Parasite)

Pull out Handout, “Cellular Immunity I”

- A. Antigen present on cell surface in conjunction with MHC class I
- B. Immunocompetent T_C binds to antigen / MHC complex
- C. T_C activated and clonally proliferates
- D. T_C attacks infected body cells by causing apoptosis

13. Cellular Immune Response (against extracellular parasite - bacteria)

Pull out Handout, “Cellular Immunity II”

- A. Phagocytosis of bacteria by Antigen Presenting Cell.
- B. Antigen presented on cell surface in conjunction with both Class I and II MHC
- C. APC binds to both immunocompetent T_H and T_C cells
 - i. T_H and APC stimulate T_C to clonally proliferate
- D. T_C binds to bacteria and causes lysis