


Immune Responses to Malaria
(Part 1)

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32:00 mins (19 Slides)
(Lecture starts in 5 seconds)

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a global commitment to public health

Immune Responses to Malaria

Introduction

Immune Responses to Malaria

- Immune recognition
- Immunoregulation by helper T cells
- Role of cytokines in immunity and disease
- Immunity to infectious pathogens
- Immunity to malaria

Immunity to Infection

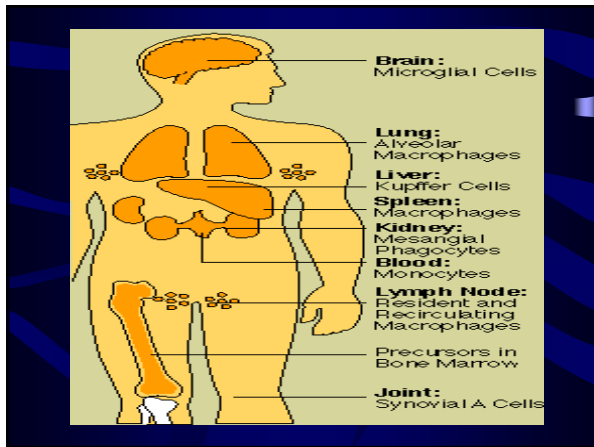
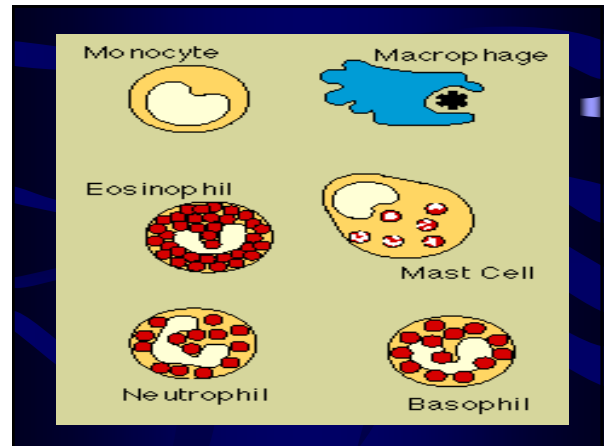
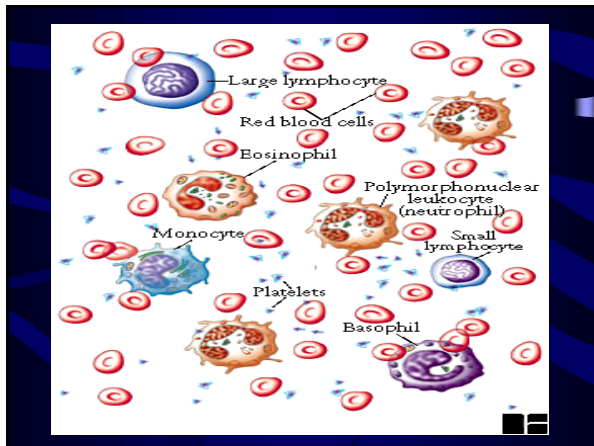
- Two different types of responses to invading microbes.
- Innate or natural resistance represents the first and second lines of defense.
- Adaptive immunity represents the third line of defense.

First Line of Defense

- **External barriers:**
 - Anatomical: skin, mucous membranes.
 - Mechanical: cilia in respiratory tract.
 - Physiological: lysozymes, low pH.

Second Line of Defense

- **Phagocytosis:**
 - Neutrophils: PMNs or polys
 - Mononuclear phagocytes: monocytes and macrophages.
- **Immune surveillance:**
 - Cytotoxic activity of natural killer (NK) cells.

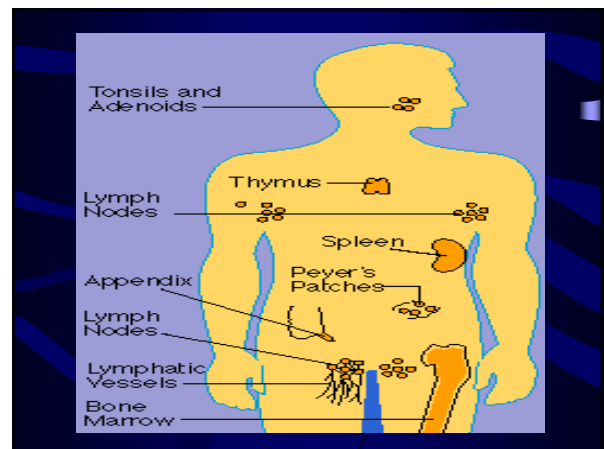


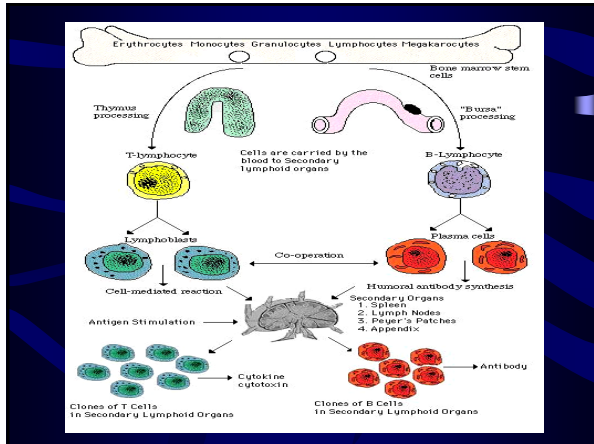
Third Line of Defense

- Immunity mediated by B and T lymphocytes.
- Key points: adaptive, specific, memory.
 - Adaptive: recognition and response.
 - Specific: antigen-specific cell surface receptors.
 - Memory: long-lived B and T memory cells produce more efficient response.

Lymphoid Organs

- Primary (central) lymphoid organs
 - Bone marrow
 - thymus
- Secondary (peripheral) lymphoid organs/tissue
 - Lymph nodes
 - Spleen
 - Mucosal lymphoid tissue (tonsils, adenoids, Peyer's patches)





Hallmark of Adaptive Immunity

"Self" vs. "Non-self" Discrimination

Immune Recognition

- Mature B and T cells in lymph nodes, spleen, and lymph nodules.
- B cells recognize 'native' antigen.
- T cells recognize 'processed' antigen, presented by antigen-presenting cells as peptide fragments guided by MHC molecules.

