

First line of defense – physical & chemical barriers

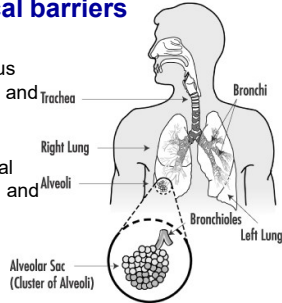
- **Genitourinary tract**

- Urinary tract is sterile in a healthy person except the distal urethra
- How?
 - Urination
 - Secretion (vaginal and seminal fluid)
 - Low pH of vagina (presence of several *Lactobacillus* sp., *Candida albicans*)

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- **Respiratory tract**

- Nose - nasal hair, mucus secretions (phagocytes and antibacterial enzymes), irregular chambers
- ciliated epithelium (nasal cavity, sinuses, bronchi and trachea)
- Cough reflexes
- Alveolar macrophages



Preview from Notesale.co.uk
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- **Microbial antagonism**

- Normal flora vs. invaders
 - Compete for colonization sites
 - Compete for nutrients
 - Produce bacteriocins

Second line of defense

- Once beyond the protective outer barrier of the body, the invading microbes will encounter a series of nonspecific cellular and chemical defense mechanisms
- Mechanisms:
 - **Inflammation** – a series of events that removes or contain the offending agent and repair the damage
 - **Chemotaxis** – movement of cells toward a chemical influence (chemokines or chemotactic agents)
 - **Phagocytosis** – process in which cell ingest foreign particulate matter e.g. microbes
- Many are carried out by the white blood cells in blood