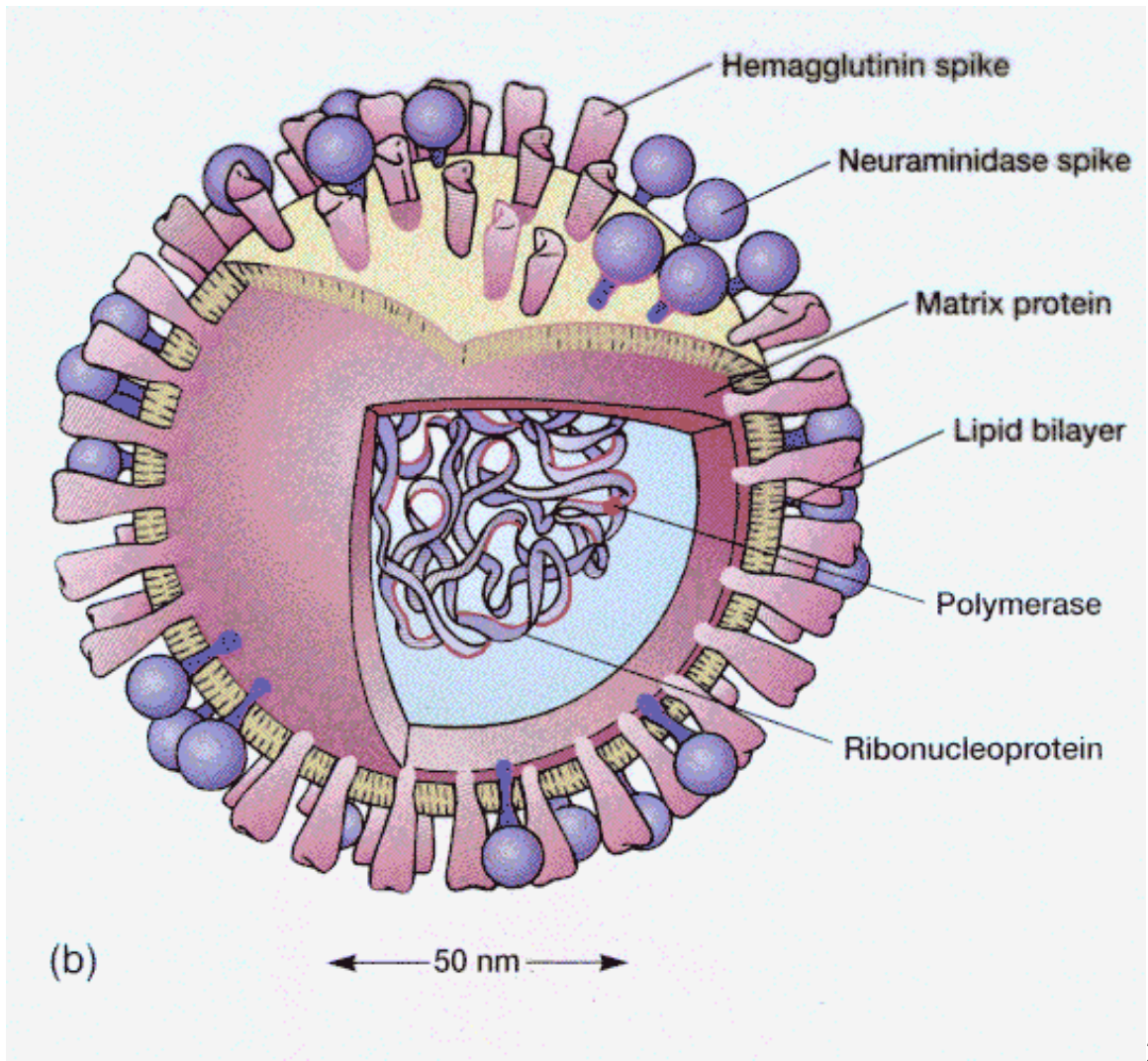
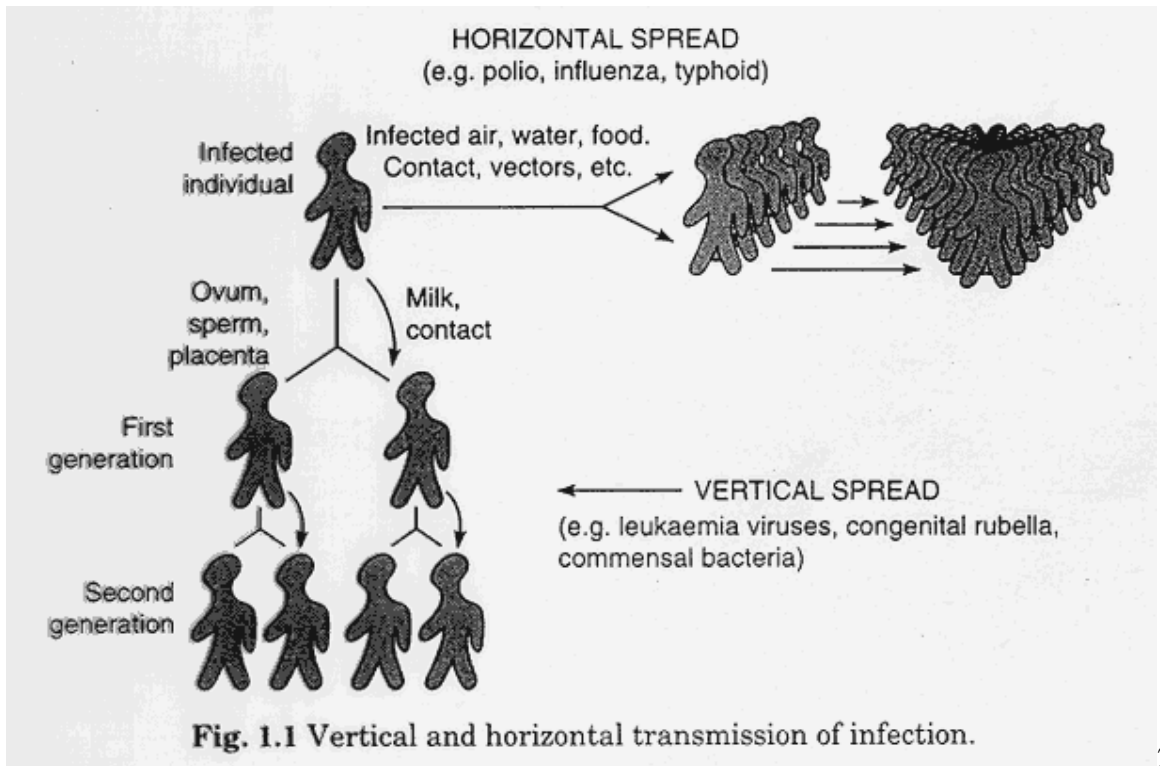


2b

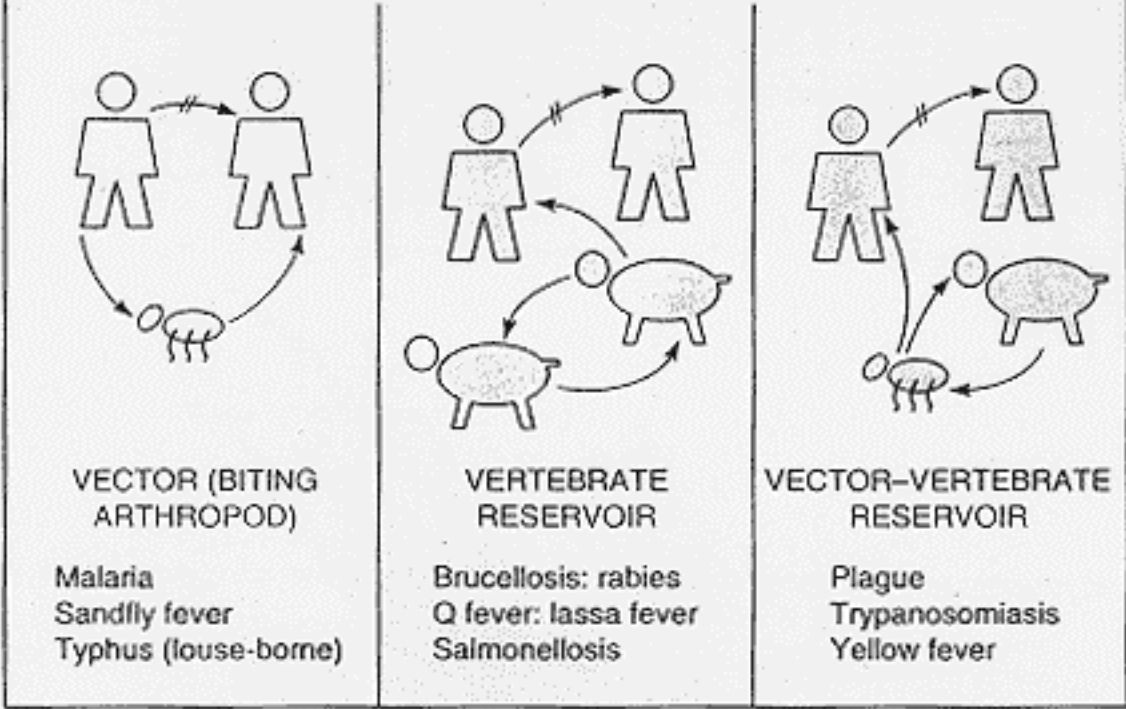


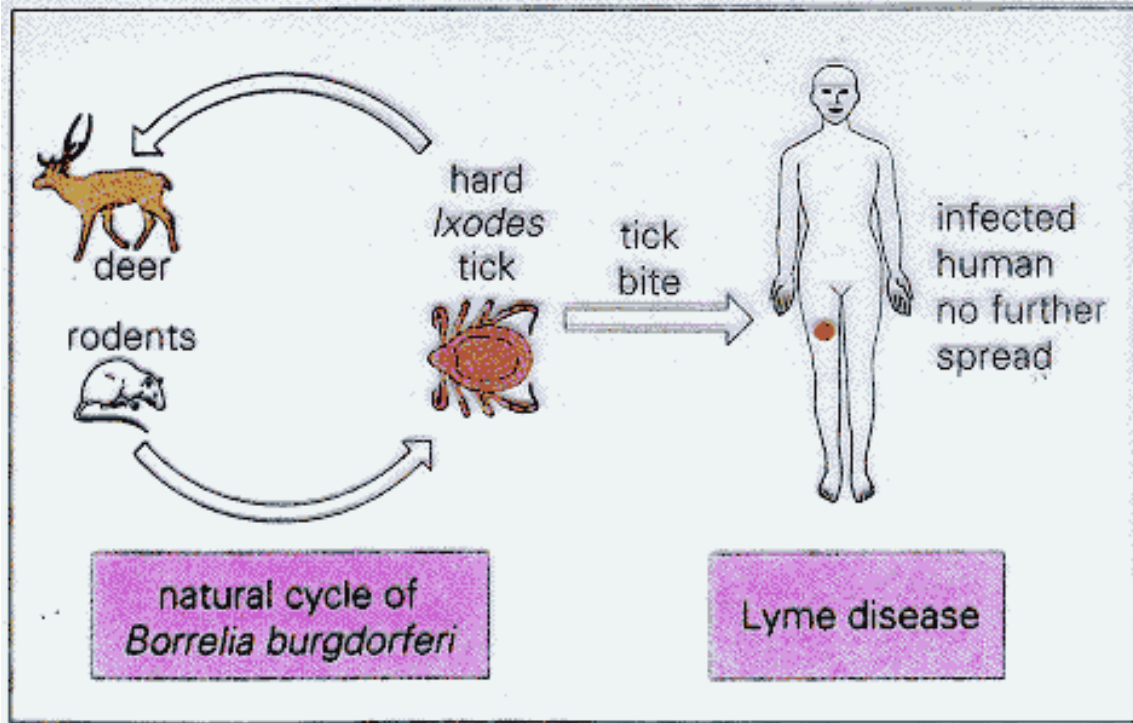


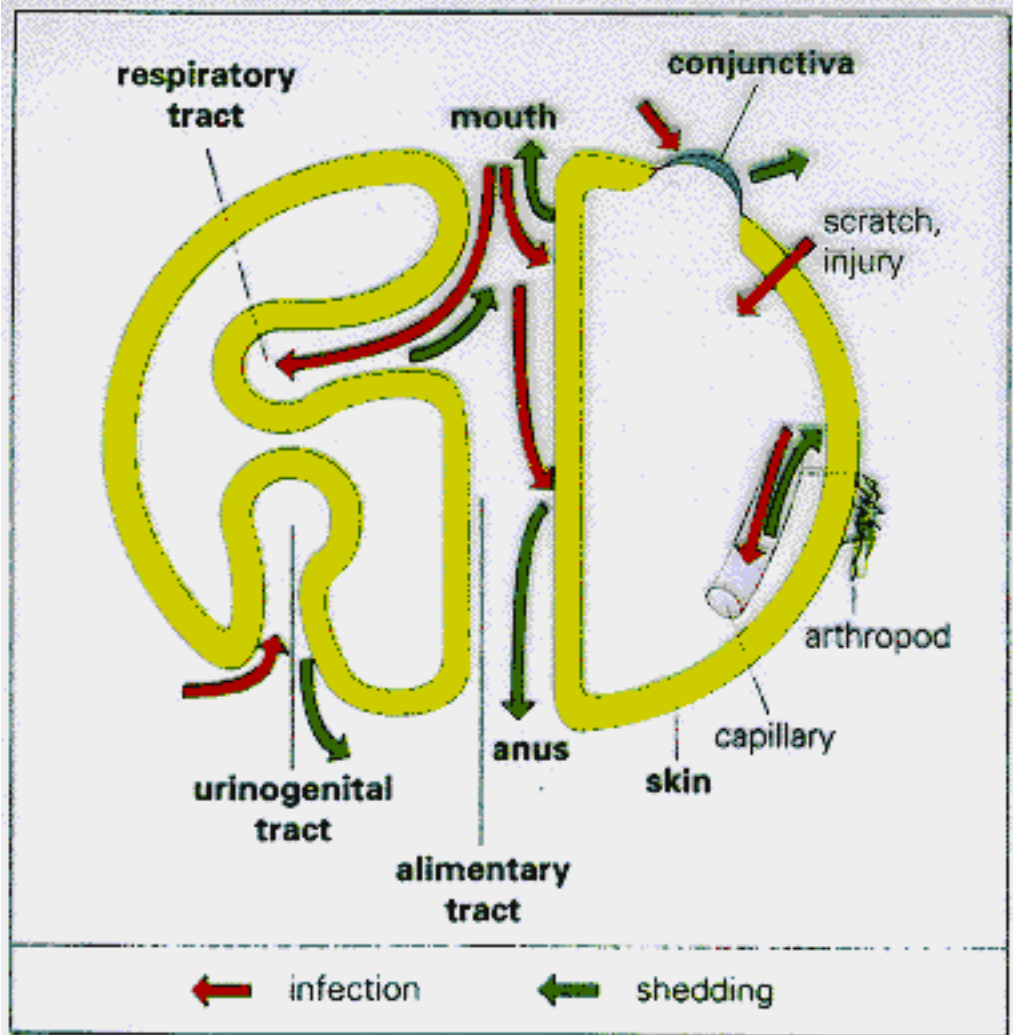


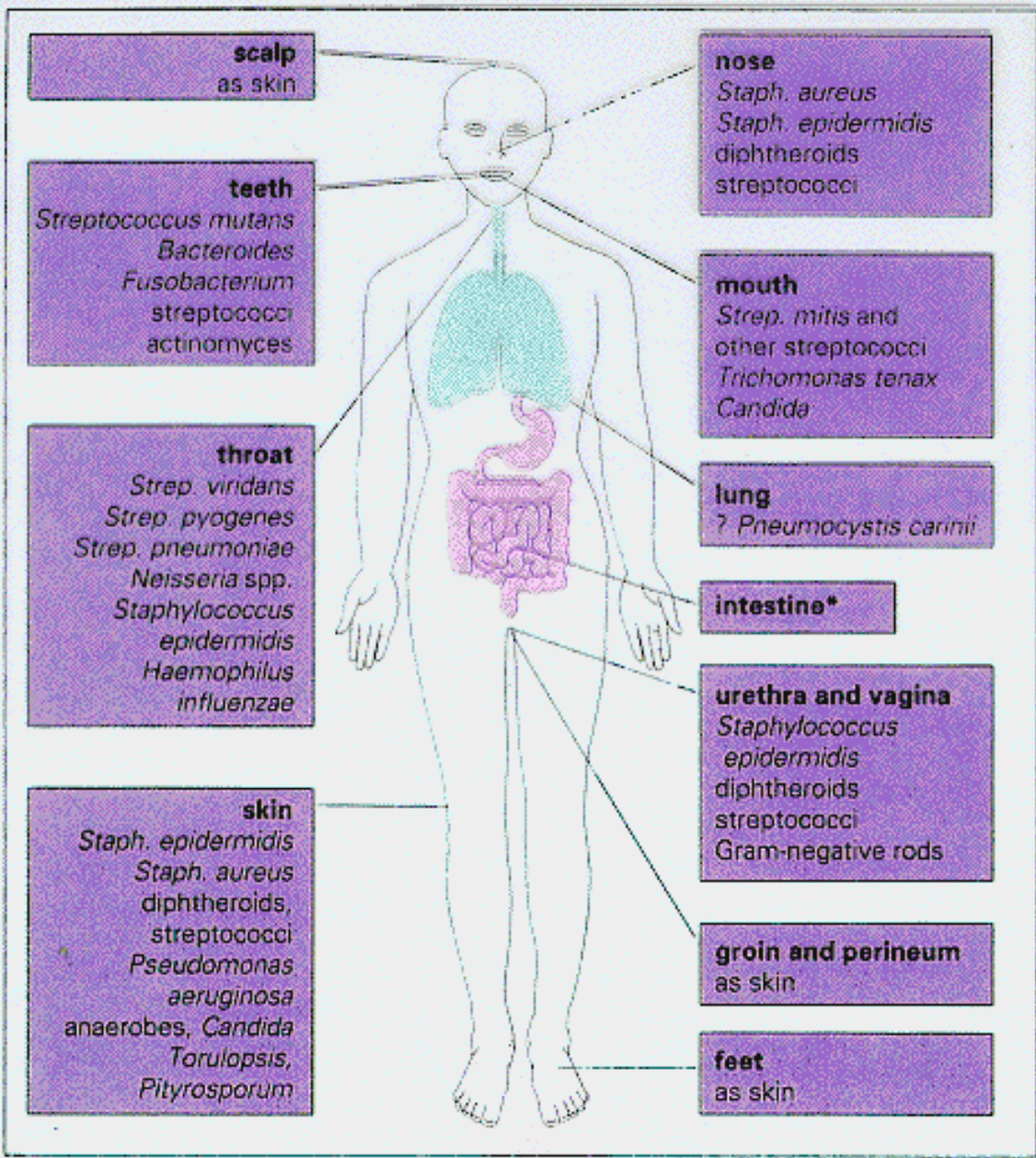
ZOONOSES

Infections acquired from animals (arthropods, vertebrates).
Human infection controlled by controlling animal infection.

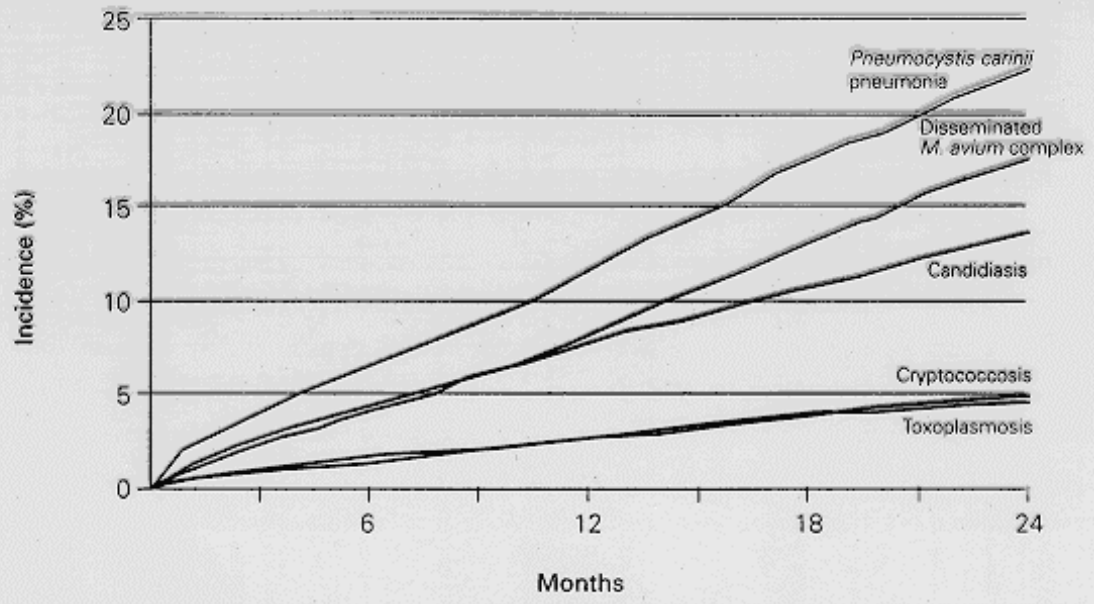








Box 12 Incidence of Opportunistic Infections (OIs) in HIV-Positive Adults with Depressed CD4 Lymphocyte Counts



HOST DEFENSE MECHANISMS

1. NON-SPECIFIC DEFENSES (General defenses)

- * part of the structure and function of the animal
- * protect against microorganisms in **general**
(any and all microorganisms that enters the body!)
- * first line of defense

.....if the non-specific defenses are breached.....

2. SPECIFIC DEFENSES (Immune response)

- * mediated by lymphocytes and antibodies
- * an immune response is mounted against a **specific** microorganism
- * second line of defense

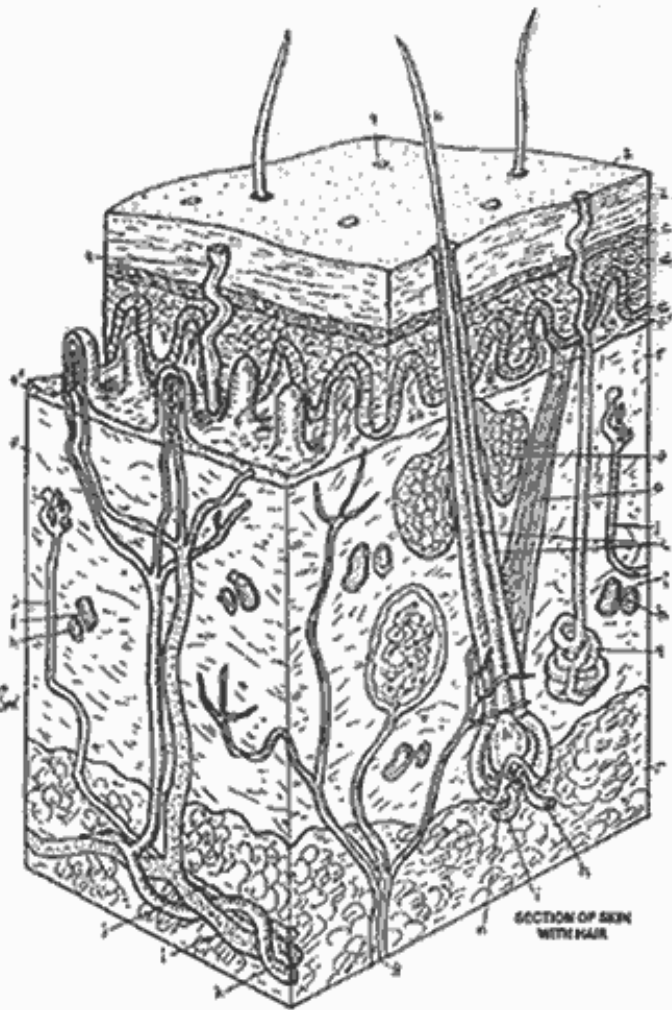
**INTEGUMENT (SKIN)
ORGANIZATION.**

EPIDERMIS.
STRATUM CORNEUM.
STRATUM LUCIDUM.
STRATUM GRANULOSUM.
STRATUM SPIROSUM.
STRATUM BASALE.
(GERMINATING LAYER).

DERMIS.
CONNECTIVE TISSUE.
PAPILLAE.

NERVE.
ARTERY. VENI.
LYMPHATIC VESSEL.
HAIR.

SHAFT.
FOLLICLE.
BULB OF FOLLICLE. MATRIX.
DERMAL PAPILLA.
ABDUCTOR PILI MUSCLE.
SEBACEOUS GLAND.
SWEAT GLAND.
SUPERFICIAL FASCIA.





Simple squamous epithelium; lines air sacs of lungs and wall of capillaries; covers membranes that line body cavities

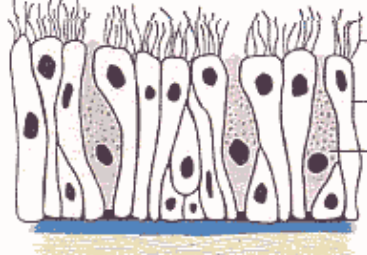


Stratified transitional epithelium; bladder, prostate, urethra

Nucleus
Basement Membrane
Connective tissue

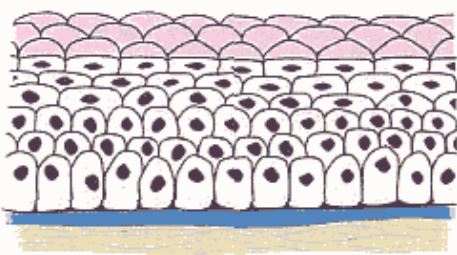


Simple cuboidal epithelium; covers ovaries; lines the kidney tubules, ducts of various glands (salivary, pancreas, liver)

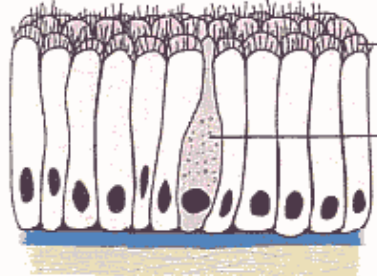


Pseudostratified columnar epithelium; passages of respiratory system, various tubes of the reproductive systems

Cilia
Columnar cell
Goblet cell




Stratified squamous epithelium; mouth cavity, esophagus, most of the female urethra, vagina, anal canal



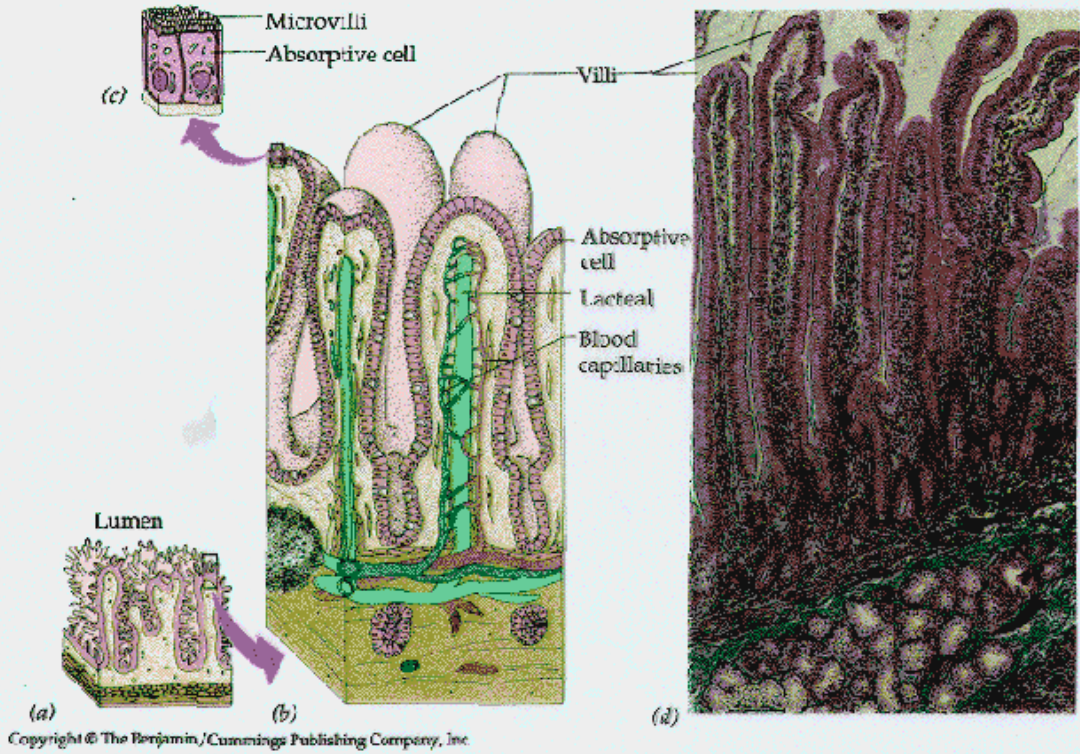
Simple columnar epithelium; intestines, stomach, lining of the uterus

Microvilli
Goblet cell

Table 1-1 Defenses of skin and mucosal surfaces.

Site	Defenses	Function
Skin	Dry, acidic conditions, <37°C	Limit bacterial growth
	Sloughing cells	Remove bacteria
	Resident microflora	Compete for colonization sites
Hair follicles, sweat glands	Lysozyme, toxic lipids	Kill bacteria
Beneath skin surface	SALT	Kill bacteria; sample antigens on skin surface
Mucosal surface	Mucin layer	Physical barrier, trap bacteria
Mucin layer	Lysozyme	Digest bacterial peptidoglycan
	 sIgA	Prevent bacterial attachment to mucosal cells, help to trap bacteria in mucin
	Lactoferrin	Bind iron, prevent bacterial growth
Mucous membrane	Lactoperoxidase	Kill bacteria by generating toxic superoxide radicals
	Sloughing cells	Remove adherent bacteria
	Tight junctions	Prevent bacteria from invading between mucosal cells
Beneath mucosal membrane	MALT	Produce sIgA; phagocytic cells kill bacteria

Structure of the Small Intestine (Figure 37.15)



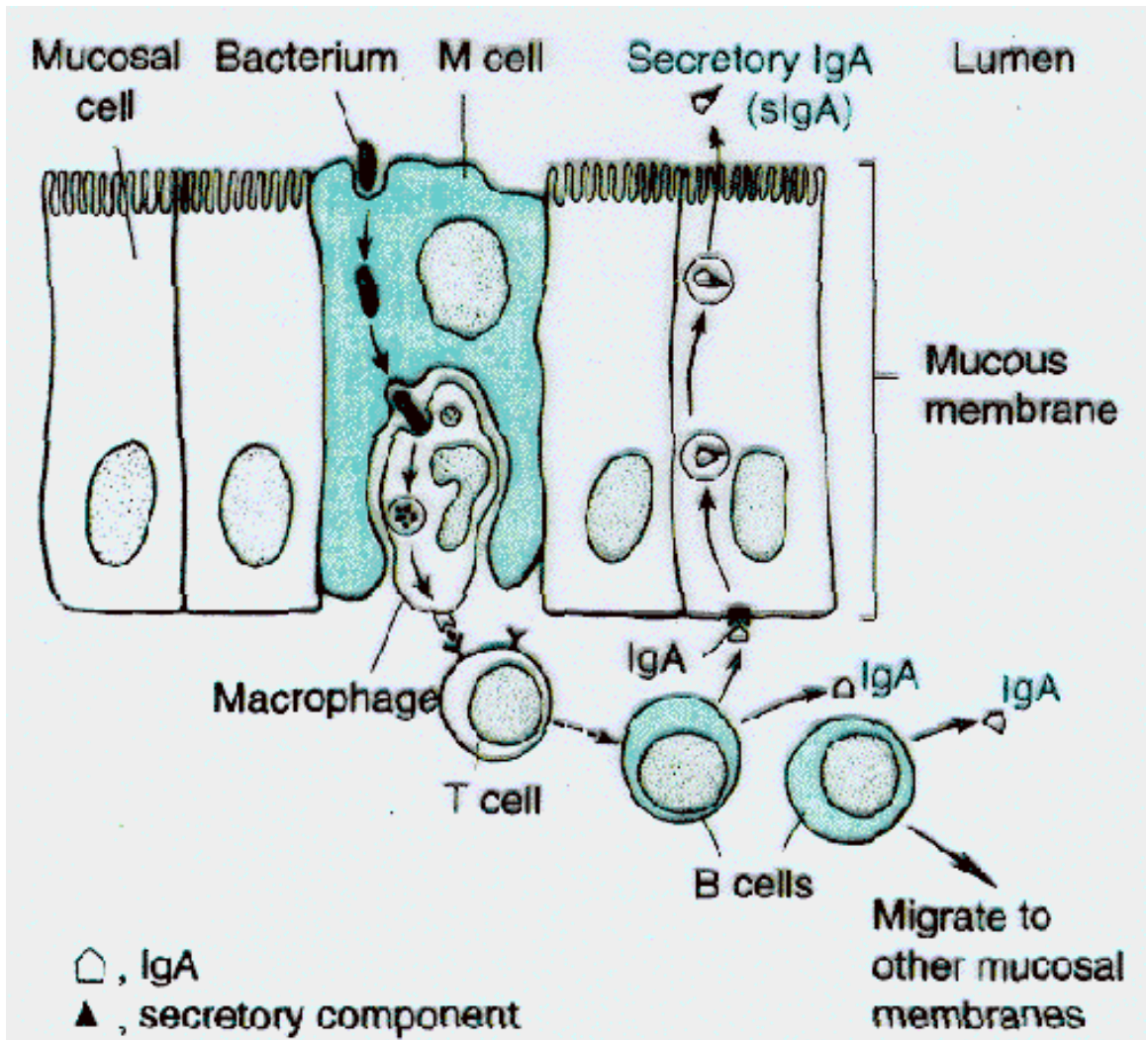


Figure 1-1 Cells of the GALT. M cells and their associated lymphoid cells (T and B cells) are sometimes called follicles. Collections of follicles are called Peyer's patches.