

IMMUNITY

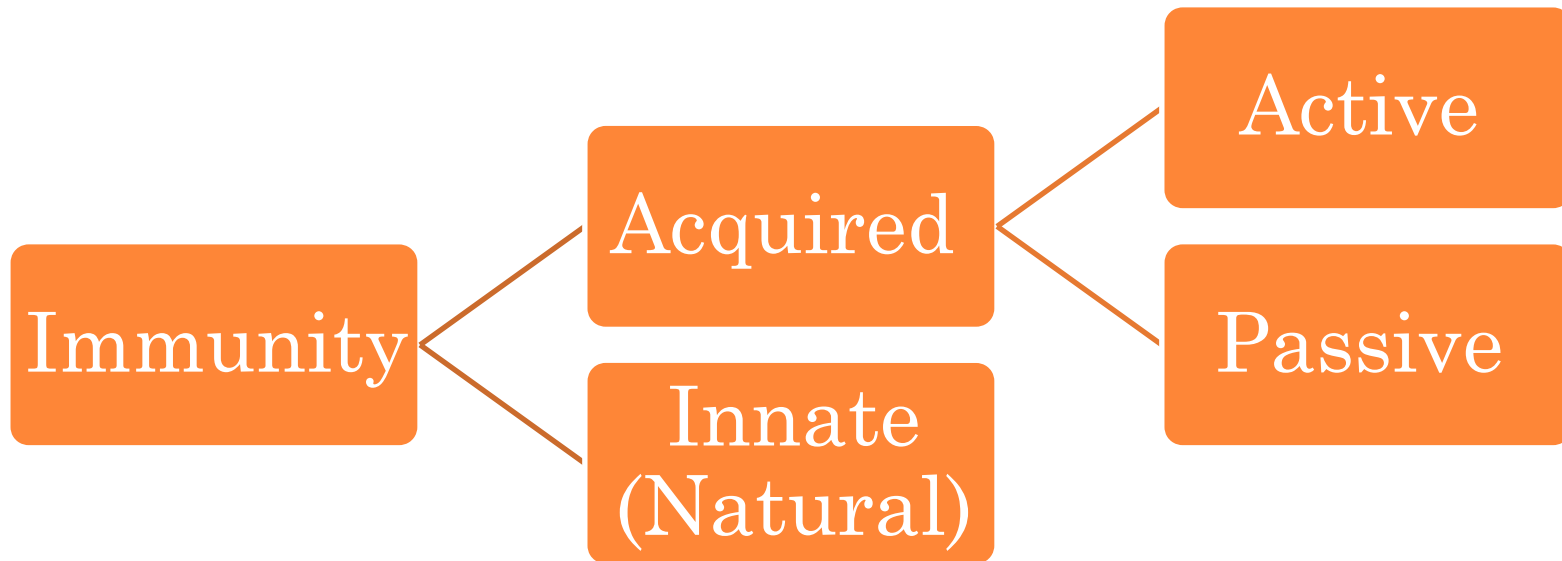
- MS. PREETI SAMUEL

INTRODUCTION

- The Latin term *immunis*, meaning “exempt,” gave rise to the English word *immunity*, which refers to all the mechanisms used by the body as protection against environmental agents that are foreign to the body.
- These agents may be microorganisms or their products, foods, chemicals, drugs, pollen, or animal hair.



CLASSIFICATION



INNATE IMMUNITY

- *Innate immunity* is conferred by all those elements with which an individual is born and which are always present and available at very short notice to protect the individual from challenges by foreign invaders.
- These elements include body surfaces and internal components, such as the skin, the mucous membranes, and the cough reflex, which present effective barriers to environmental agents.
- Chemical influences such as pH and secreted fatty acids constitute effective barriers against invasion by many microorganisms.



TISSUE FACTORS

- Tissue factors may be divided into-
 - Cellular factors
 - Humoral factors



CELLULAR FACTOR

When an infective agent infects the tissue, there occurs an exudative inflammatory response characterized by accumulation of phagocytes at the site of infection, outpouring of natural antibacterial substances and deposition of fibrin which acts as a barrier to spread of infection.

- Phagocytosis
- Inflammation
- Fever



HUMORAL FACTOR

1. **Lysozymes** – it is the bactericidal enzyme found in high concentration in polymorphs, tears, nasal or intestinal secretion.
2. **Bactericidin**- it is non specific serum factor which is active against Neisseria and staphylococcal species.



ACQUIRED IMMUNITY

- ***Acquired Immunity***- Acquired immunity is more specialized than innate immunity, and it supplements the protection provided by innate immunity.
- Acquired immunity came into play relatively late, in evolutionary terms, and is present only in vertebrates.
- It is the immunity acquired after birth or during the lifetime of an individual



TYPES

- Active
 - Natural active immunity
 - Artificial active immunity
- Passive
 - Natural passive immunity
 - Artificial passive immunity



ACTIVE IMMUNITY

- Active immunity is the resistance induced in an individual after effective contact with an antigen.
- Here the person's own immunity actively participates in producing antibodies.
- 1. **Natural active immunity**- It is acquired after an infection or recovery from disease or subclinical infection after repeated exposure to small doses of the infecting organism.
- 2. **Artificial active immunity**- it may be acquired artificially by vaccination which is preparation of live, attenuated or killed micro-organisms or their antigens or active materials derived from toxoids.



○ Commonly used vaccines-

1. Live – BCG, typhoid fever vaccine
2. Killed – cholera vaccine, pertussis vaccine.
3. Bacterial products- TT, DPT



PASSIVE IMMUNITY

- The immunity that is induced in the recipient by transfer of readymade antibodies against infective agent or toxins in another host
- Here the recipients immune system doesnot play an active role and the immunity is effective only after transfer of antibodies .
- However this passive protection is short lasting and effective only for days or weeks.



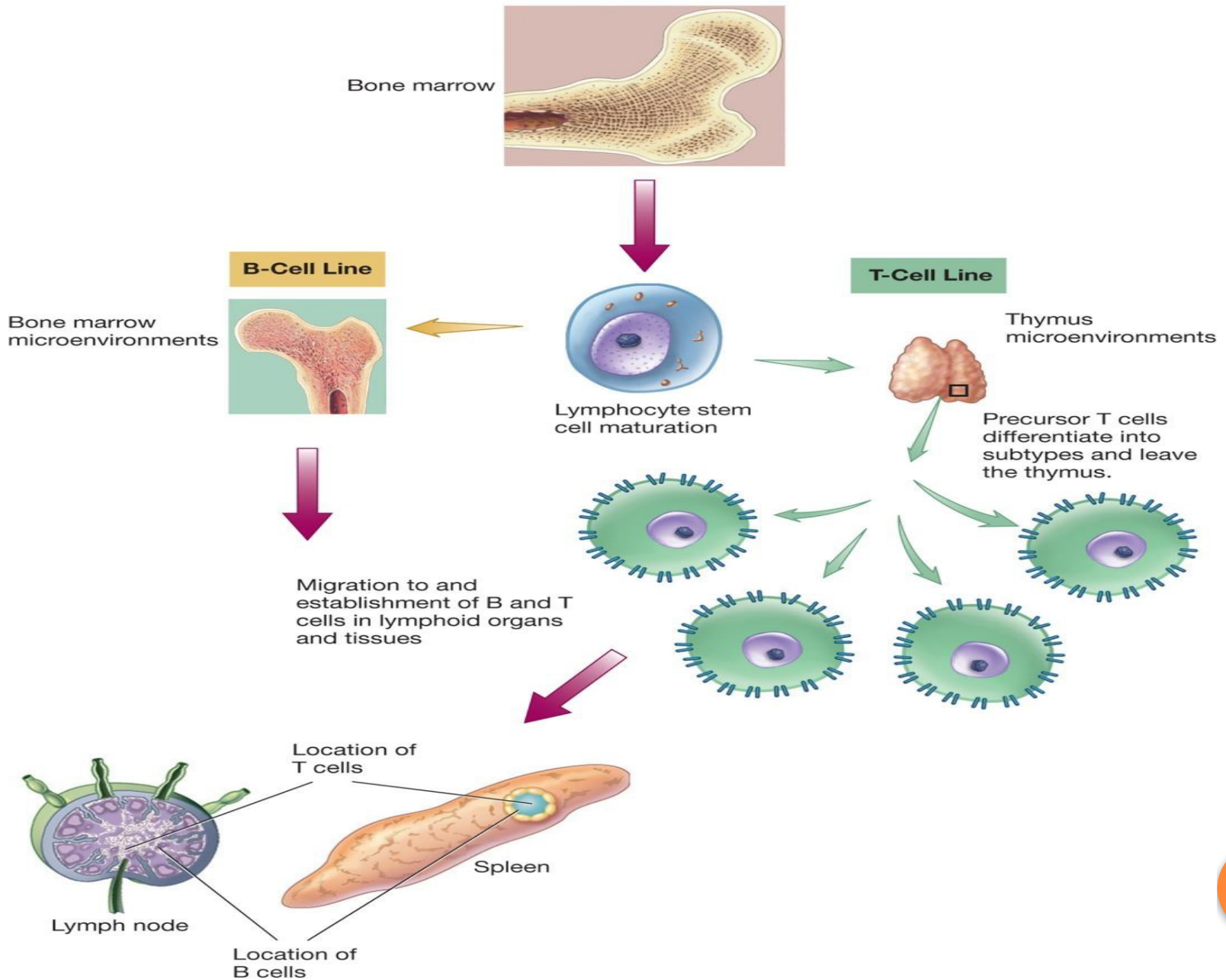
- **Natural passive-** it is the resistance passively transferred from mother to fetus through placenta.
- **Artificial passive-** it is the resistance passively transferred to a recipient by parenteral administration of antibodies.



ACQUIRED IMMUNE SYSTEM DEVELOPMENT

- B and T cells initially arise in the bone marrow
 - B cells continue to mature there
 - T cells are moved to the thymus for further maturation.
- Both cell types go through extensive screening to avoid self-reactivity.





TYPES OF SPECIFIC IMMUNITY

- Naturally acquired active immunity –type of specific immunity a host develops after exposure to foreign substance.
- Naturally acquired passive immunity
–transfer of antibodies, e.g., mother to fetus across placenta, mother to infant in breast milk



THANKYOU

