



محاضرة رقم 1.

Lecture No. 1

المناعة 1

INTRODUCTION OF IMMUNITY

Sawa University

College of health and medical techniques

Department of Medical Laboratories

Third Stage

جامعة ساوة الاهلية

كلية التقنيات الصحية والطبية

قسم تقنيات المختبرات الطبية

المرحلة الثالثة

تدريسي المادة : د. زيدون حسين مهدي



- Edward Jenner



- milkmaids



A **child** with smallpox in
Bangladesh in 1973.



SMALLPOX AND THE STORY OF VACCINATION



Louis Pasteur



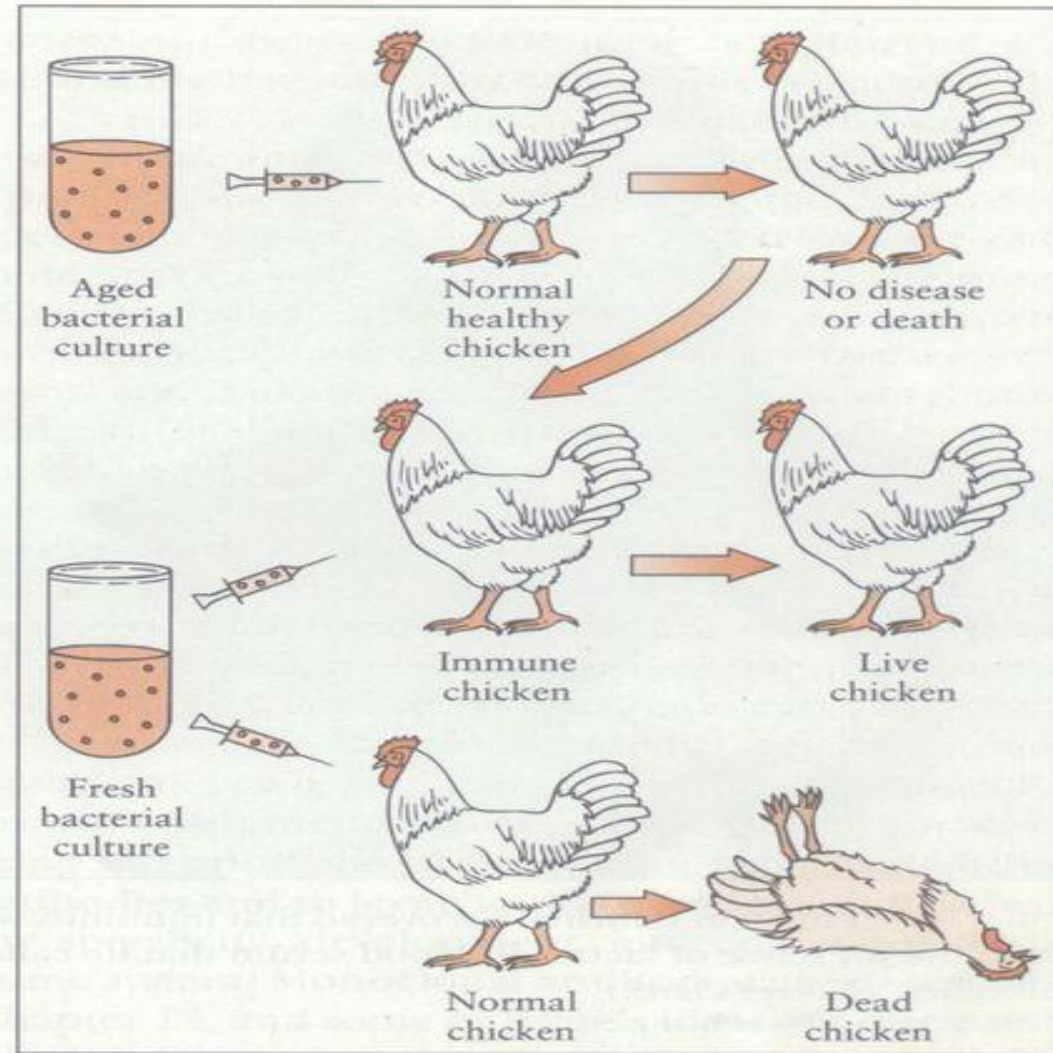
1879

Louis Pasteur created the first live attenuated bacterial vaccine (chicken).

1879 Louis Pasteur

Fowl cholera

Old cultural cholera only made chicken sick and protect from freshly cholera infection.





- Black death



Small
pox



- Cholera



COVI
D-19

Immunity is defined as resistance to disease, specifically infectious disease.

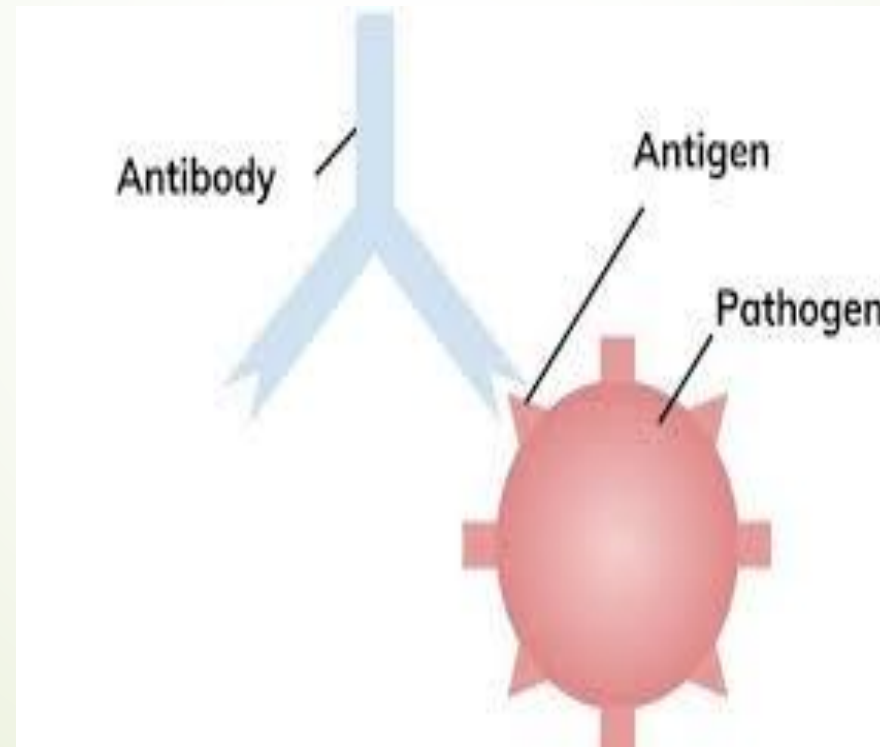
The collection of **cells**, **tissues**, and **molecules** that mediate resistance to infections is called **the immune system**, and the coordinated reaction of these cells and molecules to infectious microbes comprises an immune response

Immunology is the study of the immune system, including its responses to microbial pathogens and damaged tissues and its role in disease.

Antigen (Ag): - is a foreign molecule or cell enter the body and cause a response characterized by production of antibody and specific T cell response.

Immunogen is a stimulus that produces a humoral or cell-mediated immune response , All immunogens are antigens, but all antigens may not be immunogens.

Immunoglobulin (IG) or antibody (Ab):- they are glycoprotein present in serum and it produced by B cell lymphocytes in response to exposure to an antigen in vivo or in vitro.



The main function of the immune system

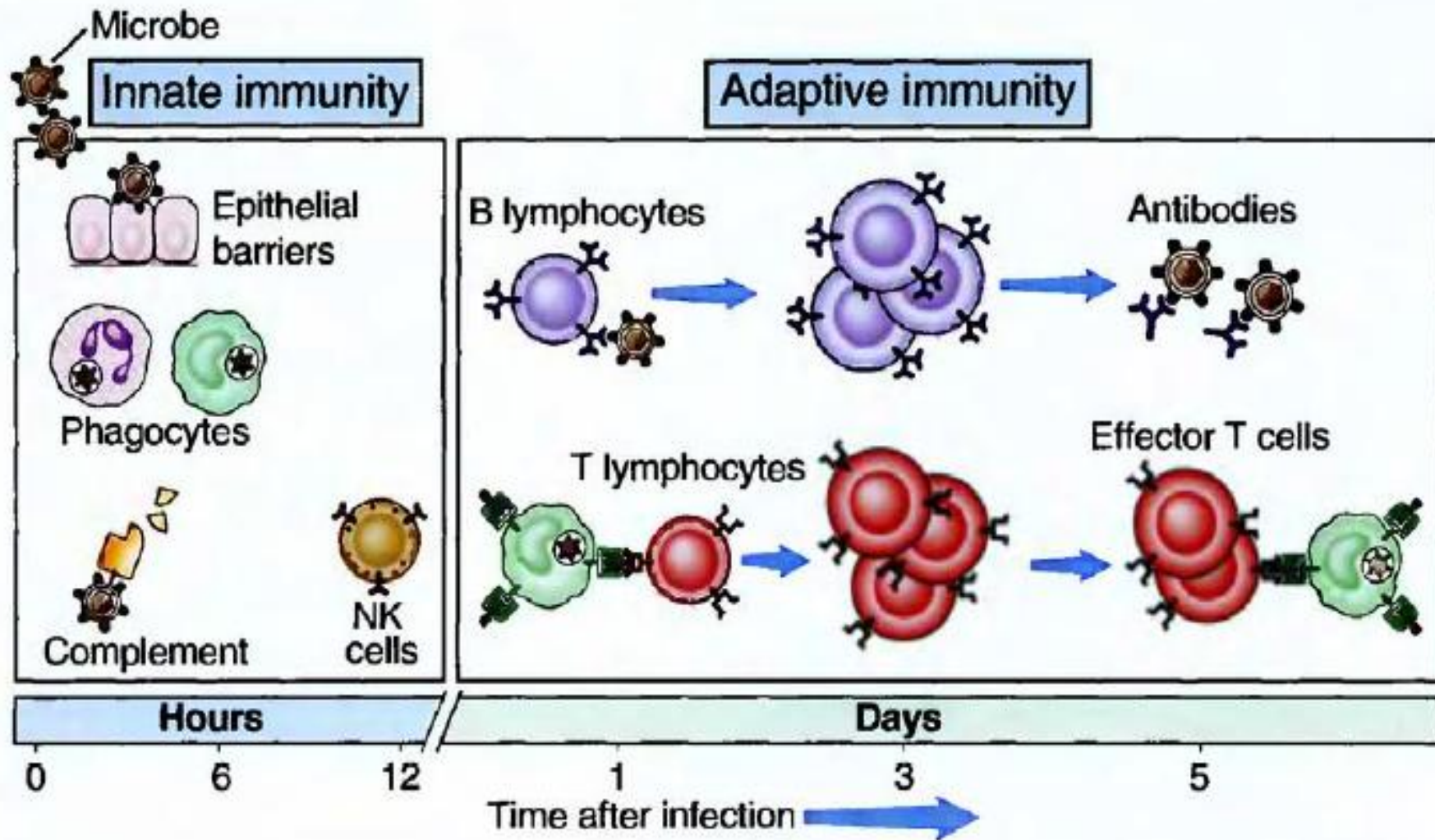
Distinguish between self and non-self a protein which is necessary to protect the organism from invading pathogens and to eliminate modified or altered cells (e.g. malignant cells).

Types of immunity

Host defenses are grouped under

Innate immunity, which provides immediate protection against microbial invasion,

Adaptive immunity, which develops more slowly and provides more specialized defense against infections.



Note :- Immunity may be induced as

- **Active immunity**, an individual exposed to the antigens of a microbe mounts an active response to eradicate the infection and develops resistance to later infection by that microbe. Such an individual is said to be immune to that microbe, in contrast with a naive individual, not previously exposed to that microbe's antigens.
- **Passive immunity**, a naive individual receives antibodies or cells (e.g., lymphocytes, feasible only in animal experiments) from another individual already immune to an infection and newborns, acquiring antibodies from their mothers through the placenta and breast milk.

Components of the Immune System

-Organs of the immune system

- **Primary (central) lymphoid organs:** These organs include the bone marrow and the thymus. **They create special immune system cells called lymphocytes.**
- **Secondary (Peripheral) lymphoid organs:** These organs include the lymph nodes, the spleen, the tonsils and certain tissue in various mucous membrane layers in the body (for instance in the bowel). **It is in these organs where the cells of the immune system do their actual job of fighting**

2-Cell of immune system

1-innate immune system:

Neutrophils, Eosinophils, Basophils, Monocytes (mononuclear phagocyte)-

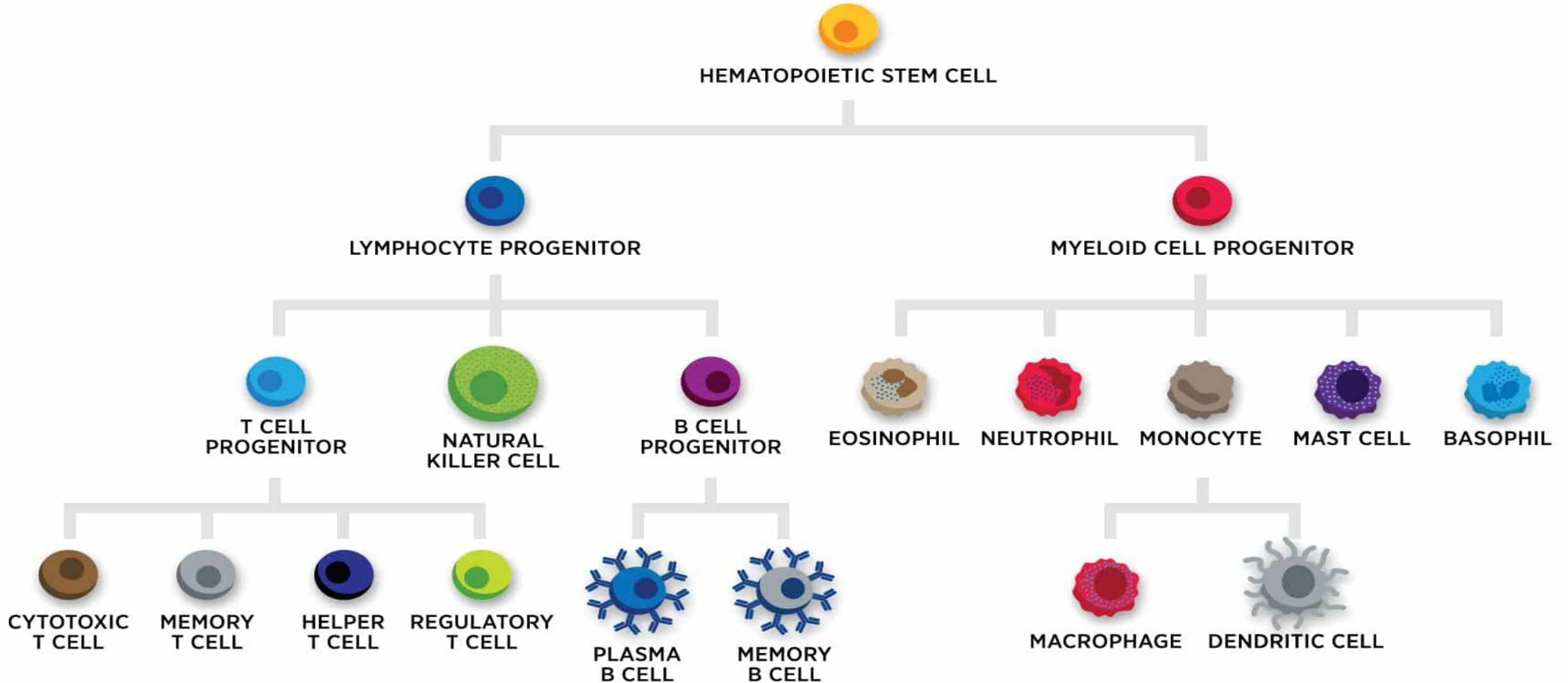
Antigen present cells (Macrophage and Dendritic cell) , Mast cells- Natural killer (NK) cells, Innate lymphoid cell

2- Adaptive immune Cell:

1. **B-Cell** .

2. **T- Cell** - Differentiates into Helper T-cell & Cytotoxic T-cell

TYPES OF IMMUNE CELLS



Thank
you!

