# Abbas and lichtman basic immunology

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### Immunology: Unlocking the Body's Defense System

### Father of Immunology: Emil von Behring

Emil von Behring, a German physician and bacteriologist, is widely recognized as the "Father of Immunology." His groundbreaking research on diphtheria and tetanus antitoxins earned him the Nobel Prize in Physiology or Medicine in 1901.

#### **Principles of Basic Immunology**

Basic immunology encompasses the fundamental concepts of:

- Immune response: The body's ability to recognize and neutralize foreign substances (antigens).
- Antigens: Substances that trigger the immune response.
- Antibodies: Proteins produced by the immune system to specifically bind to antigens.
- Lymphocytes: Cells involved in the immune response, including T cells (cell-mediated immunity) and B cells (antibody production).

### **Branches of Immunology**

Immunology is divided into four specific branches:

 Cellular immunology: Focuses on the role of T cells and other cellular components in the immune response.

- Humoral immunology: Examines the production and function of antibodies.
- Molecular immunology: Investigates the molecular mechanisms of immune responses.
- Clinical immunology: Applies immunological principles to diagnose and treat diseases.

#### Fundamental Immunology: Exploring the Foundations

Fundamental immunology delves into the basic mechanisms underlying the immune response, including:

- Recognition of self and non-self: The ability of the immune system to distinguish between the body's own cells and foreign substances.
- **Immune memory:** The capacity of the immune system to remember past infections and mount a stronger response upon re-exposure.
- **Regulation of the immune response:** The mechanisms that control the immune response to prevent excessive or inappropriate reactions.

#### Mother of Immunology: Agnes Pockels

Agnes Pockels, an Austrian physician, is often referred to as the "Mother of Immunology." Her research in the late 19th century laid the foundation for understanding the role of antibodies in immunity.

### First Introduction of Immunology: Edward Jenner

Edward Jenner, an English physician, is credited with first introducing the concept of immunology in the 18th century. His work on smallpox vaccination paved the way for the development of vaccines.

### Immunology Basic: A Beginner's Guide

Immunology Basic provides an overview of the fundamental principles of immunology, including:

• The different types of immune cells

- The role of antigens and antibodies
- The mechanisms of immune responses
- The importance of vaccination

#### Importance of Basic Immunology

Basic immunology is essential for understanding the function of the immune system and developing effective strategies to prevent and treat infectious diseases. It helps:

- Explain how the body protects itself against pathogens
- Identify and diagnose immune deficiencies
- Develop new vaccines and immunotherapies
- Understand and manage autoimmune diseases

#### **Basics of Human Immunology**

The basics of human immunology include:

- Innate immunity: The body's first line of defense against infections.
- Adaptive immunity: The more specific and long-lasting immune response that develops over time.
- Mucosal immunity: The immune protection provided by the linings of the body's surfaces.
- **Immune regulation:** The mechanisms that prevent excessive or inappropriate immune responses.

### Father of Immunotherapy: William B. Coley

William B. Coley, an American surgeon, is known as the "Father of Immunotherapy." His work in the late 19th and early 20th centuries demonstrated the use of the body's immune system to treat cancer.

### Father of Cell Immunology: Niels Jerne

Niels Jerne, a Danish immunologist, is widely regarded as the "Father of Cell Immunology." His research on antibody production and immune regulation earned him the Nobel Prize in Physiology or Medicine in 1984.

#### Father of Natural Immunology: Jules Bordet

Jules Bordet, a Belgian bacteriologist, is considered the "Father of Natural Immunology." His discovery of the role of complement proteins in immunity earned him the Nobel Prize in Physiology or Medicine in 1919.

#### Founder of Immune System: Unknown

The precise founder of the immune system is not known, but its evolutionary development can be traced back millions of years.

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