

IMMUNOLOGY

Unit 1

The Immune system: Introduction: Primary and Secondary Lymphoid organ, Lymphocytes, their origin and differentiation. Antigen presenting cells- macrophages, dendritic cells, langerhans cell, their origin and function. Mechanism of phagocytosis, identification of cell types of immune system, complement and their biological function- types of immune responses, immune tolerance.

Unit 2

Immunoglobulins: Structure of Immunoglobulins, antibody specificity, biological functions of immunoglobulins, generation of diversity. Types and characteristics of antigen. Antigen- antibody interactions, antitoxins, agglutination, complement system - opsonin, bacteriolysin and precipitation.

Unit 3

Immunity: Types of immunity- Innate immunity- surface barriers phagocytosis. Acquired immunity- active and passive. Antitoxic, antibacterial and antiviral immunity. Immune response.

Humoral and cell mediated immunity and their interaction. Lymphokines and interleukins- their role in immune response.

Unit 4

Immunity to infection: Hypersensitivity reactions: types of hypersensitivity, mechanism of T-cell activation, macrophage activation and granuloma formation. Transplantation- Immunologic response graft rejection mechanism and prevention of graft rejection, immuno suppressive drugs. HLA-immune response genes and disease pathogenesis of auto immune diseases.

Unit 5

Immunochemical techniques. Production of antisera- the precipitation reaction, immunodiffusion, immunoelectrophoresis, immunofluorescence, complement fixation. Principle, technique and applications of RIA and ELISA. **Hybridoma technology**

References

1. Immunology – Ivan Roitt.
2. Immunology – Weir.
3. Immunology – Donald M. Weir, John Steward.
4. Essential Immunology – Ivan Roitt.
5. Immunology – Kuby 3rd ed Freeman, 1997.