

UNIT-I

METHODS USED IN IMMUNOLOGY: Preparation of antigens and antibodies, Purification of antibodies, Analysis of antibodies and antigens, Antigen-antibody reactions, Preparation and uses of various types of vaccines.

UNIT-II

IMMUNOLOGICAL TECHNIQUES: Immunodiffusion, One and two dimensional, Single radial immunodiffusion, Ouchterlony-immunodiffusion; Immuno-electrophoresis - rocket immunoelectrophoresis, CIE, Graber and William technique, electrophoresis and western blotting; Agglutination - direct and indirect, widal test, VDRL test; Radioimmunoassay - ELISA-principle, methodology and applications; Immunohistochemistry and immunofluorescence.

UNIT-III

HYBRIDOMA TECHNOLOGY: Production of polyclonal and monoclonal antibodies, Myeloma cell lines, Fusion of myeloma cells, Selection of hybridomas; Screening, Purification and application (biochemical research, clinical diagnosis and treatment) of monoclonal antibodies; Catalytic antibodies, Antibody immunotherapy, Productions of drugs to manage allergies, Antibody engineering.

UNIT - IV

ANIMAL CELL CULTURE: Importance, Sterilization methods, Media preparation - RPMI, DMEM; Cell lines - primary and established cell lines; Cell counting, Viability and ploidy using microscopy and flow cytometry; Staining techniques; Cryopreservation of primary cell lines, virus culture in chick embryo.

UNIT - V

TYPES OF VACCINES: Vaccines and subunit vaccines - against herpes simplex virus; Foot and mouth disease, Live recombinant vaccines-attenuated (Cholera, Salmonella), Vector vaccines directed against viruses and bacteria; Purified vaccines; DNA vaccines; Anti-fertility vaccines and anti-ovarian cancer vaccine.