

## **6. Immunobiology techniques Workshop**

### **Course Details**

#### **Lecture 1: Introduction to antigen, antibody and epitope**

- Concept of antigen and epitope
- Antibody structure
- Monoclonal versus polyclonal antibody
- Primary versus secondary antibody

#### **Lecture 2: Introduction to Immunoassays**

- Antigen antibody reaction
- Immunoassay- concept and overview
- Immunoassay-types and mechanism

#### **Lecture 3: Immuno-electrophoresis**

- Immune complex formation
- Precipitation reaction
- Precipitation curve
- Application of precipitation reaction
- Immunodiffusion
  - Radial immunodiffusion
  - Double immunodiffusion
- Immuno-electrophoresis
  - Rocket immuno-electrophoresis
  - Counter immuno-electrophoresis

#### **Lecture 4: Immunoblotting traditional method**

- Immunoblotting- Concept, history and overview
- Detailed methodology with demonstration by video
  - Sample preparation
  - SDS-PAGE
  - Transfer and blocking
  - Blot development
  - Detection analysis
- Application and troubleshooting

#### **Lecture 5: Immunoblotting with SNAP i.d**

- Limitations of traditional immunoblotting method
- Advantage of SNAP i.d.
- Mechanism
- Components of SNAP i.d.
- Experimental setup with demonstration by video
- Control and troubleshooting

#### **Lecture 6: Radioimmunoassay (RIA)**

- Principle of RIA
- Discovery and applications
- RIA-Types
- Experimental setup and workflow

- Limitations and advantages

### **Lecture 7: Enzyme-linked immunosorbent assay (ELISA)**

- Antibody and Antigen
- Immunoassay
- Enzyme linked immunosorbent assay (ELISA)
- Types of ELISA
- Applications of ELISA
- Experimental setup and workflow
- Advanced Immunoassay

### **Lecture 8: Immunohistochemistry (IHC)**

- Principle of IHC
- Immunoblotting verses IHC
- Experimental workflow with demonstration by video
  - Sample preparation
  - Antigen retrieval
  - Blocking
  - Staining
  - Visualization
- Applications