

Title Of Course - Methods for Molecular Diagnostic

Course Code: NPIAS-VAC-002

Course objective: It will enhance knowledge about how and where implement and apply molecular biology techniques for diagnostic.

Syllabi of Course:

Enzyme Immunoassays

5 Hrs.

Comparison of enzymes available for enzyme immunoassays, conjugation of enzymes. Solid phases used in enzyme immunoassays. Homogeneous and heterogeneous enzyme immunoassays. Enzyme immunoassays after immuno blotting.

Enzyme immuno histochemical techniques

5 Hrs.

Use of polyclonal or monoclonal antibodies in enzymes immuno assays. Applications of enzyme immunoassays in diagnostic microbiology;

Molecular methods in clinical microbiology

5 Hrs.

NAAT, Applications of PCR, RFLP, Nuclear hybridization methods, Single nucleotide polymorphism and plasmid finger printing in clinical microbiology

Automation and rapid diagnostic approach

5 Hrs.

Automation in microbial diagnosis, rapid diagnostic approach including technical purification and standardization of antigen and specific antibodies.

Idiotypes and immunodiagnostic

5 Hrs.

Concepts and methods in idiotypes. Anti Idiotypes and molecular mimicry and receptors. Epitope design and applications. Immunodiagnostic tests- Immunofluorescence. Radioimmunoassay.

Diagnostic tools

5 Hrs.


Thermal cycler, MALDI-TOF, HPLC, Electron microscopy, flow cytometry and cell sorting.

Suggested Reading:

Debnath, M., Prasad, G. B., & Bisen, P. S. (2010). *Molecular diagnostics: promises and possibilities*. Springer Science & Business Media.

Twyman, R. (2018). *Advanced molecular biology: a concise reference*. Garland Science.


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