

Bioinformatics in Protein Modeling, Drug Designing and Immunoinformatics

(Course duration: 90days)

COURSEWORK

Introduction to Bioinformatics and overview of Biological Research

Biological databases and database searching

Data Mining and Sequence Retrieval

Motif & Domain assignment

Proteomics

Protein threading and interaction

Pair wise and Multiple Sequence Alignment

Sequence Analysis (BLAST, FASTA, CLUSTAL W)

Phylogenetic analysis

Ab initio structure prediction

Visualization tools

Homology Modeling

Introduction to chemioinformatics and Drug Development

Chemical and Drug Database

Structural Bioinformatics in Drug Development

Small molecule hits

Designing Chemical Structures

Pathways studies and Drug Targeting

Lead design with Geometry optimization and Energy Minimization

Computer simulations

Chemical reaction indexing

Pharmacophore analysis

Docking

Chemical Patents

FDA in drug trials

Introduction to Immunoinformatics and Computational Vaccinology

Accessing genome agencies

Vaccine database and Data mining

T-Cells development

Antigen processing and presentation

Reverse Vaccinology and Vaccine screening

MHC binding

Organ Transplant and Auto Immune diseases

Epitope prediction and Servers

In Silico approach towards AIDS Vaccine and Avian Influenza Virus

Vaccine design

Relevant Tools and Soft wares

Research Projects (2)