

Course coordinator: DEVENDRA LINGOJWAR
Director ATG LAB

ATG 1: Biotechnology and Bioinformatics training program

Bioinformatics protocols:

1. **NCBI database and gene annotation (Genebank, Graphic & FASTA format):**
 - a. **Viral genome:** DNA viruses: single stranded virus: Human Parvovirus B19 (**DL:NIV**); dS: Human Rotavirus; RNA viruses: (+)sense: Dengue; (-) sense: Rabies; (Ambi) sense: Lassa fever virus; Human Herpes virus; HIV 1 & 2; H1N1 Influenza
 - b. **Bacterial genome:** E. coli; Bacillus anthracis; Lysinibacillus sphaericus sp **DL15.**; Stenotrophomonas sp **DL18.**
 - c. **Human Genome:** Beta globin gene family / ATP synthase
 - d. **Plant Genome:** Barcoding genes ITS2 database / Gender determination
2. **Primer designing:**
 - a. **Primer3 / NCBI / IDT:** Human parvovirus B19; Human Beta globin gene; rpoB / ATP synthase Bacillus anthracis Lysinibacillus sphaericus sp **DL15.**; Stenotrophomonas sp **DL18.**
3. **DNA sequencing data interpretation and molecular identification**
 - a. **Bioedit; Reverse complement; NCBI BLAST2; NCBI BLAST**
4. **Multiple sequence alignment and Phylogenetic studies**
 - a. **ClustalW; MEGA 4.1 / 5**
5. **Proteomics: Amino acid sequence & structural comparison and visualization**
 - a. **SPDB; Cn3D; Discovery studio; Chimera**

Biotech protocols:

1. **DNA extraction** by spin column and DNAzol method
2. **Polymerase Chain Reaction** on extracted DNA
3. **Agarose gel electrophoresis** for visualization of PCR products
4. **Restriction digestion:** EcoRI / HindIII digestion
5. **Ligation:** T4 DNA ligase
6. **Protein: Amylase, PRP** isolation and separation by SDS PAGE
7. **Protein: Hemoglobin;** Blood collection, separation of RBCs, Hemolysate preparation and Cellulose acetate membrane electrophoresis for Hb pattern studies
8. **Sickle cell anemia:** Comparative studies with earlier field studies: SNP studies with clinical correlation to sickle cell anemia

For more detailed information visit personally or email to:

DEVENDRA LINGOJWAR

Director, ATG LAB, First floor, Sourabha Apartment, Ganesh Nagar, Pimple Nilakh, Pune 411027
Ph No. +91 20 65104543 +91 9921446321, email atgbiotechtraining@gmail.com
Website <http://www.atgbiotech.com>