ATG LAB
Biotechnology Professional Training Programs

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ATG……First Student Oriented brand in India established in 2007. Trained more 250 plus students and faculties from all over India and abroad including PhD's.
Since 2007, with a decade of experience of providing guidance in biotechnology and life sciences, success stories from our lab are self-explanatory, why you should join our team for your career. Taking only merit student and absorbing in own R&D lab that's the trend of most of the established big labs in India. But the real fun is taking any student wherever they are, at present (irrespective of the marks, gap after marriage for girl students, caste, religion, region, language, color, race, ethnicity and nationality with full understanding of their real problems) and making their career. Our aim is to provide very good research platform with full freedom for budding scientists. The vision and scientific aptitude we create among students in our lab boosts the confidence in graduate and post graduate students required not only in interviews and but also conducting effectively their actual duties in Academics, R&Ds, Biotech companies, jobs and career abroad. This will be a golden opportunity to build enough confidence before fresh student enter in job market. Exchange of ideas among the faculties, students and ATG LAB friend community in Facebook as well as past students who are in USA and many other countries proved beneficial for career guidance for fresh students who wants to go abroad. Contacts and guidance of these eminent persons in their field, with the bond we established, spanning over a decade will be enough for building strong research profile before project completion. ATG itself acts as "initiation codon" and there should be no more suffering for guidance for doing science. Ask ATG LAB community abroad, how is the research and life out of India? How beautiful the world of research is?
Come to ATG.
Know who you are. Self-discover your domain, Go abroad, A wonderful career is there.
Fulfill your dreams……!!!

Brief Details of all our training programs

We provide training from Rs. 999/- to Rs. 75,000/- for minimum two days to three months. Fees is content based and not duration based. Those who are more matured stage of career or serving as a faculty or International students, try to finish is minimum duration to save expenses on stay in Pune / INDIA. And graduates and post graduate students try to take same course for more duration. We gave range of duration. Actual duration you have to decide. Best wishes.

ATG1: Biotechnology and bioinformatics

Biotech protocols: DNA extraction, PCR of extracted DNA, electrophoresis, Restriction digestion, Ligation, Protein isolation, purification, SDS PAGE, Human genetics SNP studies with clinical correlation to sickle cell anemia, Bioinformatics protocols for viral / Bacterial / human genomics: NCBI / Pubmed (Finding gene from genome, FASTA, Gene Bank, Graphic) Bioedit (DNA sequence data interpretation, reverse and forward primer sequence studies, BLAST, Reverse complement, BLAST2, Multiple Sequence alignement, Phylogenetic tree, Protein comparative structural analysis with SPDB, Visualization by Discovery studio & Chimera Theory of related protocols. Fess Rs. 35,000/- Duration 30- 60 days

ATG2: Recombinant DNA Technology and Genetic Engineering

DNA extraction, Nested Two step PCR for Viral detection, (only a part of noninfectious viral DNA cloned in plasmid, biologically safe for students handling), Agarose gel electrophoresis, Restriction digestion: By Eco RI / Hind III restriction

endonuclease, Ligation By T4 DNA ligase, Subculture of E. Coli, Preparation of E. coli (host cells) in log phase, Competent cell preparation by CaCl2 method, Transformation, Insertion of plasmid into competent E. coli, Screening of transformants, calculation of transformation efficiency, SDS PAGE, Western blot with Theory: Fees Rs. 40,000/- Duration 30- 45 days

ATG 3: Complete PCR technology

6 PCR Protocols (All important types of PCRs) DNA extraction protocol by DNAzol as well as by and spin column method, 1. Level 1 PCR with ready to do master mix, 2. Nested two step PCR, 3. Gradient PCR for standardization of new PCR, 4. Touch down PCR for Trouble shooting, 5. bacterial identification PCR by 16S rRNA conserved region primers, 6. Human X and Y chromosome PCR (PCR Theory: Basic PCR, PCR types, electrophoresis, How to set up PCR reaction: calculation for PCR reagents, Primer designing. Fees Rs. 30,000/- Duration 25 to 45 days

ATG 4: Transformation

Subculture of E. coli, preparation of log phase bacteria; preparation of competent cells; transformation protocol, screening of transformants, colony counting and transformation efficiency with Theory. Fees Rs. 7500/-, Duration 6 -10 days

ATG 5: Single PCR training

One PCR and one electrophoresis only wet lab protocols. Fees Rs. 999/- 2 days

ATG 6: Human RT PCR

RNA isolation by Trizol, cNA preparation, RT reaction of extracted RNA, PCR of prepared cDNA, DNA electrophoresis for visualization of PCR product on agarose gel with Theory. Fees Rs. 7500/- Duration 6 days

ATG 7: Introductory PCR training

Level 1 PCR with ready to do master mix and DNA electrophoresis; Nested PCR with two sets of primers for viral detection and DNA electrophoresis: with Theory: 2 lectures (Basic PCR and DNA electrophoresis). Fees Rs. 7500/- Duration 6 days

ATG 8: Basic molecular biology

Basic student's PCR (Level 1 PCR with ready to do master mix & DNA electrophoresis; Nested PCR with two sets of primers for viral detection & DNA electrophoresis, DNA extraction & PCR with extracted DNA & DNA electrophoresis, Theory: lectures (Basic PCR, PCR types and DNA electrophoresis: Fees Rs. 10,000/ -Duration 12 to 15 days

ATG 9: Advanced molecular biology

Basic students PCR (Level 1 PCR with ready to do master mix & DNA electrophoresis; Nested PCR with two sets of primers for viral detection & DNA electrophoresis, DNA extraction & PCR with extracted DNA & DNA electrophoresis, Subculture of E.coli; preparation of log phase bacteria; preparation of plasmid; preparation of competent cells; transformation, screening of transformants. Theory (PPT): lectures (Basic PCR, PCR types, DNA electrophoresis, Transformation, Calculations. Duration: Rs. 15,000/- Duration 18 to 25 days

ATG 10: Applied molecular biology

Protocols: Nucleic acid isolation, PCR & DNA electrophoresis: DNA and RNA extraction a. Standard general student's PCR, b. Nested PCR for viral diagnosis by diagnostic primers set, c. Gradient PCR: Standardization of new PCR, d. Applied PCR for bacterial detection from conserved region primers, Reverse Transcriptase PCR: RT-PCR for specific Human cell lines with DNA electrophoresis Transformation: Competent cell preparation, transformation, identification of transformants, Protein: Collection, Processing, Isolation, purification, Hb electrophoresis & comparative studies with clinical profile, Pedigree analysis of genetic disorder and Gene flow studies from actual research project at ATG, Standard SDS PAGE, Applied Bioinformatics: Reading DNA sequence from Applied Biosystems 310 / 3100 Genetic analyzer, Correction of sequence data for data selection for BLAST, Reverse and forward primer data interpretation, Primer designing: Bioinformatics Software and tools for designing primers, BLAST, Multiple sequence alignment and Phylogeny,

Theory: Basic PCR, PCR types, DNA electrophoresis, How to set up PCR reaction: calculation for PCR reagents, Introduction to Primer designing, transformation, Assessment after training: Lectures by trainee to fresh trainee students, calculation demonstration to new fresh trainees, Group discussion, PowerPoint presentation, CV preparation for particular interviews

etc. (Most desired course of ATG LAB i.e. combination of all ATG1+ATG2+ATG3, those who wants to go USA and other countries, this is a must course to do)
Fees: Rs. 75,000/- Duration: 60 to 120 days

ATG 11: Human genetics and genomics

1. PBMC separation from blood by Ficol gradient method (Histopaq by Sigma); 2. DNA extraction from WBCs by DNAzol method; 3. Sickle cell anaemia molecular detection (1 PCR and 1 Agarose gel Electrophoresis, with five primers set and and two genotypes) 4. Sickle cell anaemia biochemical detection (blood sampling, red cell washing and protein purification and Hb electrophoresis) 5. Human X and Y chromosome detection (1 PCR and 1 Agarose gel Electrophoresis)
Fees Rs. 30,000/- Duration 25 to 45 days

ATG 12: Bacterial genomics and PCR

1. DNA extraction from bacteria by DNAzol method; 2. Gradient PCR for 16S RNA and agarose gel electrophoresis; 3. Scale up PCR for 16S RNA and agarose gel electrophoresis; 4. RNA dependent RNA polymerse B subunit (rpoB) for differentiation of Bacillus cereus; group bacteria and agarose gel electrophoresis; 4. DNA sequence data analysis from available chromatograms for 16S rRNA and rpoB genes; 5. NCBI BLAST, BLAST2, ClustalW and Phylogenetic analysis; 6. Data analysis for above studies for final bacterial identification at species level.
Fees Rs. 30,000/- Duration 25 to 45 days

ATG 13: Plant genomics and PCR

1. DNA extraction from plant by CTAB method; 2. RAPD PCR for one primer and three plants with agarose gel electrophoresis 3. RAPD PCR for one plant and three primers with agarose gel electrophoresis; 4. Internal Transcribed Spacer Region 2 (ITS2) Scale up PCR and agarose gel Electrophoresis; 5. DNA sequence data analysis from available chromatograms for ITS2 gene 6. NCBI BLAST, BLAST2, ClustalW and Phylogenetic analysis for ITS2 gene; 7. Data analysis for above studies for final identification of plant at species level and differentiation of two different plants at species level
Fees Rs. 30,000/- Duration 25 to 45 days

ATG14: Animal cell and tissue culture

Protocols: Inoculation of sample in egg. Special purpose egg for viral studies. Primary culture, Chick embryo culture, dissection of mice and liver cell and tissue culture. Maintenance of HepG2 and coculture, viral infections to vero and HepG2 cell line. Cord blood red cell isolation, RBC culture and red cell assays, **Theory:** Sterilization, disinfection, medial preparation, tissue culture lab set up and clean work culture, contamination and diagnosis of source of contamination, yeast, mycoplasma, PCR based detection of contaminants, Different culture media, MEM, DMEM, RPMI 1640, Red cell culture in RPMI 1640 for malaria parasite studies,
Fees Rs. 30,000/- Duration 30 to 45 days

ATG 15: Immunology and Virology

Protocols: Recent & Past infection studies by ELISA: IgG & IgM detection, Viral antigen detection by standard nested PCR, Viral RT PCR, DNA & RNA extraction and isolation of non-infectious viral proteins, DNA electrophoresis and Southern blot, RNA electrophoresis and Northern blot, Protein electrophoresis SDS PAGE and Western blot:
Theory: Molecular Biology of Viruses. Replication strategies of different types of viruses based on nature of DNA and RNA genome. Genome organization. Plant and animal viruses. History of virology, common diagnostic techniques in virology. Antigen test, antibody test, ELISA recent and past infections, Different types of ELISA, Virus neutralization tests, virion and multiplicity of infection. Viral life cycle, viral pathogenesis in human, animal and plants, Plant viruses important from crop and vegetables in India, Common viral infections in India, new and emerging viruses in the world. SARS Corona virus, HIV, HCV, HBV, HAV, HEV, Parvovirus B19, Cytomegalovirus, Zika virus, Ebola virus, Vaccine research and recent trends in virology for jobs and career development. National Institutes of virus diagnostics centers and jobs in India and USA.
Fees Rs. 50,000/- Duration 60 to 90 days

ATG1: Bioinformatics Training with Wet Lab Hands on Training

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 (any one): 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 (one virus, one bacteria and one human example): 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. ClustaW; 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 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 isolation and separation: Amylase and PRP studies by SDS PAGE, OR Hemoglobin studies
7. Blood collection, separation of RBCs, Hemolysate preparation and Cellulose acetate membrane electrophoresis for Hb pattern
8. studies and comparison with other abnormal hemoglobin variants
9. Sickle cell anemia: Comparative studies with earlier field studies: SNP studies with clinical correlation

Duration 30 to 60 days: Fees Rs. 35,000/-

ATG2: Genetic Engineering and Recombinant DNA technology

Work flow based training program for complete understanding of the rDNA technology

All protocol are designed in such a way that after taking this course, students will develop their skills in rDNA technology with complete understanding of the work flow.

rDNA technology Protocols

1. Nucleic acid extractions, DNA or RNA
2. PCR for amplification of desire gene
3. Agarose gel electrophoresis for DNA separation and visualization under Biorad Gel doc system
4. Restriction digestion: By Eco RI restriction endonuclease
5. Ligation: By T4 DNA ligase
6. Cultivation of bacteria: Subculture of E. Coli from stock culture
7. Log phase culture preparation: Preparation of E. coli (host cells) in log phase stage
8. Host vector preparation: Competent cell preparation by CaCl2 method & PUC 18 plasmid preparation
9. Transformation: Addition of plasmid into competent E. coli
10. Screening of transformants: Observation of colonies and calculation of transformation efficiency
11. SDS PAGE: For separation of proteins by Biorad Mini tetra cell PAGE System
12. Western blot: For detection of protein by antibody based assay by Biorad Western blotting system

Trouble shooting, Theory and calculations

1. Theory and concept of Electrophoresis: agarose gel electrophoresis
2. Introduction and concept of PCR
3. Basic PCR protocols and thermal cycler
4. Calculations in this training program

Duration 30 to 60 days: Fees Rs. 40,000/-

ATG3: Complete PCR technology

ATG 3: Complete PCR technology: 6 PCR Protocols (All essential and important types of PCRs)

Protocols

1. Level 1 PCR with ready to do master mix with bacterial / human genomic DNA
2. Level 2 PCR: preparation of master mix by student followed by PCR on positive control DNA
3. Level 3 PCR: DNA extraction by DNAzol method, master mix preparation, PCR on extracted DNA
4. Standardization of annealing temperature i.e. Gradient PCR (Trouble shooting PCR)
5. Standardization of MgCl2 for PCR (ITS2 Plant PCR) (Trouble shooting PCR)
6. Any one from list of following application PCRs:

a. Human X and Y chromosome PCR and analysis for gender determination
b. Bacterial identification based on 16S rRNA with phylogeny for identification of bacteria
c. Plant identification PCR based on ITS2 and phylogenetic analysis of available sequence data

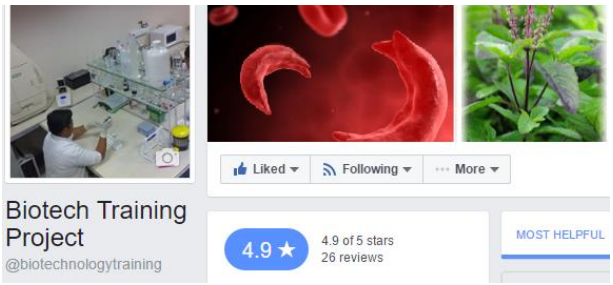
Bioinformatics and Genomics for ATG 3 course

Database and basic requirement for complete understanding of PCR
PCR Primer: Primer alignment, primer designing, SNP, Nested, diagnostic and conserved region primers etc.
PCR Theory: Basic PCR, PCR types, electrophoresis, How to set up PCR reaction: calculation of all PCR reagents, Basic Primer designing, primer calculation for final PCR set up.
Theory classes for ATG 3 course

1. Theory and concept of Electrophoresis: agarose gel electrophoresis
2. Introduction and concept of PCR
3. Basic PCR protocols and its variations
4. Thermal cyclers and evolution of PCR technology
5. Variation based on reagents including primers
6. Variation based on genomic DNA
7. Variation based on cycling conditions
9. PCR Applications: Conserved region primers e.g. 16 S rRNA PCR and DNA sequence analysis for bacterial identification
10. PCR Applications: Specific primers for PCR based detection without DNA sequencing, diagnostic PCR
6. How to set up PCR: PCR reagent and primer calculation

Duration: 30 to 60 days Rs. 30,000/-

- Training
- Project
- Workshop
- Diagnosis
- CRO
- SOP MS



- Publication based projects
- PhD Help in India
- MS/PhD assistance
- UK / USA / EU Canada

ATG 7: Introduction to Molecular Biology: PCR and its applications (B.Sc. and B.Tech Biotechnology and Life sciences)

This course is intended for entry-level training in PCR and genomic. This is not only demonstration but also individual handling of PCR machine, master mix, solving calculations and along with understanding complete theory and applications. You will be working at ATG, as independent trainee for preparation of master mix and addition of genomic DNA template and separating and visualizing PCR amplified products in gel documentation system from Biorad. You will do this protocol individually under the supervision of molecular biology faculty and he or she will correct you while working if anything goes wrong. Based on gel documentation observation, results will be discussed along with troubleshooting if any.

PCR amplification of common genes: 16S rRNA, ITS2, human beta globin, X and Y chromosome regions, rpoB, Cyt C, ATP synthase a and c regions and many more.

Day 1: Theory and concept of PCR, applications of PCR in prenatal diagnosis, viral diagnosis: DNA virus NS1 region of human parvovirus B19 and RNA virus: Hepatitis E virus ORF2 region amplification, bacterial identification by ITS and 16S rRNA ribotyping, Plant DNA barcoding by ITS2 etc.
Day 2: Theory and calculations; demonstration of PCR by expert faculty in the field of human genetics, virology, plant molecular biology and molecular microbiology with simultaneous discussion and chats
Day 3: Theory and concept of DNA electrophoresis, calculations in gel electrophoresis, demonstration of gel preparation and separation of DNA on gel using Biorad Sub Cell GT submarine electrophoresis set up, Biorad Gel documentation for demonstration purpose with Quantity one software.
Day 4: Individual handling of PCR instrument: Biorad Thermal Cycler Gradient, Calculation of reagents and PCR cycling conditions, preparation of master mix and addition of genomic DNA template and starting your first individual handling PCR
Day 5: Preparation of gel electrophoresis in group (as single gel is enough for a batch of five to students), preparation of loading of PCR sample, electrophoresis and gel documentation in Biorad Gel doc and analysis by using Quantity one software
Day 6: Early half: Trouble shooting, queries on calculations, Post Lunch session: Certificates. Group discussion about how this training will be helpful, what you wants to be? Biotech career: R&D, academic or jobs? Future plans for going abroad. How ATG will be helpful.

Working in ATG was fruitful for our more than 250 students we trained since 2007. Come join and experience learning science with fun and freedom.

Fees: Knowledge is priceless. Only Rs. 5000/- for a batch of 5 students and Rs. 4500 for batch of 10 students. Prior registration required for arranging schedule, protocols, prints and certificates etc. Registration charges Rs. 500 with 50% amount of training fees. For individual training please refer to other courses. (atg1, atg2, atg3, atg 10, atg11 etc.)
Staying facilities in Pune: We will provide phone numbers from PGs and boys and girl hostel. Please make your own arrangement. You can find these facilities from Quiqr app from your phone. For any assistance, feel free to contact us.
For more details of our lab and training dates, visit our website www.biotechtrainingproject.com