

**Professional Industrial Training
program in Biotechnology**

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Director ATG LAB

ATG 3: Complete PCR training program

Theory you need to study and we will guide through PPT, reference materials etc.:

Note: This theory will not be covered for short term or modified short PCR programs of less than 6 PCR course.

1. Theory and concept of Electrophoresis: agarose gel electrophoresis
2. Introduction and concept of PCR
3. Basic PCR protocols and its variations
4. PCR Applications : Conserved region primers e.g. 16 S rRNA PCR and DNA sequence analysis for bacterial identification
5. PCR Applications : Specific primers for PCR based detection without DNA sequencing
6. How to set up PCR: PCR reagent and primer calculation
7. PCR Primer: Primer alignment, primer designing, SNP, Nested, diagnostic and conserved region primers etc.

Protocols in PCR, Electrophoresis and bioinformatics

1. Nucleic acid extraction: DNA by DNAzol and RNA by Trizol
2. Basic student's PCR for initial learning (level 1 with ready to do mastermix)
3. Nested PCR for viral / bacterial nucleic acid detection (level 2 for viral detection)
4. Applications in Forensic: PCR based X and Y chromosome detection for male and female differentiation
5. 16S rRNA PCR for bacterial identification (level 3) – DNA isolated by student (participant)
6. Gradient PCR for standardization of annealing temperature (level 3) - DNA isolated by student (participant)
7. Touch down PCR (Level 3 Template DNA isolated by you) - DNA isolated by student (participant)
8. Separate DNA electrophoresis for each PCR experiments
9. DNA sequence reading nucleotide data publication to NCBI
10. Applied bioinformatics: Primer3, ClustalW and MEGA5

Duration: 25 days (minimum 20 to maximum 30 days)

For more detailed information visit personally or email to:

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