



CSIR– NIIST Thiruvananthapuram

(Under CSIR, Ministry of Science & Technology, Govt. of India)

Construction of Genetically Engineered Microorganism



Mode of Training:
Offline

Schedule:
February 27th 2023

No. of Seats: 12

Duration: 10 days

Course Coordinator
Dr. P A Balakumaran

Course Fees:
Students: Rs.15,000/-
Sponsored*:Rs.20,000/-

Apply online:
<http://sdp.niist.res.in>

Payment through
Bank Transfer

The Director, CSIR-NIIST
(Regional Research Laboratory)
Account No: 67047723825
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*candidates sponsored by in-
dustries/ research organization/
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Introduction

The recombinant DNA technology have been identified as an essential and important subject area of applied biological sciences. A microbial engineer works on the biological, chemical and engineering aspects of biotechnology, manipulating microbes and developing new applications for microbes. Industries focus on recombinant DNA technology for production of valuable bioproducts used in medicine, agriculture, textile and environment. Fundamentals of genetic engineering are essential for the development of a microbial strain with particular application in biotech industries. For construction of a genetically modified organism parameters like origin of DNA, gene isolation, plasmid, promoter, host etc. should be well understood. This program focuses on the methodology to generate genetically modified microbe through recombinant DNA technology.

Topics to be covered

Theory sessions

- Overview of gene cloning – prokaryotic and eukaryotic
- PCR – principles and optimization strategies
- Cloning vectors – plasmids, BAC, YAC, shuttle and expression vectors
- Common host organism and tools used for genetic engineering
- Recombinant protein production and Concept of metabolic engineering

Practical sessions

- Primer designing & Gene amplification by PCR
- Plasmid DNA isolation and Restriction digestion of DNA and ligation
- Transformation of recombinant construct
- Screening of positive clones by PCR and confirmation of recombinant strain

Eligibility

B.Sc in Biological Sciences/B. Tech in Biotechnology, Biochemical /Chemical Engineering; M.Sc in Biological Sciences/M Tech in Biotechnology, Biochemical /Chemical Engineering; Ph.D Scholars in biological science/Biotechnology

Job Opportunities

Research Scientist/Associate Scientist/Research Executive/Technical Officer in R&D facility of Biotech industries. Augmentation of Skills for Biotechnology R&D in Academics; Biotech companies involved in enzyme and protein production, R&D Institutions

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