CSIR Integrated Skill India Initiative

Certificate Courses on Molecular Cloning, Protein Expression, and Structural Characterization

Code – IICB-CESC

Recombinant protein is used for different biochemical and biomedical science. In addition, it has tremendous technological importance. Recent developments provide several strategies to clone the gene, express the protein in bacterial cell and many other such expression vectors. Subsequent steps involved the extraction, purification and structural characterization using several modern high end spectroscopic methods. The course has designed such that the students of B.Sc, M.Sc level learn cloning of the associated gene, protein expression vectors and expression, extraction of desired protein from cells, purification and structural characterization by absorption, fluorescence and circular dichroism (CD) methods.

Training Curriculum :

- ✓Handling of bacterial cell cultures,
- ✓Preparation of cell culture media,
- ✓Polymerase Chain Reaction and Real Time PCR (method)
- ✓Agarose gel electrophoresis
- ✓Cloning in plasmid DNA
- ✓Transformation of the recombinant vector into the host bacterial strain for expression
- ✓Extraction and purification of protein
- ✓Gel electrophoresis (SDS-PAGE) and western blotting
- ✓Absorption behaviour of protein
- ✓Protein structure determination by CD and fluorescence spectroscopy
- ✓Learn to handle instruments, like PCR, Q-PCR, Gel-Doc, Chemidoc, CD, UV/Vis Spectrophotometer

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Educational Qualifications : UG or PG (in any branch of Science/Technology/Pharmacy) (Pursuing/ Completed degree)

Venue Of the course : CSIR-IICB, Jadavpur Campus

Age group: : 20-45 years (relaxation for SC/ST/OBC as per GOI rules)

Course Fee : Rs. 5,000/- (inclusive of GST)

Duration : 2 weeks(16th June 2025-27th June2025)

Salient Features of the courses:

- Theory and practical sessions are per the course curriculum
- Hand-out information on teaching modules
- Lectures includes the entire process of routine clinical chemistry with multimedia aids
- Hands on training through several practical classes in laboratories
- Exposure to all relevant instruments
- Continuous assessment through theoretical assignments & practical examinations for evaluation
- A certificate will be issued to the successful candidates
- **Seats Available : 20 (*Shortlisting will be based on first come-first serve policy and eligibility criteria of the course*)**
- Due to limited availability of seats, early registration through online application is recommended .
- Candidates can apply for multiple courses. In such cases, shortlisting will be based on **fulfilment of eligibility conditions, availability of seat and number of single choice applicants for the course**
- Admission process is completely online including the payment of fees.
- Once a candidate is shortlisted for a particular course, any request for change of course will not be accepted .
- Candidates cannot take admission simultaneously in two different courses

➢ **Refunds to the enrolled candidates will be made by the institute in case of cancellation of the course due to low batch strength. Such candidates will be informed about withdrawal of course and refund of fees within stipulated time.**