

# Online Hands-on Training

## Basic and Advanced Computational Tools for Molecular Genetics



16- 22 February, 2021

### Organized By

Fish Genetics and Biotechnology Division  
ICAR- Central Institute of Fisheries Education  
(University under Sec. 3 of UGC Act)  
Panch Marg, Off Yari Road  
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### Background

Recent advances in sequencing technologies have led to unravelling of genomic information from the model and non-model organisms at an affordable cost. Novel algorithms and computational tools are required to harness meaningful information from the high-throughput DNA sequence data. Accordingly, different computational tools have been developed to analyse sequence data in order to estimate biodiversity, resolve taxonomic ambiguity, develop molecular markers, and identify novel genes. In addition, several researchers also continue to use sequence variation at known loci for taxonomic delineation.

Hence, this online training program is designed to impart hands-on training on basic and advanced computational tools (Geneious Prime) for molecular data analysis. Geneious Prime is a user-friendly and affordable software for analysing small as well as high-throughput DNA sequence data. The trainees will be provided a license key of the software during the training. The course contents are as below. The minimum laptop/desktop configuration required is 4 GB RAM.



Course content

- Introduction to Sanger and Next Generation Sequencing Technologies
- Introduction to bioinformatics tools
- Sequence databases and their utility
- Sequence retrieval and analysis
- Sequence alignment using web-based tools
- Phylogenetic analysis
- Primer designing
- DNA Barcode data analysis
- NGS data analysis using Geneious Prime (Metagenomics, Metabarcoding)
- Identification of SSR and SNPs from NGS data and development of markers

**Dates:** 16<sup>th</sup> to 22<sup>nd</sup> Feb 2021  
**Registration fee:** Rs. 1500/- for students, Rs. 5000/- for faculty  
**Eligibility:** PG students, Research Scholars, Assistant Professors and Scientists  
**Last date of application:** 10<sup>th</sup> Feb 2021

**How to apply:** Interested candidates can send duly filled up or typed registration forms along with fee receipt to [aparnac@cife.edu.in](mailto:aparnac@cife.edu.in) /[hod.fgb@cife.edu.in](mailto:hod.fgb@cife.edu.in)

**Bank details for registration fee transfer**  
Account Name : ICAR Unit CIFE, Mumbai  
Name of the Bank : State Bank of India  
Account Number : 10132355212  
IFSC Code : SBIN0003117

**About CIFE**  
ICAR-Central Institute of Fisheries Education (Deemed University) is India's only national fisheries university. It is a premier institution dedicated to promoting higher fisheries education through generation of high quality human resource, high end research in both basic and applied aspects, generation of appropriate technologies and their dissemination. CIFE alumni constitute the country's present leadership in this sector.

Fish Genetics and Biotechnology Division has been working in the area of molecular genetics since last two decades. In recent years, we have developed species specific DNA barcodes and delimited monogenean parasites, crustaceans, molluscs, elasmobranchs and teleosts with confirmatory nuclear markers. The Division has also unravelled the mitochondrial genome of mahseer fishes for species delineation, developed microsatellites and mined SNPs from high-throughput sequence data, and has expertise in the area of molecular genetics.



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**Basic and Advanced Computational Tools for Molecular Genetics**  
(16- 22 February, 2021)  
Registration Form

Name .....

Occupation .....

Affiliation .....

Address .....

Mobile No & email: .....

Educational Qualification .....

Sex .....

Experience in the field (if any) .....

Reason of attending .....

Forwarded by HOD/PI/ Head of Institution  
(In-service candidates only)

Signature of the Candidate