



सत्यमेव जयते
Department of Science and Technology
Ministry of Science and Technology
Government of India

TRAINING PROGRAM

ADVANCED MOLECULAR BIOLOGY TECHNIQUES (Bioscience for Human Health Mission)

21th - 27th March, 2022



Under

**Synergistic Training Program Utilizing the Scientific and
Technological Infrastructure (STUTI)**

In Collaboration With

Department of Zoology (FIST Assisted)

&

Sophisticated Analytical Instrumentation Facility (SAIF)/

Central Instrumentation Laboratory (CIL), Panjab University, Chandigarh

Prof. G.R. Chaudhary
STUTI Program Coordinator
Panjab University, Chandigarh

Dr. Y.K. Rawal
Workshop Coordinator

Dr. Archana Chauhan
Organizing Secretary

Website: stuti.puchd.ac.in



EMINENT SPEAKERS



Prof. R. K Kohli
J. C Bose National Fellow
FNA, FASc, FNASc, FNAAS
Vice Chancellor
Amity University, Punjab



Prof. Javed. N. Agrewala
Bhatnagar Awardee
Professor and Dean
Research CBME, IIT Ropar



Prof. Anand Ranganathan
Young Scientist, INSA
Special Centre for Molecular
Medicine, JNU



Prof. Shailja Singh
National Women Bio-scientist
Awardee
Special Centre for Molecular
Medicine, JNU



Prof. Sukhbir Kaur
Department of Zoology
Panjab University, Chandigarh



Prof. Rajagopal Raman
Department of Zoology
University of Delhi



Prof. Sanjeev Kumar
Department of Botany
School of Basic Sciences, CUP



Prof. Kashmir Singh
Dept of Biotechnology
Panjab University, Chandigarh



Dr. Ashwani Kumar
Senior Principal Scientist
IMTECH, Chandigarh



Dr. Amit Kumar
Principal Scientist, MTCC Lab
IMTECH, Chandigarh



Dr. Aruna Rakha
Dept of Translational and Regenerative Medicine
PGIMER, Chandigarh

ORGANIZERS



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Director, SAIF/CIL
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Panjab University, Chandigarh



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Workshop Coordinator &
Chairperson
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Panjab University, Chandigarh



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Department of Zoology
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Dr. Ravinder Kumar
Department of Zoology
Panjab University, Chandigarh



Dr. Indu Sharma
Department of Zoology
Panjab University, Chandigarh

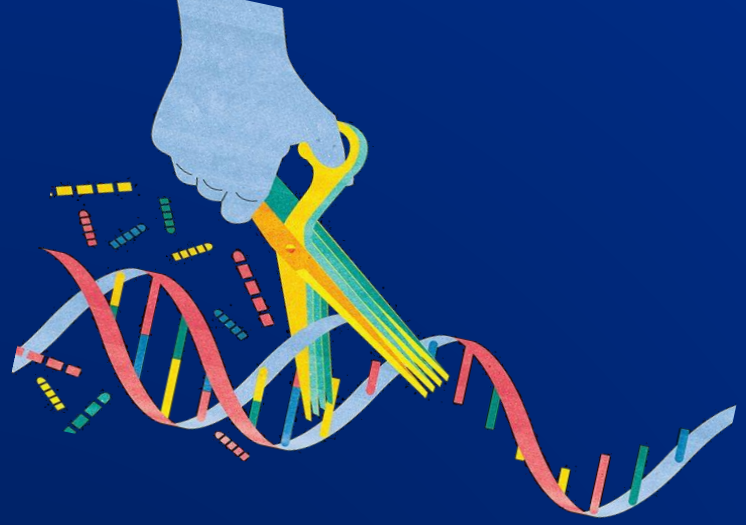


Dr. Vijay Kumar
Department of Zoology
Panjab University, Chandigarh

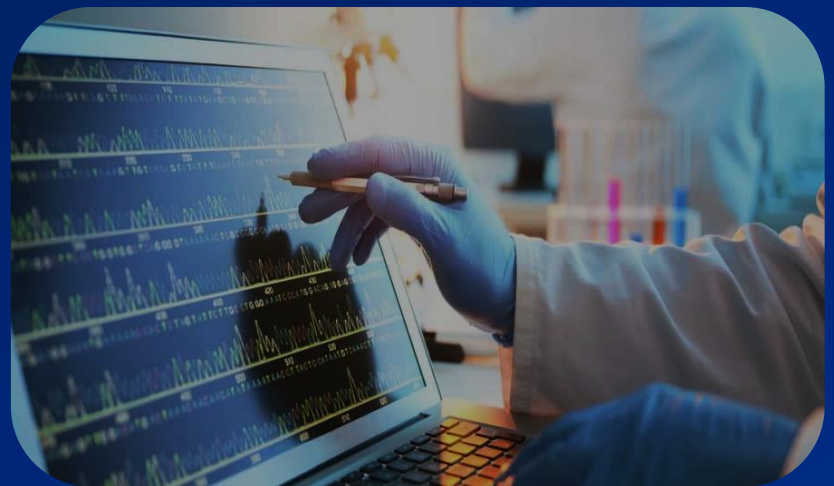
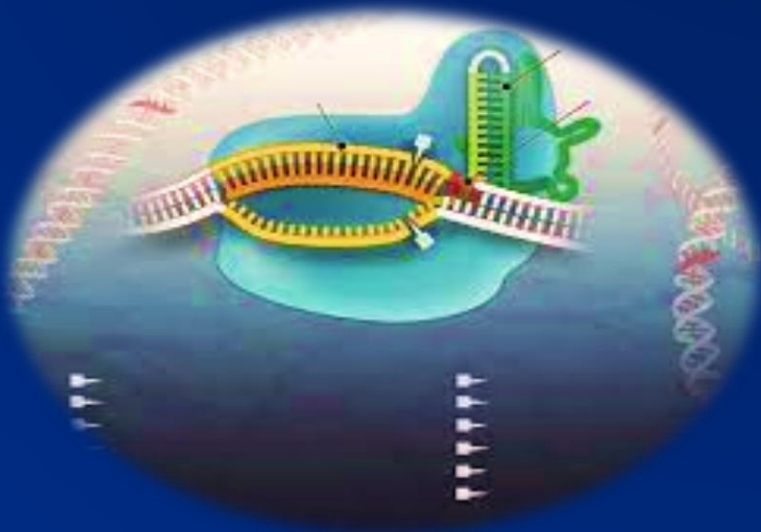
Department of Zoology and SAIF/CIL; Panjab University, Chandigarh

DAY ONE

March 21, 2022



- 08:30 – 09:00 am : Inauguration
- 09:00 – 10:30 am : Lecture 1: Gene Editing using CRISPR
- 10:30 – 11:15 am : Interactive session, Queries & trouble shooting
- 11:15 – 12:45 pm : Lecture 2: Genomics and Next Generation Sequencing (NGS)
- 12:45 – 01:30 pm : Interactive session; Queries & trouble shooting
- 02:00 – 02:30 pm : Introduction of participants
- 02:30 – 06:00 pm : Visit to SAIF/CIL

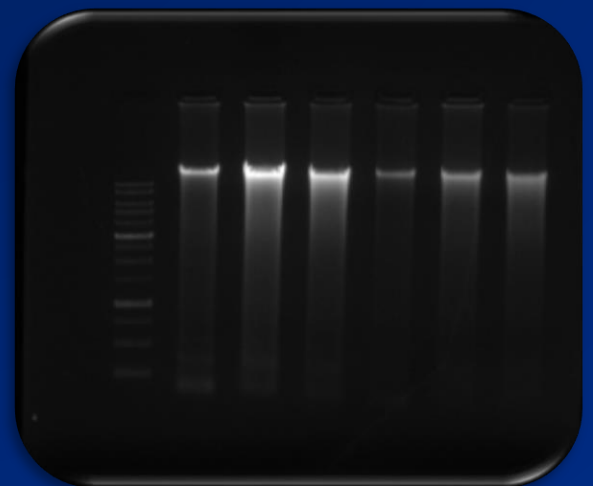


DAY TWO

March 22, 2022

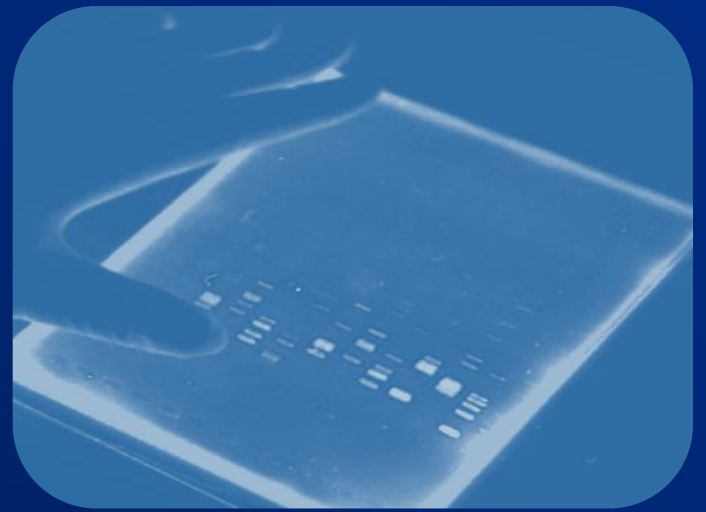


- 09:00 – 10:30 am : Lecture 1 – Genomic DNA isolation from animal tissue and its application
- 10:30 – 11:15 am : Interactive Session: Queries & trouble shooting
- 11:15 – 12:45 pm : Lecture 2 – Gel electrophoresis: principle and applications
- 12:45 – 01:30 pm : Interactive session; Queries & trouble shooting
- 02:30 – 05:30 pm : Hands on DNA isolation from animal tissue and agarose gel electrophoresis of isolated gDNA
- 05:30 – 06:00 pm : Interactive Session: Queries & trouble shooting



DAY THREE

March 23, 2022



- 09:00 – 10:30 am : Lecture 1 –Quantification of DNA-Nanodrop
- 10:30 – 11:15 am : Interactive Session: Queries & trouble shooting
- 11:15 – 12:45 pm : Lecture 2 – Polymerase Chain Reaction (PCR), types and applications
- 12:45 – 01:30 pm : Interactive Session: Queries & trouble shooting
- 02:30 – 05:30 pm : Hands-on: Qualitative estimation of DNA- Spectrophotometer/Nanodrop & PCR
- 05:30 – 06:00 pm : Interactive Session: Queries & trouble shooting



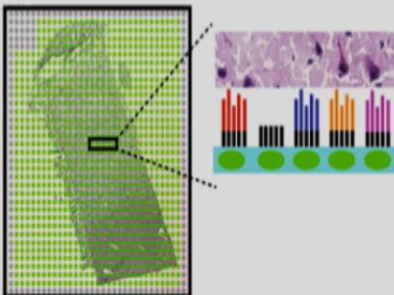
DAY FOUR

March 24, 2022

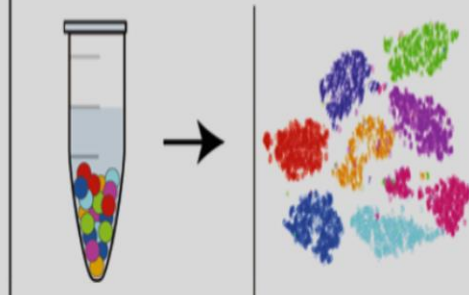


- 09:00 – 10:30 am : Lecture 1- Transcriptomics
- 10:30 – 11:15 am : Interactive Session: Queries & trouble shooting
- 11:15 – 12:45 pm : Lecture 2 –RNA isolation
- 12:45 – 01:30 pm : Interactive Session: Queries & trouble shooting
- 02:30 – 05:30 pm : Hands on: RNA isolation and estimation of isolated RNA on Formaldehyde agarose gel electrophoresis
- 05:30 – 06:00 pm : Interactive Session: Queries & trouble shooting

Spatial Transcriptomics



Single cell/nucleus RNA-seq



DAY FIVE

March 25, 2022



09:00 – 10:30 am : Lecture 1 –Reverse transcription

10:30 – 11:15 am : Interactive Session: Queries & trouble shooting

11:15 – 12:45 pm : Lecture 2: RT PCR

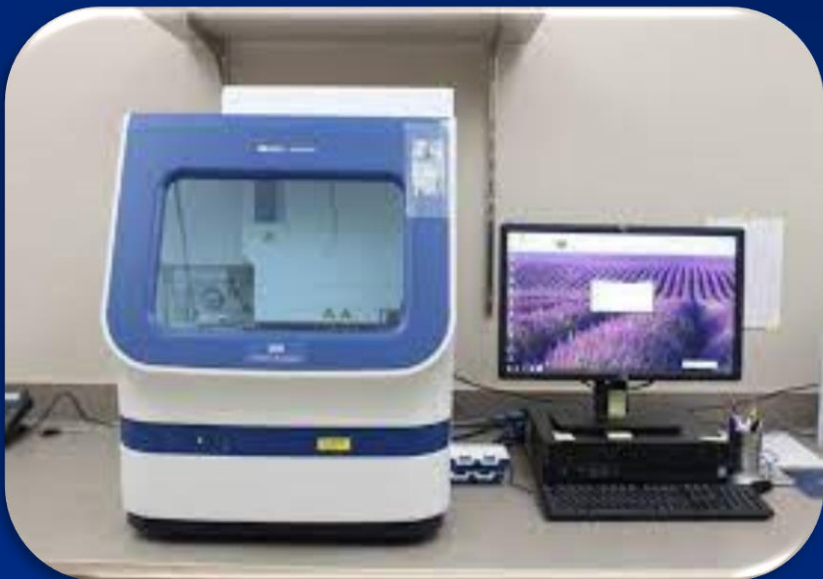
12:45 – 01:30 pm : Interactive Session: Queries & trouble shooting

02:30 – 05:30 pm : Hands on: Real Time PCR and cDNA quality check using housekeeping gene

05:30 – 06:00 pm : Interactive Session: Queries & trouble shooting

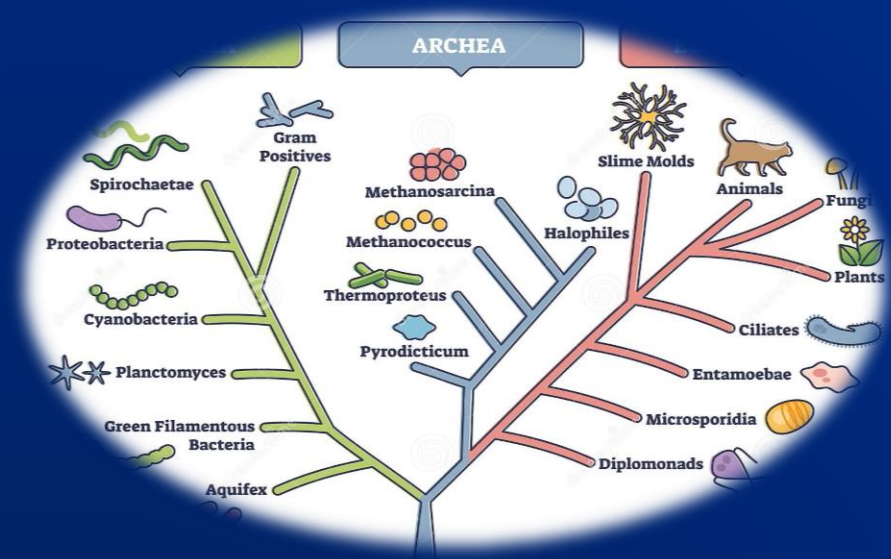


02:30 – 05:30 pm : Visit to IMTECH: Demonstration: capillary sequencing



DAY SEVEN

March 27, 2022



- 09:00 – 10:30 am : Lecture 1– Bioinformatics Analysis of Sanger sequencing
- 10:30 – 11:15 am : Interactive Session: Queries & trouble shooting
- 11:15 – 12:45 pm : Lecture 2– Sequence deposition to NCBI
- 12:45 – 01:30 pm : Interactive Session: Queries & trouble shooting
- 02:30 – 05:30 pm : Test and feedback
- 05:30 – 06:00 pm : Valedictory function

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BLAST®

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Basic Local Alignment Search Tool

BLAST finds regions of similarity between biological sequences. The program compares nucleotide or protein sequences to sequence databases and calculates the statistical significance. [Learn more](#)

NEWS

Magic-BLAST 1.2.0 released

A new version of the BLAST RNA-seq mapping tool is now available.
Mon, 27 Feb 2017 14:00:00 EST [More BLAST news...](#)

Web BLAST

Nucleotide BLAST
nucleotide ► nucleotide

blastx
translated nucleotide ► protein

tblastn
protein ► translated nucleotide

Protein BLAST
protein ► protein

