# "CCMB Microscopy Course (CMC-2025)"

## 8th - 12th September 2025 (Monday to Friday)

The CSIR-Centre for Cellular and Molecular Biology (CSIR-CCMB), Hyderabad, is pleased to announce the **"CCMB Microscopy Course (CMC-2025)"**, a specialized hands-on training program designed for **Ph.D. scholars, Post-Doctoral researchers** from academic institutions and industry working in Life Sciences, Medical Sciences, Pharmaceutical Sciences, and allied fields.

This **intensive five-day workshop** offers a comprehensive blend of theoretical insights and practical training in both foundational and advanced microscopy techniques.

Designed for small, focused groups, the workshop encourages active learning through expert lectures, guided experiments, and collaborative engagement-offering participants a holistic exposure to modern microscopy workflows from sample preparation to image interpretation.

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| **No. of seats** | : | 15 |
| **Minimum Qualification** | : | Masters in any branch of Life Science/Allied areas |
| **Dates** | : | **8th – 12th September 2025 (Monday to Friday)** |
| **Mode of the Course** | : | In-house training at CCMB |
| **Mode of selection** | : | Application form & Statement of Purpose |
| **Course Fee** | : | Rs. 17,500/- (Without Accommodation) |
| (Including accommodation & GST). | : | Rs. 20,000/- (With Accommodation) |
| **Application link** | : | http://recruitment.ccmb.res.in/training_programs/sdp/ |

**Course Programme**

**Training Curriculum:**

- Fundamentals of Light Microscopy
- Dedicated sessions on Hands on Sample Preparation and Imaging Best Practices
- Immunofluorescence (IF) and Immunohistochemistry (IHC)
- Super-Resolution Techniques: Airy scan, STED, SIM
- Live Cell Imaging: FRET & FRAP Experiments
- Quantitative Image Analysis and Interpretation.

**Salient Features of the Training:**

- Direct interaction with national and international microscopy experts
- Hands-on sessions using state-of-the-art confocal and super-resolution systems
- Dedicated modules on live cell imaging and fluorophore-based techniques
- Software demonstrations and data analysis sessions
- Certificate of participation from CSIR–CCMB
- Networking and mentoring opportunities
- Training on immunofluorescence and immunohistochemistry protocols using cultured cells and tissue sections
- Exposure to tissue processing, paraffin-sectioning, and staining techniques (H&E)
- Insights into recent advances and applications of Light Microscopy innovations.
- Opportunities to interact with microscopy companies for technology updates and demonstrations
- Limited participant intake to ensure focused, hands-on engagement

Scan to Apply

**Course Coordinator:**

**Dr. Nitla Venkata Mahesh**
Scientist & Facility In-Charge, Advanced Microscopy and Imaging Facility, CSIR–CCMB.
E-mail: maheshnitla@ccmb.res.in

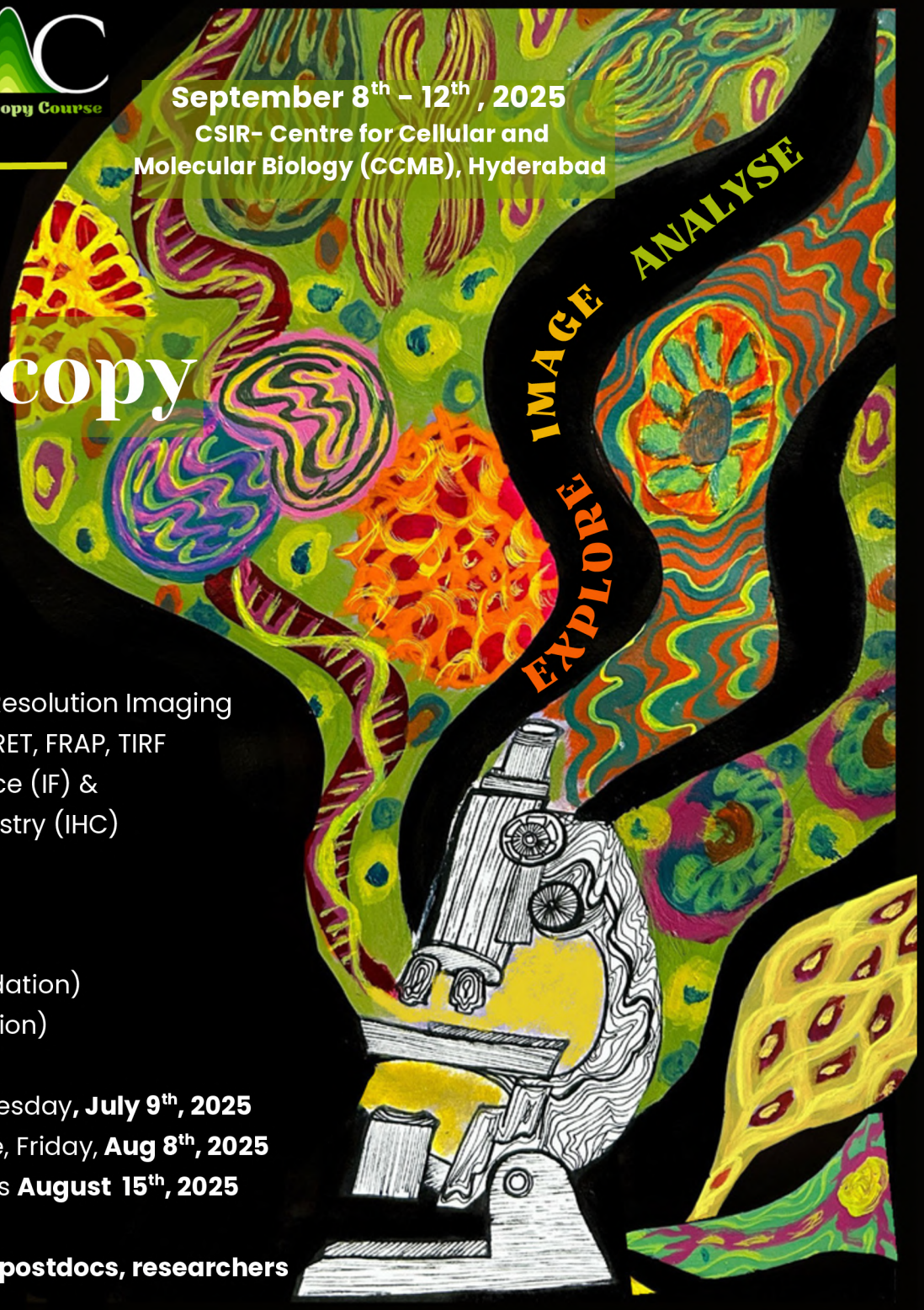
**Mr. Suman Bandari**
Senior Technical Officer, Advanced Microscopy and Imaging Facility, CSIR–CCMB.
E-mail: sumanb@ccmb.res.in

**Course Organizers:**
Dr. Santosh Chauhan, Dr. P Chandra Shekar, Dr. Santosh Kumar,
Dr. Kiran Kumar Bokara, Dr. Ishwariya Venkatesh, Dr. Mahesh Nitla

CCMB Microscopy Course

**September 8th – 12th , 2025**
**CSIR- Centre for Cellular and Molecular Biology (CCMB), Hyderabad**

# CCMB Microscopy Course




## What You'll Learn:

- Confocal & Super-Resolution Imaging
- Live Cell Imaging, FRET, FRAP, TIRF
- Immunofluorescence (IF) & Immunohistochemistry (IHC)
- BioImage Analysis

**Registration Fee**
₹17,500 (without accommodation)
₹20,000 (with accommodation)

📝 Registrations open Wednesday, **July 9th, 2025**
📝 Registrations closing date, Friday, **Aug 8th, 2025**
📢 Selection announcements **August 15th, 2025**
⚠️ Limited seats available
🎯 Priority to **Ph.D. scholars, postdocs, researchers**

Organized by the **Advanced Microscopy & Imaging Facility (AMIF), CSIR–CCMB, Hyderabad, Telangana.**

**COORDINATORS**
Dr. Mahesh Nitla
Mr. Suman Bandari

**ORGANISING COMMITTEE**
Dr. Santosh Chauhan
Dr. P Chandra Shekar
Dr. Santosh Kumar
Dr. Kiran Kumar Bokara
Dr. Ishwariya Venkatesh
Dr. Mahesh Nitla

**Scan for more information**

**Scan to Apply**

**SUPPORT & SPONSORSHIP**

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# CMC-2025 (CCMB Microscopy Course)

**Course Programme | September 8th –12th, 2025 | CSIR–CCMB, Hyderabad**

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## Course Overview

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This intensive five-day microscopy workshop offers a comprehensive blend of theoretical insights and hands-on training across foundational and advanced imaging techniques. Participants will explore fluorescence microscopy, confocal and super-resolution systems, live cell imaging, and specialized applications such as FRET, FRAP, and TIRF microscopy.

The course features dedicated practical modules on Immunofluorescence (IF) and Immunohistochemistry (IHC), covering manual tissue processing, paraffin embedding, sectioning, and H&E staining. A focused session on quantitative bioimage analysis using Fiji and Imaris is also included.

Designed for small, focused groups, the workshop fosters active learning through expert lectures, guided experiments, and collaborative engagement with leading national and international experts.

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## Day-wise Course Structure

### Day 1 – Imaging Foundations & Tissue Processing

- Inauguration & Orientation– **Dr. Vinay K. Nandicoori**, Director, CSIR–CCMB, Hyderabad
- **Participant Introductions:** Brief introductions will be presented by all participants, providing an excellent networking opportunity from the start.
- Fundamentals of Light Microscopy and Fluorescence
- Ethical Practices in Imaging
- Comparative overview: Confocal Microscopy and its limitations
- Hands-on:
    - Initiation of IF Protocol – Coverslip preparation & cell seeding
    - Fluorescence microscopy practicals (rotating groups)
    - Manual tissue processing: Fixation to dehydration steps

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### Day 2 – Live Cell Imaging & Immunofluorescence

- Advanced Microscopy Techniques:
    - Super-Resolution, High Content Imaging, FRET/FRAP
    - Live Cell Imaging Principles & Challenges

- Demonstrations:
    - Live Cell Imaging (rotating groups)
- Hands-on:
    - IF Protocol – Fixation, permeabilization, blocking, primary antibody
    - Tissue processing: Clearing & paraffin infiltration steps

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**Day 3 – Confocal, Super-Resolution & Tissue Embedding** for **Immunohistochemistry (IHC)**

- Specialized Talks:
- Volume Imaging, TIRF Microscopy, Tech innovations in the field.
- Application specialists will briefly present their teams and systems, allowing participants to become familiar with the equipment they will use throughout the course.
    - Hands-on: Confocal and Super-Resolution Imaging
    - Paraffin Wax Embedding
    - IF Protocol – Secondary antibody incubation

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**Day 4 – IHC, Sectioning & Image Analysis**

- Image Analysis Techniques:
    - Quantitative Bioimage Analysis and Colocalization Studies
    - Software Tools: Fiji/ImageJ, Imaris
- Hands-on:
    - Fiji/ImageJ software usage
    - Paraffin Sectioning – Microtomy (trimming, ribboning, mounting)
    - Note: Participants are requested to **bring their own laptops**, travel adaptors for the bioimage analysis sessions

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**Day 5 – Super resolution applications, IHC Development, H&E Staining & Imaging**

- Specialized Talks:
- STORM and PALM
- Hands-on:
    - IHC Development –H&E counterstaining
    - Imaging with AxioImager, V16 Stereo AxioZoom & Apotome.2 systems
- Wrap-Up:
    - Participant feedback, Q&A, and networking
    - Certificate distribution and closing ceremony
    - CCMB Tour

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## Invited Speakers (Selected)

- **Dr. Jyotsna Dhawan**
  CSIR–CCMB, Hyderabad
- **Dr. Mahipal Ganji**
  Indian Institute of Science (IISc), Bangalore
- **Dr. Paul McMillan**
  University of Melbourne, Australia
- **Dr. Ravi Manjithaya**
  JNCASR, Bengaluru
- **Prof. Amitabha Chattopadhyay**
  CSIR–CCMB, Hyderabad
- **Dr. Ganesh Kadasoor**
  Evident Life Sciences
- **Dr. Aishwarya Sivakumar**
  Oxford Instruments, Andor, UK
- **Dr. Ishwariya Venkatesh**
  CSIR–CCMB, Hyderabad
- **Dr. Nicholas Condon**
  The University of Queensland, Australia
- **Dr. Santosh Podder**
  Indian Institute of Science Education and Research (IISER), Pune
- **Dr. Ellie Hyun Jung Cho**
  University of Melbourne, Australia
- **Dr. Nitin Mohan**
  IIT Kanpur
- **Dr. Jerald Mahesh**
  CSIR–CCMB, Hyderabad
- **Dr. Somenath Ghatak**
  Carl Zeiss India
- **Dr. Manoj Manna**
  Leica Microsystems

## CCMB Organizers

- Dr. Santosh Chauhan, CSIR–CCMB, Hyderabad
- Dr. P Chandra Shekar, CSIR–CCMB, Hyderabad
- Dr. Santosh Kumar, CSIR–CCMB, Hyderabad
- Dr. Kiran Kumar Bokara, CSIR–CCMB, Hyderabad
- Dr. Ishwariya Venkatesh, CSIR–CCMB, Hyderabad
- Dr. Mahesh Nitla, CSIR–CCMB, Hyderabad

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## Key Features

- Comprehensive hands-on training in fluorescence, confocal, super-resolution, and live cell imaging techniques
- Expert talks from leading scientists and industry specialists on microscopy principles and applications. AI-based Softwares will be demonstrated by the industry partners.
- Practical sessions covering tissue processing, immunofluorescence, immunohistochemistry, and image analysis.
- Exposure to advanced imaging methods including FRET, FRAP, TIRF microscopy
- Training on cutting-edge bioimage analysis software from proprietary softwares to ImageJ/Fiji, Imaris and applications of QuPath for IHC image analysis.
- Opportunity to work with state-of-the-art microscopes and sample preparation protocols
- Networking and knowledge exchange with experienced researchers and practitioners.
- Participants will receive a certificate upon full course attendance and hands-on participation.
- Performance will be assessed through continuous engagement and participation in modules.
- Total contact hours: Approximately 40-50 hours.

## Venue

**Advanced Microscopy and Imaging Facility (C-104) CSIR–Centre for Cellular and Molecular Biology (CCMB), Hyderabad**. A modern core facility equipped with state-of-the-art optical and imaging systems, providing an ideal setting for hands-on training in advanced microscopy techniques.

**Accommodation**
Participants will be accommodated at the **CCMB Guest House**, facilitating interaction and networking among participants and invited speakers.
Guest House details: https://www.ccmb.res.in/Facilities-Services/Support-Facilities/Guesthouse

**Travel and Access Information**
Visit: https://www.ccmb.res.in/About-CCMB/Contact

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## Prepare Before You Arrive

Participants are advised to:

- Bring their own laptops for image analysis modules (Windows preferred).
- Install **Fiji (ImageJ)** software prior to arrival.
- Carry USB drives for data backup.
- Bring laboratory coats and suitable footwear for wet-lab sessions.
- Prepare 1–2 biological questions relevant to their research for discussion during interactive sessions.

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## Registration & Participation

- Eligibility: This course is primarily intended for PhD students and post-doctoral researchers, although exceptions can be made for junior faculty.
- In-person participants: Limited to 15
- Selection based on motivation, relevant scientific projects, and prior microscopy experience
- Opportunities provided for participants to test their own samples
- Application registration: http://recruitment.ccmb.res.in/training_programs/sdp/
- Application deadline: August 8th 2025
- Selection announcements of the participants: August 15th 2025

## Contacts and More Information

Dr. Archana Bharadwaj Siva
Email: sdp@ccmb.res.in

**Course coordinators**

Dr. Mahesh Nitla
Email: maheshnitla@ccmb.res.in

Mr. Suman Bandari
Email: sumanb@ccmb.res.in

**Course connections:**

# COURSE SUPPORT

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