



MOLECULES TO MEDICINE

Bioengineering for One Health

PROGRAMME SCHEDULE



DEC 4-6, 2025



TTJ AUDITORIUM, IC&SR BUILDING
IIT MADRAS



9:00 - 9:30

Inauguration (Convenor, Director, Rahul Mehta)

9:30 - 10:45

SESSION 1: Structural Biology I

Chairs:

Athi

Naganathan,

IIT Madras

&

Sharad Gupta,

IIT Gandhinagar

Helmut Grubmuller

Max Planck Institute, Fassberg (Germany)

Title: *Towards Room Temperature Macromolecular Structure Ensembles: Freezing Ribosomes And Single Molecule X-Ray Diffraction*

Plenary Lecture
9:30 - 10:00

Giulia Palermo

University of California Riverside (USA)

Title: *Advancing Gene Editing through Computational Methods and Deep Learning*

Keynote Lecture
10:00 - 10:25

Shruthi Viswanath

National Center for Biological Sciences (India)

Title: *Integrative Structure Determination of Sub-complexes of the Mitochondrial Contact Site And Cristae Organizing System (MICOS)*

Invited Lecture
10:25 - 10:45

10:45 - 11:15

Tea Break

11:15 - 12:30

SESSION 2: Disease Biology I

Chairs:

Amal K Bera

IIT Madras

&

Jagadeesh Bayry,

IIT Palakkad

Vinay Nandicoori

Center for Cellular and Molecular Biology (India)

Title: *Delineating the survival strategies employed by Mycobacterium tuberculosis*

Plenary Lecture
11:15 - 11:45

Manidipa Banerjee

Indian Institute of Technology Delhi (India)

Title: *Dynamics of Plasmodium Enzyme Complexes From Native Cryo-EM Structures*

Keynote Lecture
11:45 - 12:10

Soham Chanda

Colorado State University (USA)

Title: *Modeling Synapse Development and Dysfunction with Stem Cell-Derived Human Neurons*

Invited Lecture
12:10 - 12:30

12:30 - 13:15

Lunch

13:15 - 14:30

Poster Session I

Connect to Postdoc mentors
(Invited participants only)



14:30 - 15:45

Chairs:
Vignesh
Muthuvijayan
IIT Madras
&
B.S. Balaji
JNU

SESSION 3: Interventional Biology I

Abhay Pandit

University of Galway (Ireland)

Title: *Exploring the Regenerative Processes Initiated by Biomaterial Systems: Emphasizing The Significance of Glycosylation*

Plenary Lecture
14:30 - 15:00

Kristopher Kilian

University of New South Wales (Australia)

Title: *A Bioengineering Approach To Next-Gen Micro Physiological Systems*

Keynote Lecture
15:00 - 15:25

Shamik Sen

Indian Institute of Technology Bombay (India)

Title: *Glycocalyx in Cancer Invasion & Drug Resistance*

Invited Lecture
15:25 - 15:45

15:45 - 16:15

Tea Break

16:15 - 17:30

Chairs:
Nitish Mahapatra
IIT Madras
&
Utpal Bora
IIT Guwahati

SESSION 4: Translational Biology I

Maneesha Inamdar

inSTEM Bangalore (India)

Title: *Guiding Innovation Towards Therapy, With Stem Cells And Organoids*

Plenary Lecture
16:15 - 16:45

Arumugam Rajavelu

Indian Institute of Technology Madras (India)

Title: *Epigenetically Regulated Parasites' RIFINs Contribute To Severe Malaria Pathogenesis*

Keynote Lecture
16:45 - 17:10

Charlotte Steenblock

Technische Universität Dresden (Germany)

Title: *Emerging Cell Therapies for Type-1 Diabetes and Adrenal Insufficiency: From Bench to Bedside*

Invited Lecture
17:10 - 17:30

17:30 - 18:30

Panel Discussion/ Academia-Industry

Malathi S (*Pfizer*)

Kaushik Ghosh (*Bristol-Myers Squibb*)

Girish S. Ratnaparkhi (*IISER Pune*)

S. Mahalingam (*IIT Madras*)

Smita Srivastava (*IIT Madras*)- Moderator

19:00 - 22:00

Interaction Session over dinner



9:00 - 10:15

SESSION 5: Systems Biology I

Chairs:

Michael Gromiha

IIT Madras

&

Pinaki Sar

IIT Kharagpur

Shankar Subramaniam

University of California San Diego (USA)

Title: *A spatial and tissue digital landscape of triple negative breast cancer – diagnosis to therapy*

Plenary Lecture

09:00 - 09:30

Sangram Bagh

Saha Institute of Nuclear Physics (India)

Title: *Towards AI Bacteria*

Keynote Lecture

09:30 - 09:55

Karthik Sunagar

Indian Institute of Science Bangalore (India)

Title: *Indian Snake Venoms: Ecological Drivers and Therapeutic Innovation*

Invited Lecture

09:55 - 10:15

10:15 - 10:45

Tea Break

10:45 - 12:00

SESSION 6: Structural Biology - II

Chairs:

N. Manoj

IIT Madras

&

Rukmankesh

IIT Bhilai

Naoki Sugimoto

Konan University (Japan)

Title: *“To B or not to B” in Nucleic Acids Chemistry”*

Plenary Lecture

10:45 - 11:15

Saikrishnan Kayarata

IISER Pune (India)

Title: *Mechanism Of DNA Shredding By The Innate Immune Systems of ATP-Dependent Nucleases*

Keynote Lecture

11:15 - 11:40

Aravind Penmatsa

Indian Institute of Science Bangalore (India)

Title: *NETs and GATs: Countering Pain Through Inhibitory Neurotransmission*

Invited Lecture

11:40 - 12:00

12:00 - 12:30

*Communicating
your research
outside the lab*

*HOD Meeting
(11:30 - 12:30)*

12:30 - 13:15

Lunch Break

13:15 - 14:30

Poster Session II

*Road to Academia
(Invited participants only)*



14:30 - 15:45

SESSION 7: Systems Biology II

Chairs:

M Hamsa Priya

IIT Madras

&

Parimal Kar

IIT Indore

Ananth Grama

Purdue University, USA

Title: Learning Across Modalities: From Digital Pathology to Molecular Design

*Plenary Lecture
14:30 - 15:00*

Anand B

Indian Institute of Technology Guwahati (India)

Title: Bacterial Cell Growth and Dormancy: An Interplay Between Ribosome Biogenesis And Stringent Response Pathway

*Keynote Lecture
15:00 - 15:25*

Tapomoy Bhattacharjee

National Centre for Biological Sciences (India)

Title: TBA

*Invited Lecture
15:25 - 15:45*

15:45 - 16:15

Tea Break

16:15 - 17:30

SESSION 8: Disease Biology - II

Chairs:

Vani

Janakiraman

IIT Madras

&

Prosenjit Mondal

IISER Berhampur

Catherina G. Becker

Dresden Technical University (Germany)

Title: Fishing for Success! Spinal Cord Regeneration in the Zebrafish

*Plenary Lecture
16:15 - 16:45*

Arnab Mukhopadhyay

National Institute of Immunology (India)

Title: A Diet-Gene Interaction That Targets Mitochondria To Modulate Longevity

*Keynote Lecture
16:45 - 17:10*

Nikhil R. Gandasi

Indian Institute of Science Bangalore (India)

Title: Islet Cell Secretory Mechanisms: What Are Drivers That Are Dysregulated During Diabetes

*Invited Lecture
17:10 - 17:30*

17:30 - 18:30

Panel Discussion/ Academia-Funding Agencies

Apurva Sarin (*Wellcome Trust*)

Harpreet Singh (*ICMR*)

A. V. Balachandar (*ANRF*)

Kaushik Chatterjee (*IISc*)

Suresh Rayala (*IIT Madras*)

Himanshu Sinha (*IIT Madras*) - Moderator

19:00 - 20:00

Cultural Event by Kalakshetra Foundation

20:00 - 22:00

Dinner

9:00 - 10:15

SESSION 9: Interventional Biology II

Chairs:

V. Kesavan

IIT Madras

&

Ashwani

Kumar Thakur

IIT Kanpur

Amit Singh

Indian Institute of Science Bangalore (India)

Title: *Bioenergetic Crosstalk between Host and Pathogen Mediates Drug Tolerance in Mycobacterium tuberculosis*

Plenary Lecture
9.00 - 09:30

Ramandeep Singh

Translational Health Science and Technology Institute (India)

Title: *Identification Of Novel Therapeutic Interventions Against Mycobacterium tuberculosis*

Keynote Lecture
9.30 - 9.55

Arnab Mukherjee

University of California Santa Barbara

Title: *Programmable genetic sensors for deep-tissue imaging*

Invited Lecture
9.55 - 10.15

10:15 - 10:45

Tea Break

10:45 - 12:00

SESSION 10: Translational Biology II

Chairs:

K. Chandraraj

IIT Madras

&

Supratim Datta

IISER Kolkata

Michele Solimena

Dresden Technical University (Germany)

Title: *Advanced Imaging Unveils The Progressive Demise Of Islet Cells From Euglycemia To Type-2 Diabetes And Back*

Plenary Lecture
10:45 - 11:15

Pradip Kumar Sasmal

Morepen Drug Research Pvt. Ltd. (India)

Title: *Molecules to Medicine: Challenges and Opportunities*

Keynote Lecture
11:15 - 11:40

Meiyappan Lakshmanan

Indian Institute of Technology Madras (India)

Title: *Systems Approaches For Animal Cell Culture Media Development In Biomanufacturing*

Invited Lecture
11.40 - 12:00

12:00 - 13:00

Prize distribution and Concluding remarks

13:00 - 14:00

Lunch

End of Conference

Day 3: 06th Dec