IUBMB FOCUSED MEETING ON

Synthetic *Biology*

15–17 February 2027

NCBS, Bengaluru · India

Tools · Microbiomes · Biomanufacturing · Bioremediation

Life, rewritten.

A focused meeting bringing the global synthetic-biology community to Bangalore.

HOSTED BY

An IUBMB Focused Meeting gathering leading researchers from across the world for three days of talks, posters and exchange at the National Centre for Biological Sciences. The programme spans four threads of engineering biology: from foundational tools to real-world application.

FOUR THEMES

THEME 01

01

Tools

Parts, circuits & platforms

THEME 02

02

Microbiomes

Communities by design

THEME 03

03

Biomanufacturing

Cells as factories

THEME 04

04

Bioremediation

Engineering the cleanup

KEY DATES

REGISTRATION OPENS	REGISTRATION CLOSES	ABSTRACT SELECTION BY	THE MEETING
11 May 2026	1 Aug 2026	15 Aug 2026	15–17 Feb 2027

Twenty-one invited speakers from eleven countries — profiles follow.

Deepa Agashe
NCBS–TIFR
India

Amy Cain
Macquarie University
Australia

Abhishek Chatterjee
Boston College
USA

Debasis Das
Indian Institute of Science
India

Kshatresh Dubey
Shiv Nadar University
India

Kevin Gardner
City University of New York
USA

Claudia Gunsch
Duke University
USA

Akash Gulyani
University of Hyderabad
India

Amrita Hazra
IISER Pune
India

Claudia Höbartner
University of Würzburg
Germany

James C. Liao
Academia Sinica
Taiwan

Sagardip Majumder
Lawrence Livermore National Laboratory
USA

Nilkamal Mahanta
IIT Dharwad
India

Vinothan Manoharan
Harvard University
USA

Emily Parker
Victoria University of Wellington
New Zealand

Shubhendu Palei
IIT Kharagpur
India

Danielle Pedrolli
São Paulo State University
Brazil

Vishal Rai
IISER Bhopal
India

Ahmad Bazli Ramzi
Universiti Kebangsaan Malaysia
Malaysia

Robert Speight
CSIRO
Australia

Claudia Vickers
Queensland University of Technology
Australia

Full profiles on the following pages.

Deepa Agashe

NCBS–TIFR · India

Experimental Evolution · Microbiomes · Adaptation · Host–Microbe Interactions

Prof. Deepa Agashe is an evolutionary biologist and Principal Investigator at the National Centre for Biological Sciences (NCBS), Bengaluru. Her research seeks to understand how life responds to change and how organisms adapt, diversify, and evolve in challenging environments. From investigations into bacterial evolution to dietary adaptation and population divergence, her lab uncovers the mechanisms that shape the remarkable adaptability of living systems.

Amy Cain

Macquarie University · Australia

Antibiotic Resistance · Microbial Evolution · Experimental Evolution

Prof. Amy K. Cain is an ARC Future Fellow and Professor of Molecular Biology at Macquarie University, Sydney, and a member of the ARC Centre of Excellence in Synthetic Biology. Her research focuses on tackling antibiotic resistance by understanding how resistance genes spread and by developing new-to-nature antibiotics. She also co-founded and directs Australia's first Galleria Research Facility, an ethical platform for studying infectious diseases and evaluating new therapies.

Abhishek Chatterjee

Boston College · USA

Chemical Biology · Genetic Code Expansion · Protein Engineering

Prof. Abhishek Chatterjee is a Professor of Chemistry at Boston College and conducts research in genetic code expansion and protein engineering. His laboratory develops chemical and biological tools that enable the incorporation of non-canonical amino acids into proteins, creating new possibilities for studying and engineering biological systems. By integrating chemistry with synthetic biology, his work has expanded the toolkit available for manipulating cellular processes and designing proteins with novel functions.

Debasis Das

Indian Institute of Science · India

Synthetic Biology · Enzymology · Protein Engineering · Metalloenzymes

Debasis Das is an Associate Professor at the Indian Institute of Science (IISc), Bengaluru, whose research combines chemical biology, enzymology, and protein engineering to understand and harness the power of natural enzymes. His lab investigates metalloenzymes and other poorly understood biological systems, applying these insights to develop new therapeutics, bioenergy solutions, and tools for early disease detection. His work brings together diverse approaches from chemistry and biology to address pressing societal challenges.

Kshatresh Dubey

Shiv Nadar University · India

Metabolic Engineering · Systems Biology · Biomanufacturing

Kshatresh Dubey is a researcher at Shiv Nadar University whose work centres on microbial metabolism, systems biology, and engineering strategies for sustainable biotechnology. His laboratory develops approaches to reprogramme cellular pathways and optimise microbial production platforms for valuable compounds. By integrating computational and experimental methodologies, his research addresses challenges in industrial biotechnology and contributes to the growing field of synthetic biology-driven biomanufacturing.

Kevin Gardner

City University of New York · USA

Optogenetics · Protein Engineering · Signal Transduction · Synthetic Biology

Kevin Gardner is a distinguished biochemist at the City University of New York whose research explores how proteins sense and respond to environmental signals. His laboratory has made pioneering contributions to optogenetics and the engineering of light-responsive proteins, enabling precise control of cellular behaviour. By combining structural biology, biophysics, and synthetic biology, his work has created powerful tools for understanding signalling pathways and programming biological systems with unprecedented precision.

Claudia Gunsch

Duke University · USA

Environmental Biotechnology · Microbial Communities · Bioremediation · Synthetic Biology

Claudia Gunsch is a Professor at Duke University whose research focuses on harnessing microbial communities to address environmental challenges. Her work spans environmental biotechnology, microbial ecology, and engineering approaches that improve the degradation of pollutants and enhance ecosystem health. By integrating systems thinking with synthetic biology, her research contributes to sustainable technologies that leverage the remarkable capabilities of microbes to solve pressing environmental problems.

Akash Gulyani

University of Hyderabad · India

Biological Sensors · Quantitative Cell Biology · Protein Signalling · Regeneration Biology

Prof. Akash Gulyani, group leader at Akash Gulyani Lab, University of Hyderabad, is a biologist and bioengineer whose research is driven by a simple idea: new ways of measuring biology reveal new biology. His lab develops innovative biological sensors and probes to visualise cellular processes, including protein signalling, mitochondrial function, and cell state transitions, with high spatial and temporal precision. Combining natural and engineered light-sensing systems with quantitative approaches, his work has uncovered new principles of sensory biology, regeneration, and cellular communication.

Amrita Hazra

IISER Pune · India

RNA Biology · Synthetic Biology · Molecular Engineering · Functional RNAs

Amrita Hazra is a researcher at IISER Pune whose work lies at the interface of RNA biology and synthetic biology. Her laboratory investigates how RNA molecules can be engineered to regulate cellular functions and create programmable biological systems. Through innovative molecular approaches, her research expands our understanding of RNA-mediated regulation and contributes to the development of next-generation synthetic biology tools and applications.

Claudia Höbartner

University of Würzburg · Germany

RNA Chemistry · Chemical Biology · Nucleic Acids · Synthetic Biology

Claudia Höbartner is a leading chemical biologist at the University of Würzburg whose research explores the chemistry and function of RNA and other nucleic acids. Her laboratory develops innovative tools to study RNA structure, catalysis, and molecular interactions, providing fundamental insights into how nucleic acids can be engineered for synthetic biology applications. Her work has significantly advanced the field of RNA-based technologies and molecular design.

James C. Liao

Academia Sinica · Taiwan

Metabolic Engineering · Synthetic Biology · Carbon Capture · Sustainable Bioeconomy

Dr. James C. Liao, President, Academia Sinica, is a pioneer in Metabolic Engineering, Synthetic Biology, and Systems Biology. His research seeks to re-engineer metabolism to address climate change and enable a sustainable bioeconomy. His lab combines metabolic engineering, synthetic biology, and evolutionary engineering to develop microorganisms and plants that can capture and convert greenhouse gases such as carbon dioxide, methane, and methanol into valuable products. By redesigning proteins, pathways, and organisms, his work aims to replace petroleum-based processes with biochemical manufacturing.

Sagardip Majumder

Lawrence Livermore National Laboratory · USA

Computational Protein Design · Bio-resilience · Biosecurity · Protein Engineering

Dr. Sagardip Majumder is a Computational Protein Design Scientist (SES3) at Lawrence Livermore National Laboratory, USA. His work focuses on improving protein design models and computational pipelines for applications in bio-resilience and biosecurity. Before joining Lawrence Livermore National Laboratory in May 2026, he was a postdoctoral researcher at the University of Washington, where he worked on the de novo design of phospholipid membrane nanopores for sequencing and therapeutic applications.

Nilkamal Mahanta

IIT Dharwad · India

Natural Product Biosynthesis · Enzymology · Peptide Engineering · Antibiotic Discovery

Nilkamal Mahanta is an Assistant Professor at IIT Dharwad who studies the novel enzymatic transformations involved in the biosynthesis of bioactive ribosomal and non-ribosomal natural products. His research integrates organic chemistry, biochemistry, bioinformatics, molecular biology, and structural biology to uncover new biosynthetic pathways and investigate post-translational modifications of peptides and proteins implicated in disease. Through combinatorial biosynthesis, pathway engineering, and synthetic biology, his long-term goal is to develop new antibiotic variants to address antimicrobial resistance.

Vinothan Manoharan

Harvard University · USA

Self-Assembly · Soft Matter · Biophysics · Complex Systems

Vinothan Manoharan is a physicist at Harvard University whose research investigates how simple building blocks organise themselves into complex structures. His work in soft matter and self-assembly provides fundamental insights into collective behaviour and the physical principles that govern biological and synthetic systems. By bridging physics, materials science, and biology, his research informs the design of engineered materials and inspires new approaches in synthetic biology.

Emily Parker

Victoria University of Wellington · New Zealand

Enzyme Engineering · Structural Biology · Natural Product Biosynthesis · Drug Discovery

Prof. Emily Parker leads a multidisciplinary research programme focused on understanding and utilising the complex chemistry catalysed by enzymes. Her team combines molecular and structural biology, computational design, and analytical chemistry to develop new treatments for disease and harness natural biosynthetic machinery for the efficient production of valuable molecules. Her research also investigates the molecular details of communication networks in proteins. Her current projects include developing new anti-tuberculosis therapeutics and treatments for meningitis.

Shubhendu Palei

IIT Kharagpur · India

Synthetic Biology · Systems Biology · Metabolic Engineering · Cellular Networks

Shubhendu Palei is a faculty member at IIT Kharagpur whose research focuses on understanding and engineering biological systems through quantitative and systems-level approaches. His laboratory investigates cellular networks and metabolic processes to develop innovative solutions for biotechnology and sustainable production. By integrating computational and experimental methodologies, his work contributes to the advancement of synthetic biology and the design of predictable, high-performing biological systems.

Danielle Pedrolli

São Paulo State University · Brazil

Metabolic Engineering · Industrial Biotechnology · Synthetic Biology · Sustainable Bioprocesses

Danielle Pedrolli is a researcher at São Paulo State University whose work lies at the intersection of metabolic engineering and industrial biotechnology. Her research focuses on developing microbial platforms capable of producing valuable chemicals and biomolecules through sustainable processes. By combining molecular biology, systems thinking, and engineering principles, her work advances the application of synthetic biology in building a circular and environmentally responsible bioeconomy.

Vishal Rai

IISER Bhopal · India

Protein Engineering · Chemical Biology · Synthetic Biology · Biosensors

Vishal Rai is a Professor at IISER Bhopal whose research integrates chemical biology and protein engineering to create innovative tools for studying and manipulating biological systems. His laboratory develops biosensors and molecular technologies that enable precise control and observation of cellular processes. By combining chemistry with synthetic biology, his work is expanding the toolkit available for engineering biological systems and understanding complex molecular interactions.

Ahmad Bazli Ramzi

Universiti Kebangsaan Malaysia · Malaysia

Metabolic Engineering · Synthetic Biology · Systems Biology · Biofoundry Platforms

Assoc. Prof. Ahmad Bazli Ramzi integrates metabolic engineering, systems biology, and synthetic and engineering biology approaches to develop microbial chassis for sustainable biomanufacturing. He actively promotes microbial synthetic biology R&D&I through industrial and international collaborations and serves as the coordinator of the UKM Biofoundry, a member of the Global Biofoundry Alliance, and a representative member of the Asian Synthetic Biology Association and SynCell Asia Initiative.

Robert Speight

CSIRO · Australia

Industrial Biotechnology · Enzyme Engineering · Bioprocessing · Synthetic Biology

Robert Speight is a leading scientist at CSIRO whose research focuses on industrial biotechnology and the translation of biological discoveries into scalable technologies. His work spans enzyme engineering, microbial systems, and bioprocess development aimed at creating sustainable manufacturing solutions. By bridging fundamental science and industry applications, his research contributes to the development of innovative bio-based products and processes that support the global transition to a circular economy.

Claudia Vickers

Queensland University of Technology · Australia

Synthetic Biology · Metabolic Engineering · Industrial Biotechnology · Bioeconomy

Claudia Vickers is an internationally recognised synthetic biologist whose research focuses on engineering microorganisms to produce fuels, chemicals, and high-value biomolecules. Her work combines systems biology, metabolic engineering, and industrial biotechnology to develop sustainable manufacturing solutions. A strong advocate for the global bioeconomy, she has played a significant role in advancing synthetic biology research and fostering collaborations that accelerate the translation of biological innovation into societal impact.

REGISTER & ATTEND

Join us in *Bengaluru.*

Registration runs from 11 May to 1 August 2026. Submit your abstract for poster and talk consideration; selections are announced by 15 August 2026. Payment and full registration details are on the meeting page.

11 May 2026	Registration & abstract submission opens
1 Aug 2026	Registration & abstract submission closes
15 Aug 2026	Abstract selection announced
15–17 Feb 2027	The meeting · NCBS, Bengaluru

Questions? meetings@ncbs.res.in

Register online →

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