School of Bioengineering

SRM Institute of Science and Technology

Report

International Conference on New Horizons in Bioengineering: Fostering Academia-Industry Partnership ICB-24

Event/Club/Chapter Name	:	Conference
Event title	:	**INTERNATIONAL CONFERENCE ON NEW HORIZONS IN BIOENGINEERING: FOSTERING ACADEMIA-INDUSTRY PARTNERSHIP**
Date	:	14/02/2024 – 16/02/2024
Time	:	9:30 AM – 5 PM
Venue	:	Dr. TP Ganesan Auditorium

Faculty coordinator(s)	:	
No. of Participants	:	734

Description of the Event:

The School of Bioengineering at SRM Institute of Technology organized the International Conference on New Horizons in Bioengineering: Fostering Academia-Industry Partnership, ICB-24. The conference was a three-day affair held from 14 -16th February with engaging discussions on novel and recent developments in academia and industry. It was a breakthrough gathering held in T.P Ganesan auditorium, filled with more than 734 participants from different parts of the country. Faculty, scholars, and students from various colleges and universities enthusiastically participated in this conference.

The Inaugural Ceremony started with the Welcome Address delivered by **Prof. T.V. Gopal**, Dean, College of Engineering and Technology followed by briefing About the Conference by **Dr. M. Vairamani**, Dean, School of Bioengineering. The Presidential Address was delivered by **Prof. C Muthamizhchelvan**, Vice Chancellor followed by release of the Conference Proceedings. The Inaugural Address was given by our esteemed Chief Guest **Prof. Rakesh Mishra**, Director, Tata Institute for Genetics and Society, Bangalore. Finally, the function ended with the vote of thanks delivered by Prof. R.A. Nazeer, Head, Department of Biotechnology, School of Bioengineering.

The event kicked off successfully following the inaugural ceremony. Our esteemed chief guest Prof. Rakesh Kumar Mishra, Director of Tata Institute for Genetics and Society, Bangalore,

Karnataka, India graced the occasion with his presence. Many well-known Researchers from across the globe delivered talk to bridge the gap between academia and industry and enlightening the audience with their plenary talk. The conference was divided into 6 sessions under different sub themes including oral and poster presentations. Participants from SRMIST and other universities nationwide gathered to present their research.

The Session I focussed on Plenary talk by **Prof. Nicola C. Partridge, Prof. Chandra Verma** and **Prof. Steeve H Thany** covering various topics in Transformation in Medical Research. Session II focused on Global Health Challenges included Plenary talk by **Prof. Satoshi Murakami, Prof. J. Sivaraman** and **Dr. Amit Sharma** covering genomics, nanomedicine, bioprocessing, biomaterials, and other biotechnological fields.

On day two, Session III, plenary talks were delivered on Innovations in Medical Biotechnology by **Dr. Indranil Biswas, Dr. Santhosh Kumar** and **Dr. Sib Sankar Roy.** This was followed by Session IV on Engineering Techniques and Biological Applications including plenary talks delivered by **Prof. Ahmad Ziad Sulaiman, Dr. Sridhar Rajam** and **Dr. Avrajit Chakraborty.**

On day three, Session V, invited speakers including **Prof. Wan Khairunizam Wan Ahamad, Dr. V. Jayaraman** and **Prof. S. Pushpavanam** delivered talk on Emerging Techniques in Biomedical Applications. This was followed by Session VI on Industrial Partnership and Patent Law focused on invited talk by **Dr. Narayana Murthy Sekar** and **Dr. R. Bhanumathi.** The conference concluded with the validatory function awarding the best oral and poster presentation award to the participants.

It provided a platform for all academic researchers and research scholars to share and publish their research findings on all aspects of advanced biological field.

Signature of the convenor

BROCHURE

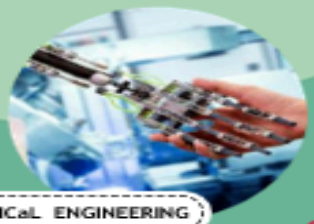
International Conference on New Horizons in Bioengineering:
Fostering Academia-Industry Partnership
(ICB-2024)

14-16 February, 2024

CHEMICaL ENGINEERING

FOOD & PROCESS ENGINEERING

BIOTECHNOLOGY



BIOMEDICaL ENGINEERING

GENETIC ENGINEERING

Organised By

School of Bioengineering
SRM Institute of Science and Technology
Kattankulathur-603203
Chengalpattu Dt, Tamil Nadu, India

NAAC A++ | Category I with (20) Status | nirf (2023) Ranked 1 st University | QS (2023) World Ranking one among 41 Indian Universities | THE (2023) World Ranking one among 75 Indian Universities | ARIIA (2021) Ranked 4th | SHANGHAI RANKING (2023) World Ranking one among 14 Indian Universities

SRMIST

VISION

To emerge as a world – class University in creating and disseminating knowledge and providing students a unique learning experience in Science, Technology, Medicine, Management and other areas of Scholarship that will best serve the world and for the betterment of mankind.

MISSION

- Move up through international alliances and collaborative initiatives to achieve global excellence.
- Accomplish a process to advance knowledge in a rigorous academic and research environment.
- Attract and build people in a rewarding and an inspiring environment by fostering freedom, empowerment, creativity and innovation.

SRM Institute of Science and Technology (deemed to be University, u/s of ACT 3 UGC) is located in an extensive sylvan campus of 380 acres skirting the National Highways (NH45), in the outskirts of Chennai. SRMIST is one of the top-ranking Universities and most premier engineering destinations in India with over 52000 students and 3200 faculty members, offering wide range of undergraduate, postgraduate and doctoral programs in Engineering, Management, Medicine & Health Sciences, Dental Sciences, Agriculture, Law and Science & Humanities. SRMIST collaborates with various foreign Universities and National Institutes. Now the Institute enjoys an unsurpassed reputation in academic and corporate circles being the preferred manpower source for vision to be recognized as a world - class learning institution. SRMIST has been accorded Category I status by Ministry of Education, Government of India and also accredited by NAAC with 'A++' Grade in the year 2018. To add a feather to the cap, recently AICTE has awarded Rank 1 position in Smart and Green campus among the private universities in the country.

SCHOOL OF BIOENGINEERING

School of Bioengineering, SRMIST comprising Departments of Biotechnology, Genetic Engineering, Biomedical Engineering, Food and Process Engineering and Chemical Engineering is well known for research and infrastructure. The school offers programs at UG, PG levels in addition to Ph. D., with a total student strength above 2200 and faculty strength above 100. Eminent academicians and researchers contribute their intellect towards innovative pedagogies and technologies keeping abreast with latest developments for the national and global needs. As a pinnacle of excellence, the B. Tech. Biotechnology Program is accredited by the NBA and few other programs are in the process of accreditation. While some departments benefit from DST FIST funding, researchers in other departments secure funding through both government and non-government agencies. Department of Biotechnology, Govt. of India, has established an advanced research facility under the project "SRM-DBT Partnership Platform in Advanced Life Science Technologies" to deliver the state-of-the-art life science research facilities. Several patents have been granted and are at the verge of technology transfer stage. Few researchers are involved in Institute - Industry Collaborations, International Collaborations working together to provide solutions to real world problems.

ICB-2024

ICB-2024 is an interdisciplinary gathering that serves as a bridge between academia and industry in the field of bioengineering. This conference offers a unique platform for researchers, scientists, entrepreneurs, and industry professionals to converge, collaborate, and exchange cutting-edge insights, innovations, and ideas at the intersection of biology, engineering, and technology. Through engaging keynote presentations, interactive panel discussions, and vibrant poster sessions, participants can explore emerging trends, breakthroughs, and challenges in bioengineering, fostering a stronger partnership between academic research and industrial application. With a focus on driving innovation, addressing real-world problems, and propelling bioengineering solutions into practical implementation, this conference plays a pivotal role in advancing the frontiers of bioengineering and promoting meaningful collaborations that have the potential to reshape the future of healthcare, biotechnology, and beyond.

PATRONS

Dr. T. R. Paarivendhar, Chancellor, SRMIST, India
Dr. Ravi Pachamuthu, Pro-Chancellor (Admin), SRMIST, India
Dr. P. Sathyanarayanan, Pro-Chancellor (Academics), SRMIST, India
Dr. R. Shivakumar, Chairman, SRM Trichy & Ramapuram Campuses, India

ADVISORY COMMITTEE

Prof. C. Muthamizhchelvan, Vice Chancellor, SRMIST, India
Prof. S. Ponnusamy, Registrar, SRMIST, India
Prof. T. V. Gopal, Dean (CET), SRMIST, Kattankulathur, India
Prof. B. Neppolian, Dean (Research), SRMIST, Kattankulathur, India
Prof. M. Vairamani, Chairperson, School of Bioengineering, SRMIST, Kattankulathur, India
Prof. Tej Pal Singh, Dr.G.N.Ramachandran Chair, SRMIST & SERB Distinguished Professor, Department of Biophysics, All India Institute of Medical Sciences, New Delhi, India
Dr. Ram A. Vishwakarma, Former Director, CSIR - Indian Institute of Integrative Medicine (IIIM), Jammu, India
Dr. R. Sankaranarayanan, Outstanding Scientist, Structural Biology Laboratory, CSIR - Centre for Cellular and Molecular Biology, Hyderabad, Telangana, India
Dr. Sib Sankar Roy, Chief Scientist and Head, Cell Biology and Physiology Division, CSIR-Indian Institute of Chemical Biology, Kolkata, India
Prof. S Mahalingam, Professor, Department of Biotechnology, Indian Institute of Technology Madras, Chennai, India
Prof. K Subramaniam, Professor, Department of Biotechnology, Indian Institute of Technology Madras, Chennai, India
Dr. Mukesh Pasupuleti, Principal Scientist, Division of Microbiology and Immunology, CSIR-Central Drug Research Institute, Lucknow, India
Dr. R. Ananthan, Scientist - E, Food Chemistry Division, ICMR-National Institute of Nutrition, Hyderabad, India
Dr. Raja Gopal Rayavarapu, Principal Scientist, Systems Toxicology and Health Risk Assessment, CSIR-Indian Institute of Toxicology Research, Lucknow, India
Dr. Ramalingam Bethunaickan, Scientist - E, ICMR-National Institute for Research in Tuberculosis, Chennai, Tamil Nadu, India
Dr. Binuja Varma, Senior Research Scientist, Centre for Genomic Applications, Tata Consultancy Services, Delhi, India
Dr. Narayana Murthy Sekar, Chief executive officer, Molway, Chennai, Tamil Nadu, India
Dr. Balapesala, Founder and Chief Executive Officer, AyurAI, Chennai, Tamil Nadu, India

Prof. C. Nicola Partridge, Department of Biochemistry and Molecular Pharmacology, New York University, USA
Prof. Satoshi Murakami, Department of Life Science and Technology, Tokyo Institute of Technology, Tokyo, Japan
Prof. Steeve H. Thany, Director of Physiology, Ecology and Environment laboratory, University of Orleans, France
Prof. Ramasamy Paulmurugan, Department of Radiology, Stanford University, School of Medicine, California, USA
Dr. Shama Mirza, Director of the Shimadzu Laboratory, University of Wisconsin, Wisconsin, USA
Prof. Chandra Verma, Senior Principal Investigator, Bioinformatics Institute, Agency for Science, Technology and Research, Singapore
Dr. Koustav Ganguly, Associate Professor, Institute of Environmental Medicine, Karolinska Institute, Sweden.

CONVENORS, SCHOOL OF BIOENGINEERING, SRMIST

Prof. R.A.Nazeer, Head, Department of Biotechnology
Prof.M.Ramya, Head, Department of Genetic Engineering
Prof.Varshini Karthik, Head, Department of Biomedical Engineering
Dr. P Gurumoorthi, Associate Professor and Head, Department of Food & Process Engineering
Dr. K. Suresh,Associate Professor and Head, Department of Chemical Engineering

ORGANISING COMMITTEE MEMBERS, SCHOOL OF BIOENGINEERING, SRMIST

Prof. D. Velmurugan, Department of Biotechnology
Prof. N. Selvamurugan, Department of Biotechnology
Prof. M. Parani, Department of Genetic Engineering
Prof. M. Lilly Saleena, Department of Biotechnology
Prof. K. M. Ramkumar, Department of Biotechnology
Dr. S. Barathi, Associate Professor, Department of Biotechnology
Dr. D. V. L. Sarada, Associate Professor, Department of Biotechnology
Dr. B. Usha, Associate Professor, Department of Genetic Engineering
Dr. M. Magesh Kumar, Assistant Professor, Department of Chemical Engineering
Dr. T. Jayanthi, Associate Professor, Department of Biomedical Engineering

CONFERENCE STRUCTURE: The conference is organized with invited talks, paper and poster presentations. Best paper and poster presentations from different domains will be awarded with exciting prizes and chances of publication in reputed journals.

CALL FOR PAPERS: ICB 2024 invites faculties, researchers, students and scientists to submit quality research papers. Accepted abstracts will be published in the conference proceedings. Selected papers will be published in the SCI & Scopus indexed journals after peer review. The list of journals will be announced in due course.

INVITED SPEAKERS

Prof. C. Nicola Partridge, Department of Biochemistry and Molecular Pharmacology, New York University, USA
Prof. Satoshi Murakami, Department of Life Science and Technology, Tokyo Institute of Technology, Japan
Prof. Steve H Thane, Director of Physiology, Ecology and Environment laboratory, University of Orleans, France
Prof. Ahmad Ziad Sulaiman, Deputy Vice Chancellor, University of Malaysia Pahang, Malaysia
Prof. Wan Khairunizam Wan Ahmad, Faculty of Electrical Engineering Technology, Brain Machine Interface Research Group, University Malaysia Perlis, Malaysia
Prof. Chandra Verma, Senior Principal Investigator, Bioinformatics Institute, Agency for Science, Technology and Research, Singapore
Dr. Indranil Biswas, Director of Microbiology Graduate Program, University of Kansas Medical Center, Kansas City, USA
Prof. J. Sivaraman, Department of Biological Sciences, National University of Singapore, Singapore
Prof. S. Pushpavanam, Department of Chemical Engineering, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India
Dr. Sib Sankar Roy, Chief Scientist and Head, Cell Biology and Physiology Division, CSIR-Indian Institute of Chemical Biology, Kolkata, India
Dr. T. R. Santhosh Kumar, Scientist G, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram, Kerala, India
Dr. Sathyanarayana N. Gummadi, Department of Biotechnology, Indian Institute of Technology, Madras, Tamil Nadu, India
Dr. R. Bhanumathi, Deputy Controller of Patent and Design, Patent Office, Chennai, Tamil Nadu, India
Dr. Narayana Murthy Sekar, Chief executive officer, Molway, Chennai, Tamil Nadu, India
Dr. Sridhar Rajam, Head, R&D, Cavinkare Pvt. Ltd., Chennai, Tamil Nadu, India
Dr. Binuja Varma, Senior Research Scientist, Centre for Genomic Applications, Tata Consultancy Services, Delhi, India
Dr. V. Jayaraman, Manager, Fresenius Medical Care India Pvt. Ltd., Chennai, Tamil Nadu, India
Dr. Amit Sharma, Group Leader, Structural Parasitology, International Centre for Genetic Engineering and Biotechnology, Aruna Asaf Ali Marg, New Delhi, India

ABSTRACT SUBMISSION DETAILS

The participants need to register themselves for participation and presentation. The participants should submit the abstract using the given abstract template in .doc/.docx/pdf format only. Acceptance of abstracts will be intimated by e-mail. Confirm your registration by paying the registration fees. Only one abstract submission will be allowed per registration. The registered participant will be the presenting author. During the submission of abstract, rename your file as : <Your name>_<Institution>.

ABSTRACT TEMPLATE link
https://drive.google.com/file/d/1CMFHUSqQrEyIxs-EoNPYOK51zzoSHHd6/view?usp=drive_link

ABSTRACT SUBMISSION link
https://forms.gle/ZqGpmnn9usDQZVrc7

WEBSITE link
https://www.srmist.edu.in/events/international-conference-on-new-

ABSTRACT SUBMISSION DEADLINE: JANUARY 31, 2024

REGISTRATION DETAILS:

[redacted]

PAYMENT DETAILS

Through NEFT/ RTGS
Account number: 117001002089882
Account Name: BIOTECH ASSOCIATION
IFSC CODE: CIUB0000117
Account type: Saving A/C
Bank Name: City Union Bank
Branch: Tambaram, Chennai

CONTACT US

The Convenors (ICB'24)
School of Bioengineering, College of Engineering and Technology
SRM Institute of Science and Technology, Kattankulathur-603203,
Chengalpattu Dt, Tamil Nadu, India
Email: icb2024@srmist.edu.in
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INAUGURAL INVITATION

International Conference on New Horizons in Bioengineering: Fostering Academia-Industry Partnership ICB-24

Program Schedule

DAY 1 – February 14, 2024 (Wednesday)		
8:30-9:30 AM	Registration	
9.30 -10:00 AM	**INAUGURATION**	

			Dr. TP Ganesan Auditorium Main Hall
Tea Break			
SESSION I Transformation in Medical Research Chair: Dr. N Selvamurugan			
10:30 – 11.15 AM	Key Note Lecture	**Prof. Rakesh Kumar Mishra** Director of Tata Institute for Genetics and Society, Bangalore, Karnataka, India Topic**:** Trans-generational epigenetic inheritance of biotic and abiotic stress	Dr. TP Ganesan Auditorium Mini Hall II
11:15 -12:00 Noon	Plenary Talk 1	**Prof. Nicola C. Partridge,** Professor and Director at Department of Molecular Pathobiology, NYU Center for Skeletal and Craniofacial Biology, New York University College of Dentistry, USA Topic: Structure and Function of the Skeleton in Health and Disease and Its Treatment	
12:00 - 12:45PM	Plenary Talk 2	**Prof. Chandra Verma,** Senior Principal Investigator, Bioinformatics Institute, Agency for Science, Technology and Research, Singapore Topic: Modelling guided Precision Medicine in the Clinic	
12:45 -1:30 PM	Plenary Talk 3	**Prof. Steeve H Thany,** Director of Physiology, Ecology and Environment Laboratory, University of Orleans, France Topic: Pharmacology of cholinergic receptors involved in the control of the tick Ixodes ricinus salivary glands: exploring new compounds as acaricides	
Lunch Break			Dr. TP Ganesan Auditorium Mini Hall II
SESSION II Global Health Challenges Chair: Dr. D Velmurugan			
2:00 -2:45 PM	Plenary Talk 4	**Prof. Satoshi Murakami** Professor, Department of Life science and Technology, Tokyo Institute of Technology, Tokyo Topic: Twenty years structural study of RND transporters, the most potent multidrug efflux transporters, of Gram-negative bacteria. ~ For overcoming the drug resistance problem	
2:45-3:30 PM	Plenary Talk 5	**Prof. J. Sivaraman,**	

		Department of Biological Sciences, National University of Singapore, Singapore Topic: Structural Basis for the Neutralization of Hepatitis E Virus by Monoclonal Antibodies for Vaccine Development	
3:30- 4:15 PM	Invited Talk 1	**Dr. Amit Sharma** Group Leader, Structural Parasitology International Centre for Genetic Engineering and Biotechnology New Delhi, India Topic: Anti-Malarial Discovery - Progress and Approaches	Dr. TP Ganesan Auditorium Mini Hall II
Tea Break			
4:30 – 5:30 PM	ORAL PRESENTATIONS I		
4:30 -5:30 PM	POSTER PRESENTATIONS I		
5:30 -6:30 PM	Cultural Program		
DAY 2 – February 15, 2024 (Thursday)			
SESSION III Innovations in Medical Biotechnology Chair: Dr. M. Ramya			Dr. TP Ganesan Auditorium Mini Hall II
9:30-10:15 AM	Plenary Talk 6	**Dr. Indranil Biswas** Professor and Director of Microbiology Graduate Program Microbiology, Molecular Genetics, and Immunology, University of Kansas Medical Center, Kansas City, USA Topic: Exploring Novel Drug Scaffolds Targeting ESCAPE Pathogens Revealed Through High-Throughput Screening.	
10:15-11:00 AM	Invited Talk 2	**Dr. Santhosh Kumar TR** Scientist G, Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram, Kerala, India Topic: Cell Engineering for Drug Discovery and Disease Modelling	
Tea Break			Dr. TP Ganesan Auditorium Mini Hall II
11:15 - 12:00 Noon	Invited Talk 3	**Dr. Sib Sankar Roy,** Chief Scientist and Head, Cell Biology and Physiology Division, CSIR-Indian Institute of Chemical Biology, Kolkata, West Bengal, India Topic: Translational Cancer Research: Bridging the Gap between Bench and Bedside	
12:00-1:30 PM	ORAL PRESENTATIONS II		
12:00-1:30 PM	POSTER PRESENTATIONS II		
Lunch Break			Dr. TP Ganesan Auditorium
SESSION IV Engineering Techniques and Biological Applications Chair: Dr. P Gurumoorthi			

2:00 -2:45 PM	Plenary Talk 7	**Prof. Ahmad Ziad Sulaiman**, Deputy Vice-Chancellor, University of Malaysia Pahang, Malaysia Topic: Use of Ultrasound in Enhancing the Productivity of Biotechnological Processes	Mini Hall II
2:45-3:30 PM	Invited Talk 4	**Dr. Sridhar Rajam**, Head, R&D, Cavin kare Pvt. Ltd., Chennai, Tamil Nadu, India Topic: Bioengineering-driven specialty products in Personal Care & Hygiene domains in FMCG sector	
3.30 to 4.00 PM	Invited Talk 5	**Dr. Avrajit Chakraborty** Scientist Academic Lifecell Diagnostics Private Limited, Tamil Nadu, India Topic: Pivotal Techniques and Future Prospects	
Tea Break			Dr. TP Ganesan Auditorium Mini Hall II
4:30-5:30 PM	ORAL PRESENTATIONS III		
4:30 -5:30 PM	POSTER PRESENTATIONS III		
DAY 3 – February 16, 2024 (Friday)			
SESSION V Emerging Techniques in Biomedical Applications Chair: Dr. Varshini Karthik			Dr. TP Ganesan Auditorium Mini Hall II
9:30-10:15 AM	Plenary Talk 8	**Prof. Wan Khairunizam Wan Ahamad,** Faculty of Electrical Engineering Technology, Brain Machine Interface Research Group, University Malaysia Perlis, Malaysia Topic: Enrichment of Human-Machine Interaction: A Brain-Computer Interface (BCI)	
10:15-11:00 AM	Invited Talk 6	**Dr. V. Jayaraman,** Manager, Fresenius Medical Care India Pvt. Ltd., Chennai, Tamil Nadu, India Topic: Advanced therapies in the renal field leading to better patient outcomes	
Tea Break			Dr. TP Ganesan Auditorium Mini Hall II
11:15 -12:00 Noon	Invited Talk 7	**Prof. S. Pushpavanam**, Department of Chemical Engineering, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India Topic: Paper-based micro-fluidics for point-of-care diagnostics	
12:00 -1:30 PM	ORAL PRESENTATIONS IV		
12:00-1:30 PM	POSTER PRESENTATIONS IV		
Lunch Break			

SESSION VI Industrial Partnership and Patent Law Chair: Dr. KM Ramkumar			
2:00-2:30 PM	Invited Talk 8	**Dr. Narayana Murthy Sekar,** Chief executive officer, Molway, Chennai, Tamil Nadu, India Topic: Opportunities and Challenges In Industry and Academia Collaborations	
2.30 -3.00 PM	Invited Talk 9	**Dr. R. Bhanumathi,** Deputy Controller of Patent and Design, Patent Office, Chennai, Tamil Nadu, India Topic: New Developments in Patent Law	
Tea Break			Dr. TP Ganesan Auditorium Mini Hall II
3:15 to 4:15 PM	**VALEDICTORY**		

SRM
INSTITUTE OF SCIENCE & TECHNOLOGY

Department of BioTechnology, Government of India

SERB DIA

G20 2023 INDIA

The Faculty and Students of

School of Bioengineering
SRM Institute of Science and Technology

Cordially invite you to the valedictory function of

International Conference on New Horizons in Bioengineering: Fostering Academia-Industry Partnership - ICB-24

Organized by
School of Bioengineering

Co-sponsored by

Science & Engineering Research Board (SERB), GoI
&
Department of Biotechnology (DBT), GoI

Dr. Nicola C. Partridge
Professor, Department of Molecular Pathobiology,
New York University College of Dentistry
&
Director, NYU Center for Skeletal and Craniofacial Biology, USA
will deliver the valedictory address

Prof. T.V. Gopal,
Dean, College of Engg & Tech, SRMIST
will preside

NAAC A++ | Category I with 120 Status | nirf (2023) Ranked 10th University | QS (2024) World Ranking one among 45 Indian Universities | THE WORLD UNIVERSITY RANKINGS (2023) World Ranking one among 75 India n Universities | QS 4★ RATING VERY GOOD QS 4 Star Rated Globally | SHANGHAI RANKING (2022) World Ranking one among 14 Indian Universities

Date: 16-02-2024 | Venue : Dr. T. P. Ganesan Auditorium (Mini Hall 2) **Time:3.30 PM**

Invitation

MINUTES OF THE EVENT

ICB-2024 is an interdisciplinary gathering that serves as a bridge between academia and industry in the field of bioengineering. This conference offers a unique platform for researchers, scientists, entrepreneurs, and industry professionals to converge, collaborate, and exchange cutting-edge insights, innovations, and ideas at the intersection of biology,

engineering, and technology. Through engaging keynote presentations, interactive panel discussions, and vibrant poster sessions, participants can explore emerging trends, breakthroughs, and challenges in bioengineering, fostering a stronger partnership between academic research and industrial application. With a focus on driving innovation, addressing real-world problems, and propelling bioengineering solutions into practical implementation, this conference plays a pivotal role in advancing the frontiers of bioengineering and promoting meaningful collaborations that have the potential to reshape the future of healthcare, biotechnology, and beyond.

DAY – I

SESSION I Transformation in Medical Research

Chair: Dr. N Selvamurugan

8:30 AM -10:00 AM- Inauguration

Participants assembled at the T.P. Ganesan Auditorium for the inauguration ceremony of the ICB - 2024. Inaugural address was given by the chief guest of the event, Prof. Rakesh Kumar Mishra an expertise in genomics and epigenetics, who served as the director of CSIR-Centre for Cellular and Molecular Biology (CCMB) and also holds the prestigious J. C. Bose Fellowship at CCMB. The inaugural talk centered around the exploration of cutting-edge scientific frontiers and their tangible benefits to society, particularly through strategic collaboration with industry partners and delved into the importance of fostering synergistic relationships between the scientific community and various sectors of industry to drive innovation, address societal challenges, and ultimately enhance the quality of life for people worldwide. Key themes included the identification of emerging scientific domains with transformative potential, the cultivation of interdisciplinary approaches to

problem-solving, and the leveraging of technological advancements to propel research and development efforts forward.

10:00 AM -10:30 AM

The members dispersed for tea break before assembling for the plenary lectures.

10: 30 AM – 11:15 AM

Key note lecture by Prof. Rakesh Kumar Mishra, Director of Tata Institute for Genetics and Society, delivered talk on " Trans-generational epigenetic inheritance of biotic and abiotic stress" which delves into the fascinating realm of epigenetics, focusing particularly on how organisms inherit traits and responses to both biotic and abiotic stress factors across multiple generations. Mishra's presentation explores the intricate mechanisms through which environmental stimuli, such as heat shock can induce changes in gene expression patterns that are heritable and persist across generations and insight of nanopore sequencing for detecting methylation during UAS- RNAi/ gal 4 drivers in *Drosphila* mutation

11: 15 AM – 12:00 AM

Plenary Lecture-1 was given by **Prof. Nicola C. Partridge,** Professor and Director at Department of Molecular Pathobiology on topic "Structure and Function of the Skeleton in Health and Disease and Its Treatment" . The presentation focusing on the regulation of gene expression by the osteoblast through parathyroid hormone (PTH). In one initiative, her team is exploring the mechanism by which PTH, via protein kinase A (PKA), transmits signals to the nucleus of osteoblasts to control the transcription of receptor activator of nuclear factor kappa B ligand (RANKL). This gene plays a pivotal role in activating osteoclasts, thereby facilitating bone breakdown. Another facet of Dr. Partridge's research involves investigating how PKA influences bone development, mass, and gene expression, and its significance for the anabolic effects of PTH and the novel osteoanabolic agent, abaloparatide. The entirety of the latter project is conducted in vivo using mice as the model organism.

12:00 - 12:45 AM

Plenary Lecture-2 **Prof. Chandra Verma,** Senior Principal Investigator, Bioinformatics Institute, provided an insightful overview of " Modelling guided Precision Medicine in the Clinic" regarding the Biomolecular Modeling and Design Division's research which focus on computational protein dynamics, with the p53 pathway, kinases, translation initiation, antimicrobials and basic computational biophysical chemistry and facilitated the design and development of innovative therapeutics. The interdisciplinary approach and collaborative efforts position it at the forefront of biomolecular research, with promising implications for future biomedical applications. Additionally, Integration of machine learning and artificial intelligence enhances their data analysis and predictive modeling capabilities.

12:45 -1:30 PM

Plenary Lecture-3 **Prof. Steeve H Thany,** Director of Physiology, Ecology and Environment presented a talk on “Pharmacology of cholinergic receptors involved in the control of the tick Ixodes ricinus salivary glands: exploring new compounds as acaricides” The talk encompassed the functional properties of these receptors, emphasizing their pivotal role in insect behavior, learning, memory, and adaptive responses. The integrative approach used in the study sheds light on the repellent effects of DEET and FLU on ticks and their underlying molecular mechanisms. The discovery of a synergistic repellent effect between FLU and DEET highlights the potential for novel strategies in tick population control.

SESSION II Global Health Challenges

Chair: Dr. D Velmurugan

2:00 -2:45 PM

Plenary Lecture-4

Prof. Satoshi Murakami, Professor, Department of Life science and Technology, presented on " Twenty years structural study of RND transporters, the most potent multidrug efflux transporters, of Gram-negative bacteria. ~ For overcoming the drug resistance problem" which delves into the structural and functional aspects of RND transporters, particularly AcrB, provides valuable insights into the mechanisms underlying multidrug resistance in Gram-negative bacteria. RND transporters play a pivotal role in multidrug resistance among Gram-negative bacteria by expelling a diverse array of antibiotics via proton motive force. AcrB, the primary RND transporter in *Escherichia coli*, exhibits an asymmetric trimeric structure with distinct conformations representing various functional states.

2:45 -3:30 PM

Plenary Lecture-5 by **Prof. J. Sivaraman,** Department of Biological Sciences, National University of Singapore, on "Structural Basis for the Neutralization of Hepatitis E Virus by Monoclonal Antibodies for Vaccine Development" Developing an effective vaccine against Hepatitis E Virus (HEV) is crucial for global disease control. The presentation highlighted atomic-level interactions between monoclonal antibodies and HEV surface epitopes. Structural studies unveiled critical binding sites and conformational changes pivotal for HEV neutralization by monoclonal antibodies. Understanding these molecular interactions is pivotal for vaccine development, paving the way for effective HEV control and public health mitigation.

3:30- 4:15 PM

Invited talk

Dr. Amit Sharma, Group Leader, Structural Parasitology International Centre for Genetic Engineering and Biotechnology New Delhi, on “Anti-Malarial Discovery - Progress and Approaches” provided valuable insights into the ongoing efforts to combat malaria through innovative drug discovery strategies. The presentation covered significant aspects of malaria parasite research, focusing on critical processes such as liver and red blood cell invasion, nucleosome assembly, gametocytogenesis, and cytoadherence. Crystal structures of key proteins from various parasite stages were elucidated, including sporozoite, asexual, and sexual stages. Internationally, there is considerable excitement regarding a series of malaria parasite protein structures. These structures offer a promising platform for developing compounds with enhanced properties, including improved selectivity and bioavailability, while maintaining high affinity.

16.30 PM- 17.30 PM

Session break followed by Poster and Oral presentation session-1 for participants.

DAY – II
SESSION III Innovations in Medical Biotechnology
Chair: Dr. M. Ramya

8:30 AM -10:30 AM

Participants were made to assemble at the T.P. Ganesan Auditorium for the inauguration ceremony of the ICB - 2024. Dr. Sib Sankar Roy delivered the first talk of the day from Chief Scientist and Head, Cell Biology and Physiology Division, CSIR-Indian Institute of Chemical Biology, Kolkata, West Bengal, India. Dr. Roy has been recognized with numerous awards and fellowships, including the prestigious ICMR Novartis Oration Award. He has supervised the award of 25 PhD degrees and has ongoing research projects funded by esteemed agencies such as CSIR and DST. Dr. Roy spoke about the various challenges faced by researchers in pursuing translational Cancer Research. He also spoke about the research carried out by him on cancer. It was a very informative talk that had the audience awestruck with a lot of questions.
He was felicitated with a memento by Dr Vairamani, Dean of Bioengineering.

10:35 AM - 11:30 AM

The second speaker was Dr. Indranil Biswas, Professor, Microbiology, Molecular Genetics and Immunology, Kansas Medical Center, University of Kansas. This was the Plenary talk of the morning session. He has worked on microbiology and pathogenesis of various lactic acid bacteria (LAB) for more than 25 years. This talk on Exploring Novel Drug Scaffolds Targeting ESCAPE Pathogens Revealed Through High-Throughput Screening was quite captivating to the audience. He was felicitated with a shawl and memento by Dr. Devi, Associate professor, Department of Genetic Engineering.

There was a tea break of 10 minutes after this talk.

11:40 AM - 12:30 AM

The last speaker of the morning session was Dr. Santhosh Kumar TR, from Rajiv Gandhi Centre for Biotechnology, Thiruvananthapuram, Kerala, India. His talk was on Cell Engineering for Drug Discovery and Disease Modelling. He explained his research that was based on the use of fluorescent genes to analyze the no. of cancer cells and the persistent cells in the long term of a tumor. He was felicitated by Dr. Sathish R, Associate professor, Department of Genetic Engineering.

12:30 PM to 2:30 PM

The oral and poster presentations began right after the talk. The venue was at the ground floor of the School of Bioengineering for all the posters. There were around 95 posters in total that were evaluated by different professors of the Department of Genetic engineering. The venue for oral presentations was B501 and the Ramachandra Hall coordinated by Dr. Devi.

SESSION IV Engineering Techniques and Biological Applications
Chair: Dr. P Gurumoorthi

2:00 PM - 2:45 PM

The first plenary talk of the session was given by **Prof. Ahmad Ziad Sulaiman, Deputy Vice-Chancellor, University of Malysia Pahang, Malaysia**. The lecture began with an overview of the University of Malaysia Pahang, its campuses and facilities. Dr. Sulaiman expressed a deep interest to collaborate with SRMIST in aspects of both academics and research. Dr. Sulaiman then shared his valuable insights on the 'Use of Ultrasound in Enhancing the Productivity of Biotechnological Processes'. Dr. Sulaiman emphasized the importance of ultrasound assisted enzymatic hydrolysis in bioprocesses. The plenary lecture focused on Dr. Sulaiman's work on the 'Hydrolysis of particulate and dissolved cellulose powder by cellulase to glucose' where he narrated the efficiency of ultrasound assisted bioreactors in comparison with conventional bioreactors.

2:45 PM - 3:30 PM

The second speaker for the session was **Dr. Sridhar Rajam, Head, R & D. Cavinkare Pvt. Ltd.** He delivered a talk on 'Bio-engineering driven specialty products in Personal care

& Hygiene domains in FMCG sector'. Dr. Rajam accentuated the increase in annual growth rate of bio-engineering driven products due to demand and need for organic and sustainable products. Dr. Rajam highlighted the key areas where bio-engineered materials are extensively put to use, namely Bioengineering Actives / Microbial Strain based cosmetics such as Hyaluronic acid, Transdermal Patches, Wearable devices, Probiotics in cosmetics, Bio-degradable Plastics and 3D-Printing. The ample scope for bioengineered materials owing to their biocompatibility, non-toxicity, and biodegradability has been effectively utilized by leading brands such as L'Oréal where research is progressing towards 3D printing of skin and hair.

3:30 PM - 4:00 PM

Dr. Avrajit Chakraborty, Scientist Academic Life cell Diagnostics delivered the next talk for the session on 'Pivotal techniques and Future Prospects'. Dr. Chakraborty gave an overview of the Genome sequencing techniques at Lifecell where they are currently specializing in NGS (Next Generation Sequencing) process. The lecture provided an insight on Whole genome sequencing, Metagenomics, and Genotyping by Sequencing (GBS). Dr. Chakraborty highlighted that futuristic medicine will evolve towards 'Precision Medication' where the patients will be prescribed specific medicine based on their genetic makeup. The lecture also focused on the importance of Pharmacogenetics aiming to find out the type of drug resistance in individual patients.

4:00 PM - 4:30 PM

The audience dispersed for tea break.

4.30 PM to 5.30 PM

Oral and Poster presentation session III for the participants of the Departments of Chemical Engineering and Food Process Engineering.

SESSION V Emerging Techniques in Biomedical Applications

Chair: Dr. Varshini Karthik

9.00 AM -9:30 AM

Participants were made to assemble at the Dr. TP Ganesan Auditorium Mini Hall II for the Plenary Talk 8.

9:30 AM -10:15 AM

Plenary Lecture-8 was given by **Prof. Wan Khairunizam Wan Ahamad,** Faculty of Electrical Engineering Technology at Brain Machine Interface Research Group from University Malaysia Perlis, on topic "Enrichment of Human Machine Interaction: A Brain-Computer Interface (BCI)". The importance of EEG based emotion detection in stroke patients using visual and audio stimuli were explained. The trends and companies investing in the field of brain computer interface were listed and discussed. The entire process involved in the brain computer interface starting from the signal acquisition using the EEG sensor, signal processing, extracting features which have greater impact on the emotions, facial recognition, feature selection and feature mapping for research and for various applications were discussed.

10: 15 AM – 11:00 AM

Invited talk 6 by Dr. V. Jayaraman, Manager of Fresenius Medical Care India Pvt. Ltd., delivered talk on "Advanced therapies in the renal field leading to better patient outcomes" which delves into evolution and development in the field of Dialysis, briefing about the dialyzer characteristics, inline steam sterilization, effectiveness of quality monitoring tool (OCM) in every dialysis that helps in ensuring the treatment quality along with online monitoring of Kt/V. Outlined the Bio Impedance Spectroscopy (BIS) for performing BCA to enhance the dialysis process even after any physiological alterations in the same subject among multiple sittings of dialysis. The importance of BCM for a nephrologist was enforced. Various features of the 5008S, Multifilterate pro machine USP series dialyzer were explained. Challenges faced in the current scenario in India is with respect to the RO system, this opens up a new arena of scope for research among the budding engineers

11: 00 AM – 11:15 AM

Tea break

11: 15 AM – 12:00 AM

Invited talk 7 was given by **Prof. S. Pushpavanam,** Department of Chemical Engineering, Indian Institute of Technology Madras, on topic "Paper-based micro-fluidics for point-of-care diagnostics". The presentation focusing on the microfluidic paper based analytical devices, possibilities of turning paper into smart diagnostic tools. Outlined the functioning of μ-PADs in terms of hydrophilic fluidic pathways, hydrophobic barriers and reagents. Highlighted the WHO criteria of "Diagnostics for the developing countries should meet ASSURED criteria". The

explanation on the development of a novel method to fabricate paper based microfluidic sensors and their salient advantage was elaborated. The importance of detecting pesticides using paper based devices and diagnosis of cervical cancer using fluorescence based DNA detection.

12.00 PM- 13.30 PM

Session break was followed by Poster and Oral presentation (Poster- 20 participants, Oral- 26 participants) and Session-IV.

The Biomedical Engineering Department logo was released by the chief guest **Prof. Wan Khairunizam Wan Ahamad.**

DAY - III, Session VI Industrial Partnership and Patent Law
Chair: Dr. KM Ramkumar

2:00 PM - 2:30 PM

Invited talk
Dr. Narayana Murthy Sekar, Chief executive officer, Molway, Chennai, Tamil Nadu, India presented a talk on Opportunities and Challenges In Industry and Academia Collaborations for innovation, knowledge exchange, and talent development, addressing challenges related to cultural differences, intellectual property rights, resource constraints, and long-term commitment is crucial for fostering successful and mutually beneficial partnerships between the two sectors. MOLWAY plays a crucial role in facilitating sourcing and consultation services for clients in the R&D and manufacturing sectors. By prioritizing reliability, value, and legal compliance, the company helps clients navigate the complexities of supplier selection and procurement, ultimately contributing to their success and growth in the competitive market landscape.

2:30 PM - 3:00 PM

Dr. R. Bhanumathi, Deputy Controller of Patent and Design, Patent Office, presented talk on "New Developments in Patent Law" provided with valuable insights into the importance of intellectual property rights, the various types of intellectual property, and the means and ways to protect intellectual property assets. The discussion highlighted the significance of patent law in fostering innovation, protecting original knowledge, and ensuring ethical and legal use of intellectual property, particularly in the context of biotechnological inventions and biodiversity regulations in India.

3:00 PM- 4.00 PM

Valedictory Invitation

SRM INSTITUTE OF SCIENCE & TECHNOLOGY

Department of BioTechnology, Government of India

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Invitation

The Faculty and Students of

School of Bioengineering
SRM Institute of Science and Technology

Cordially invite you to the valedictory function of

International Conference on New Horizons in Bioengineering: Fostering Academia-Industry Partnership - ICB-24

Organized by
School of Bioengineering

Co-sponsored by

Science & Engineering Research Board (SERB), GoI
&
Department of Biotechnology (DBT), GoI

Dr. Nicola C. Partridge
Professor, Department of Molecular Pathobiology,
New York University College of Dentistry
&
Director, NYU Center for Skeletal and Craniofacial Biology, USA
will deliver the valedictory address

Prof. T.V. Gopal,
Dean, College of Engg & Tech, SRMIST
will preside

NAAC A++ | Category I with IDB Status | nirf (2023) Ranked 10th University | QS (2024) World Ranking one among 45 Indian Universities | THE World University Rankings (2023) World Ranking one among 75 Indian Universities | QS 4 Star (2024) VERY GOOD QS 4 Star Rated Globally | Shanghai Ranking (2022) World Ranking one among 14 Indian Universities

Date: 16-02-2024 | Venue : Dr. T. P. Ganesan Auditorium (Mini Hall 2) **Time:3.30 PM**

PROGRAMME

3:30-3:35 PM	Welcome Address	**Prof. M. Vairamani** Dean School of Bioengineering SRMIST
3:35-3:40 PM	Conference Report	**Prof. R.A. Nazeer** Head Department of Biotechnology School of Bioengineering SRMIST
3:40-3:50 PM	Presidential Address	**Prof. T.V. Gopal** Dean College of Engg & Tech SRMIST
3:50-4:00 PM	Valedictory Address	**Dr. Nicola C. Partridge** Professor Department of Molecular Pathobiology New York University College of Dentistry & Director, NYU Center for Skeletal and Craniofacial Biology, USA
4.00-4.15 PM	Award Distribution	
4.15-4.20 PM	Vote of Thanks	**Dr. S. Barathi** Coordinator, ICB 2024

Date: 16-02-2024 | Venue : Dr. T. P. Ganesan Auditorium (Mini Hall 2) **Time: 3.30 PM**