

Symposium on “Accelerating Biology 2024: The Exascale Leap”

Feb 6-8, 2024

Technical Programme

Day 1: Feb 6, 2024

| Time | Title | Speaker |
|----------------------|--|---|
| 08:30 - 09:00 | Registration | |
| 09:00 – 10:30 | Session I: Inaugural Programme | |
| 10:30 – 11:00 | <i>Tea Break</i> | |
| 11:00 – 12:30 | Session II: Digital Twins in Biology and Medicine Chair: Shri Anil Srivastava, OHSL USA Speakers: Dr.Eric Stahlberg, Frederick National Laboratory for Cancer Research, USA : A Global Perspective for Accelerating Innovation in Biomedical Digital Twins and Precision Medicine Dr. Cezary Mazurek, PSNC, Poland: Enabling Digital Twins for Biomedicine in National eInfrastructure Prof. Peter Coveney, University College London, UK: Digital Twins: The Virtual Future of Medicine Dr. Mariano Vazquez, Elem Biotech, Spain Dr. Dan Isaacs, Digital Twin Consortium, USA Dr. Priyanka Banerjee, Charite-University of Medicine, Berlin | |
| 12:30 – 13:30 | Poster Inauguration and Poster Session-I | |
| 13:30 – 14:30 | <i>Lunch Break</i> | |
| | Session III: Precision Medicine Session Chair: Dr C S Yajnik, KEM Hospital, Pune | |
| 14:30 – 15:00 | Clinical and genomic studies in breast cancer: TMC Experience | Prof. Sudeep Gupta, TMH, Mumbai |
| 15:00 – 15:30 | Emerging Epigenomic Landscape of Gastrointestinal Cancer: Biology and Clinical Implication in the Era of Precision Medicine | Dr. Sanjay Gupta, ACTREC, Mumbai |
| 15:30 – 16:00 | Personal Genomes to Precision Medicine | Dr. Vinod Scaria, Vishwanath Cancer Care, Bengaluru |
| 16:00 – 16:30 | Knowing TNBCs in Indian Cohorts for tailored treatment plans | Dr. Madhura Kulkarni, Center for Translational Cancer Research (CTCR), PCCM, Pune |
| 16:30 – 17:00 | <i>Tea Break</i> | |
| | Session IV: Multiomics and Microbiomics Session Chair: Dr. Arvind Sahu, RCB, Faridabad | |
| 17:00 – 17:30 | Integrated Multi - Omics: Potential Tool for Mining Marine Microbiome | Dr. Dharani Gopal, NIOT, Chennai |
| 17:30 – 18:00 | Emerging viral threats in India and metagenomic approach | Dr. Pragya Yadav, NIV, Pune |
| 18:00 – 18:30 | Integrated Multi-OMIC Data Analysis To Develop Contextualized Constraints-Based Flux Balance Models Of Glioblastoma Cell-Lines | Dr. Anu Raghunathan, NCL, Pune |
| 18:30 – 20:00 | Session V: Keynote Address and Panel discussion On Driving the “Exascale computing in life sciences” Chair: Dr. Hemant Darbari, NSM Mission Director Keynote Speaker: Dr. Georgia Tourassi, ORNL, USA Title: Exascale Computing and AI Shaping a Smart Future for Biomedicine: Research Insights and Future Prospects Panelists: Dr. S.D. Sudarshan, Shri.S.A.Kumar, Shri. Sanjay Wandhekar, Dr. Praveen Kumar, Prof. Binay Panda, Dr. Akash Ranjan | |
| 20:00 | Dinner at Hotel Orchid | |

Day 2: Feb 7, 2024

| Time | Title | Speaker |
|----------------|---|--|
| | Session VI: Drug Discovery and RNA Therapeutics Session Chair: Dr. U. S.N. Murty, NIPER-Guwahati | |
| 09:00 – 09:30 | Allosteric and the design of protein-protein interaction modulators | Prof. B. Gopal, IISc, Bengaluru |
| 09:30 – 10:00 | Accurate free energy calculation of Ca ²⁺ binding to Calcium-binding proteins using charge scaling approach in molecular dynamics simulation: Importance in protein-ligand and protein-ion interactions | Prof. Pradipta Bandopadhyay, JNU, New Delhi |
| 10:00 – 10:30 | Effect of arginine enantiomers on RNA tetraloop folding: Evidence for hypothesis on RNA-based origin of homochirality | Dr. Arnab Mukherjee, IISER, Pune |
| 10:30 – 11:00 | Accelerating rare genetic disease research: An integrated approach to understand how genetic mutations associated with rare genetic diseases may cause the disease and to explore potential therapeutic interventions and strategies for the same | Dr. Akash Ranjan, CDFD, Hyderabad |
| 11:00– 11:15 | <i>Tea Break</i> | |
| | Session VII: Multiscale modeling Session Chair: Dr. Sangeeta Sawant, SPPU, Pune | |
| 11:15 – 11:45 | Molecular mechanism of ion selectivity in formate/nitrite transporters | Prof. R. Sankararamakrishnan, IIT Kanpur |
| 11: 45 – 12:15 | Identifying crucial E-protein residues responsible for unusual stability of Zika virus envelope | Prof. Sanjib Senapati, IIT, Chennai |
| 12:15 – 12:45 | Modelling biology at multiple scales: transmembrane receptors to systems pharmacology | Dr. Chetan Gadgil, NCL, Pune |
| 12:45 – 13:15 | Synergizing Strengths: A Dual-Resolution Hybrid Modelling | Dr. Durba Sengupta, NCL, Pune |
| 13:15 – 14:15 | <i>Lunch Break</i> | |
| | Session VIII: Computational Ayurveda Session Chair: Dr. T. Saketh Ram, Ayush Grid, Ministry of AYUSH | |
| 14:15 – 14:45 | Evidence-based research of traditional medicine knowledge base | Dr. Jaspreet Kaur Dhanjal, IIIT-D |
| 14:45 – 15:15 | Exploring certain route of drug administration practiced in Ayurveda through computational biology. | Dr. Santosh Kumar Bhatted, AIIA, New Delhi |
| 15:15 – 16:15 | Poster Session-II | |
| 16:15 – 16:30 | <i>Tea Break</i> | |
| | Session IX: AgriBioSciences Session Chair: Dr. Ashok Giri, NCL | |
| 16:30 – 17:00 | The ‘Indian Biological Data Center’: Bridging the gap between ‘Data’ and ‘Knowledge’ | Prof. Saurabh Raghuvanshi, Delhi University, Delhi |
| 17:00 – 17:30 | Participating Planetary Biodiversity Mission- India | Dr. Gulab D. Khedkar, BAMU, C. Sambhaji Nagar |
| 17:30 – 18:00 | Deep Learning the Terpenome: Data Semantification using AI over NLP | Dr. Gitanjali Yadav, NIPGR, New Delhi |
| 18:00 – 19:00 | Bioinformatics Group presentation by Dr. Sunitha Manjari | |
| 19:00 – 20:00 | Poster Session-III | |
| 20:00 | Dinner at Hotel Orchid | |

Day 3: Feb 8, 2024

| Time | Title | Speaker |
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| | Session X: Artificial Intelligence in Biology and Medicine Session Chair: Dr. N. Subramanian, SETS, Chennai | |
| 09:00 – 09:30 | Using Generative Artificial Intelligence to predict the sequence of future variants of concern in epidemic viruses: Implications for immune escape and vaccine design | Prof. Andrew Lynn, JNU, New Delhi |
| 09:30 – 10:00 | Machine learning in cancer gene expression classification for diagnosis and prognosis. | Dr. Dinesh Gupta, ICGEB, New Delhi |
| 10:00 – 10:30 | Deep learning-based analysis framework for class prediction in biological images | Prof. Binay Panda, JNU, New Delhi |
| 10:30 – 11:00 | Illuminating Dark Metabolome Using Artificial Intelligence | Dr. Gaurav Ahuja, IIIT, New Delhi |
| 11:00 – 11:15 | <i>Tea Break</i> | |
| | Session XI: Industry Session Chair: Prof. Ajit Kembhavi, PKC, Pune | |
| 11:15 – 11:45 | Cracking the CRAC: Discovery of LNP1955 as Potent and Selective CRAC inhibitor to Combat Inflammatory Diseases | Dr. Venkata Palle, SPARC, Baroda |
| 11:45 – 12:15 | Applying computing to biology | Shri. Vinay Kulkarni, TCS |
| 12:15 – 12:45 | The Application and Utility of Clinical Next Generation Sequencing in Managing Oncology Patients | Dr. Aditya Phatak, Velsara, Pune |
| 12:45 – 13:15 | Unlocking the potential of Multi-omics data: Accelerating insights with informatics | Dr. Anamika Krishanpal, Persistent Systems, Pune |
| 13:15 – 14:00 | <i>Lunch Break</i> | |
| 14:00 – 15:30 | Poster Oral Presentations | |
| 15:30 – 16:00 | Session XII: Valedictory Session | |
| 16:00 – 16:30 | Poster awards and feedback | |
| 16:30 | Tea and Good Bye | |

