

**Workshop Report organized by IIC, Hansraj College, 26th-30th
November, 2022**

Topic: Computational Genomics for NGS data analysis: Concepts, Methods & Applications

Mode: Online

Join Zoom

Meeting: <https://us02web.zoom.us/j/81340848661?pwd=M2ZwbDBjUzJaQ2cvS2JXWDh4R1Fmdz09>

Meeting ID: 813 4084 8661

Passcode: 874948

Resource persons:

1. **Dr. Meenakshi Iyer**, Postdoctoral Fellow, National Centre of Biological Science, Bangalore, India, Advisor & Tutor, *NyBerMan Bioinformatics*
2. **Dr. Priyanka Narad**, Associate Professor, Amity University, Bangalore, India, Advisor & Tutor, *NyBerMan Bioinformatics*
3. **Dr. Saurabh Gupta**, Post doctoral Researcher, Curtin University, perth Australia
4. **Mr. Pranavathiyani G.**, Doctorate student, Pondicherry University, PU, India and Advisor & Tutor, *NyBerMan Bioinformatics*

Date of event: 26th-30th November, 2022

Time: 2:00 PM to 6:00 PM on all 5 days (26th-30th November, 2022).

Venue: Zoom

Objective: To train participants on **Concepts, Methods & Applications of computational genomics and NGS analysis**

Convener, IIC: Dr. Archana Singh

This international workshop was **jointly organized by**

- Delhi School of public Health, Institute of Eminence, University of Delhi, India
- DBC I4 Center Deshbandhu College, (University of Delhi), New Delhi, India
- Hansraj College, North Campus (University of Delhi), New Delhi, India
- Dr.M.G.R Educational & Research Institute University, India
- NyBerMan Bioinformatics Europe, Orleans, France
- Quanta Calculus Pvt Ltd, India



ONE WEEK INTERNATIONAL VIRTUAL WORKSHOP ON

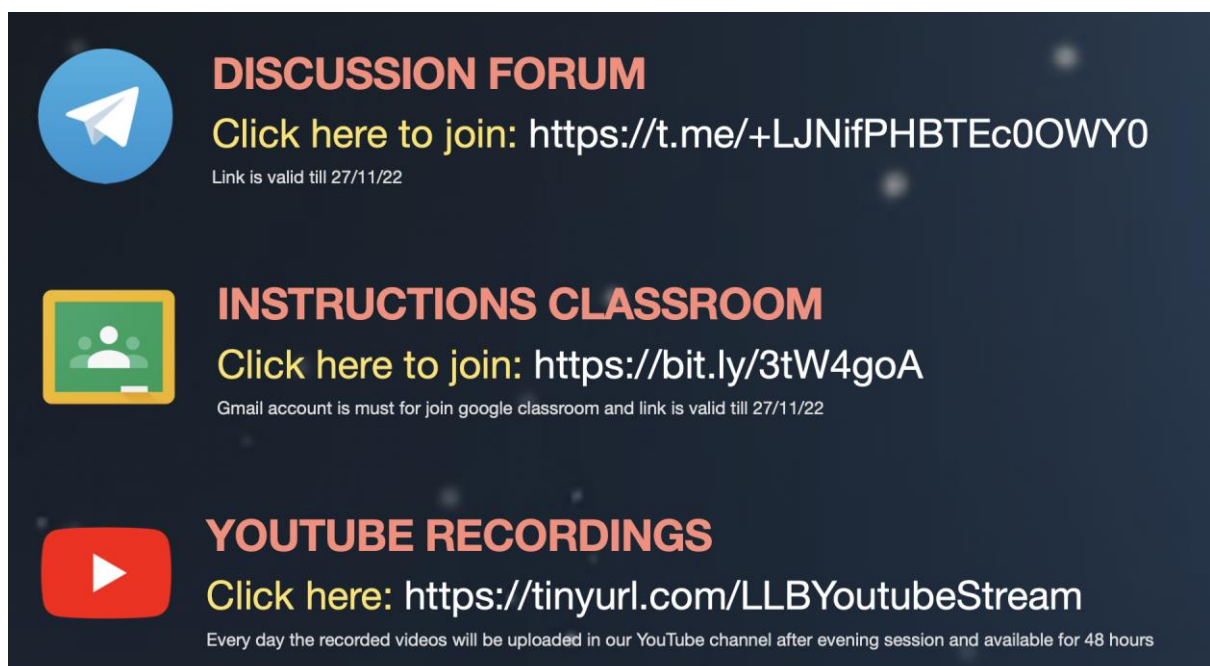
Computational Genomics for NGS data analysis


Concepts, Methods & Applications


JOINTLY ORGANISED BY


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- DBC I4 Center Deshbandhu College, (University of Delhi), New Delhi, India
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- NyBerMan Bioinformatics Europe, Orleans, France
- Quanta Calculus Pvt Ltd, India

 **26th-30th November, 2022**



 **DISCUSSION FORUM**
Click here to join: <https://t.me/+LJNifPHBTEc0OWY0>
Link is valid till 27/11/22

 **INSTRUCTIONS CLASSROOM**
Click here to join: <https://bit.ly/3tW4goA>
Gmail account is must for join google classroom and link is valid till 27/11/22

 **YOUTUBE RECORDINGS**
Click here: <https://tinyurl.com/LLBYoutubeStream>
Every day the recorded videos will be uploaded in our YouTube channel after evening session and available for 48 hours

**Computational Genomics for NGS (26 November 2022)
Inaugural Session (Day 1) 1:00-1:45 PM**

26 November 2022 (Saturday), (Indian Standard Time)

Time	Participants Joining to Zoom Platform	1:00 to 1:10 PM
Inauguration	Welcome address by Program Convener: Dr. Indrakant K. Singh, Head DBC I4 Centre, Deshbandhu College, University of Delhi, Delhi	1:10 to 1:15 PM
	Guest of Honor Address: Prof Rajiv Aggarwal, Principal, Deshbandhu College, University of Delhi, Delhi	1:15 to 1:20 PM
	Guest of Honor Address: Prof Rama Principal, Hansraj College, University of Delhi, Delhi	1:20 to 1:25 PM
	Guest of Honor Address: Dr.K.Gomathi Dean-ASC, Dr.M.G.R Educational & Research Institute University	1:25 to 1:30 PM
	Chief Guest Address: Prof Yogendra Singh, Director, Delhi School of Public Health (IoE), University of Delhi, Delhi	1:30 to 1:35 PM
	Coordinator Address: Dr. Mahesh Velusamy CEO & Founder, NyBerMan Bioinformatics & Lets Learn Bio-IT School	1:35 to 1:40 PM
	Coordinator Address: Dr. Vivek Dhar Dwivedi, Founder Director Dr. Shiv Bharadwaj Co-Founder, QUANTA CALCULUS Pvt Ltd	1:40 to 1:45 PM

Program Schedule:

Day 1: 26-11-2022

26-11-2022 (Saturday)	Live Session - I <ul style="list-style-type: none"> Session 1: Introduction to Genomics, NGS & Transcriptomics 	2:00 PM – 3:30 PM (IST)	Dr. Saurabh Gupta <i>Post doctoral Researcher, Curtin University, perth Australia</i>
	Live Session - II <p>Session 2: Introduction to Linux system, Navigate the file system, create, copy, and move Linux command-line and writing bash scripts</p>	4:00 PM – 6:00 PM (IST)	

Day 2: 27-11-2022

27-11-2022 (Sunday)	Live Session - I <ul style="list-style-type: none"> Genomics basics like N50, coverage, depth of sequencing Replicates, need for multiple libraries How to estimate genome size 	2:00 PM – 3:30 PM (IST)	Dr. Meenakshi Iyer Postdoctoral Fellow, National Centre of Biological Science, Bangalore, India Advisor & Tutor
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	<ul style="list-style-type: none"> • Ask for sequencing data of a specific coverage from sequencing companies 		<i>NyBerMan Bioinformatics</i>
	<p>Live Session - II</p> <ul style="list-style-type: none"> • Reading and interpreting raw reads from sequencing data • QC analysis of sequencing data using FASTQC tool • Trimming sequencing adapters and bad quality bases from the sequencing reads 	4:00 PM – 6:00 PM (IST)	

Day 3: 28-11-2022

28-11-2022 (Monday)	<p>Prerequisite installation</p> <p>Live Session - I</p> <ul style="list-style-type: none"> • Basics of microarray -basics of RNA seq • Differentially expressed genes: significance & methods 	1:30 PM – 3:30 PM (IST)	<p>Dr.Priyanka Narad Associate Professor, Amity University, Bangalore, India</p> <p>Advisor & Tutor <i>NyBerMan Bioinformatics</i></p>
	<p>Live Session - II</p> <ul style="list-style-type: none"> • GEO database • Identification of differentially expressed genes for microarray data using R • Identification of differentially expressed genes for RNA seq using deseq2 	4:00 PM – 6:00 PM (IST)	

Day 4: 29-11-2022

29-11-2022 (Tuesday)	<p>Prerequisite installation</p> <p>Live Session - I</p> <ul style="list-style-type: none"> • Introduction to systems biology & genomics • Principles and applications 	1:30 PM – 3:30 PM (IST)	<p>Pranavathiyani G</p> <p>Doctorate student, Pondicherry University,</p>
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	<ul style="list-style-type: none"> • Network biology concepts: graph theory, types of networks, network properties • Reconstruction and analysis of biological networks, network annotation, visualization • & enrichment analysis (gene ontology and pathways) 		PU, India <i>Advisor & Tutor NyBerMan Bioinformatics</i>
	<p>Live Session - II</p> <ul style="list-style-type: none"> • Resources for systems biology research: databases, servers and tools • <i>Hands on/demo</i> sessions • Bioinformatics databases and tools for systems genomics research • Network analysis and visualization using cytoscape and R (igraph and stringdb) • Practice exercises & Evaluation quiz 	4:00 PM – 6:00 PM (IST)	

Day 5: 30-11-2022

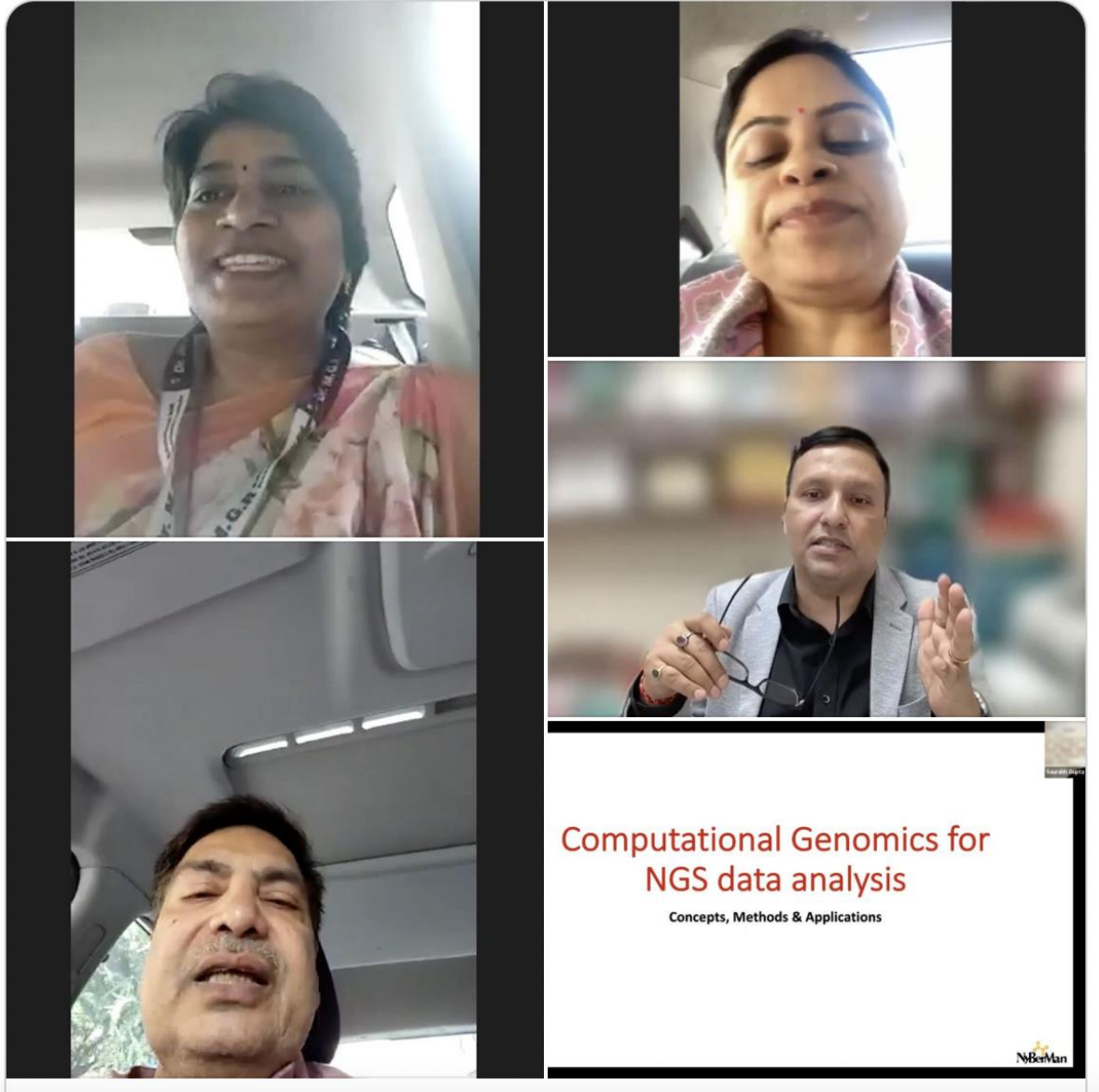
Program details below for Day 5

TIME	PROGRAM
2:00 PM – 2:45 PM (IST)	Day 2 queries discussion with Dr. Meenakshi Iyer
3:00 PM – 3:45 PM (IST)	Day 3 queries discussion with Dr. Priyanka Narad
4:00 PM – 4:45 PM (IST)	Day 1 queries discussion with Dr. Saurabh Gupta
5:00 PM – 5:45 PM (IST)	Day 4 queries discussion with Mr. Pranavathiyani
5:45 PM – 6:30 PM (IST)	Vote of thanks e-Quiz & assessment for certificates quiz via below link and get your certificate https://forms.gle/UtePFURHx91y852W9

Total participants: 200 ;Total number of faculty:20

HansRaj College jointly inaugurated a one-week international workshop on computational genomics with other leading organizers: [NyBerMan Bioinformatics](#) [DeshbandhuCollege](#) [DelhiUniversity](#), [Quanta Calculus](#) , [Dr. MGR Educational and Research Institute](#), [DR. M.G.R. University](#).

We are so glad that we were joined by over 200 participants from various parts of India and other European countries. Participants were introduced to Linux system, how to navigate the file system, create, copy, and move Linux command-line and writing bash scripts. In the next session they learnt about Genomics, NGS & Transcriptomics, DNA sequencing and data analysis, coverage calculation, QC analysis of sequencing data using FASTQC tool, trimming sequencing adapters and bad quality bases from the sequencing reads, In the next session participants learnt microarray analysis, GEO database, Other biological databases, system biology, Network biology concepts: graph theory, types of networks, network properties, Reconstruction and analysis of biological networks, network annotation, visualization & enrichment analysis (gene ontology and pathways). The 5th day was dedicated for discussion with experts and quiz. Participants were provided with the certificate.



Full Name	Institution/University/Company Name
Aaryan Jaitly	Punjab University
Sudeshna Ghosh	Banaras Hindu University, Varanasi
Dhiraj Kumar S	Parexel International
Ankumoni Das	Gauhati university
Iqra Sajid	Jamia Millia Islamia University
Pradeep Kumar S	Sri Krishna Arts and Science College
Shamima Akhtar	Dept. Of Biochemistry, AIIMS, New Delhi
Kesana Veekshitha	CSIR-Central Drug Research Institute
Somna G	Central University Of Tamilnadu Neelakudy Campus
Sarangadhar Nayak	Jawahar Lal Nehru University

Mohit Garg	Ph.D. Scholar
BANISMITA TRIPATHY	Rama Devi Women's University
Komal Sagar	AIIMS
Vidhu kaushik	Jamia Hamdard
Dr. Prabha Arya	Deshbandhu College, University of Delhi
Nachimuthu Senthil Kumar	Mizoram University
MAMTA PANDA	CENTRAL UNIVERSITY OF RAJASTHAN
Venkata Sri Satya Gayathri. Jonnalagadda	Vignan's Foundation for Science Technology and Research
cash Kumar	banaras hindu university
Sajna Salim	University of Kerala
Vijay Kumar	Panjab University Chandigarh
HARSHIT SAJAL	JSS AHER
Riya Sahu	National Institute of Technology, Warangal
Arshi Fatima	CSIR-NBRI
Ananya Verma	Amity University, Mumbai
Kathirvel M	AIIMS, New Delhi
Vandana Sharma	Rajiv Gandhi Centre for Biotechnology
Abisha Vince Jeo V S	NIMS Centre For Genomic Medicine
Shrushti Joshi	Savitribai Phule Pune University
Raghavdeep Sharma	NCRD's Sterling Institute of Pharmacy
Vijay Kalra	Pt. B.D.Sharma PGIMS,Rohtak
Adrija Saha	JISIASR, KOLKATA
Thahiya Naushad	Istanbul University
RITU VERMA	NIT Warrangal
Deepthi K S	Kerala University
I R Oviya	Amrita School of Computing, Amrita Vishwa Vidyapeetham, Chennai
Dr. Rinmuanpuii Ralte	Khalsa College of Veterinary and Animal Sciences
Venkata Chathurya Yatham	Vignan's foundation for science technology and research
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R. Shajitha Banu	Stella Maris College
T. V. Devakumaran	Madurai kamaraj university
Swathisri	Sri Ramachandra Institute of Higher Education and Research
Shanmuga Priya. S	Sri Ramachandra institute of Higher education and research
Mallari Praveen	Indira Gandhi National Tribal University
Divya.S	Amrita university, Chennai campus
Mahalaxmi Rupanand Indapure	Walchand College of Arts and Science

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SUPARNA DAS	Bidhan Chandra krishi Vishwavidyalaya West Bengal
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	University of Technology Malaysia
	UNIVERSITI TEKNOLOGI MALAYSIA
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Sneha Rajeev	Sri Ramachandra Institute of Higher Education and Research
Bhavyashree V	Dayananda sagar college of engineering
SAURABH DHYANI	Jamia Hamdard
RAHUL KUMAR SINGH	University of North Bengal.
TANVI VASHIST	PGIMER, Chandigarh
KAMLESH BISHT	PGIMER Chandigarh
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	University of Paris-Saclay, France
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Shriya Goel	PGIMER, Chandigarh
Asha Raj K R	Christ College, Irinjalakuda, Trissur, Kerala, India
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Divya Ravi	Amrita School of Biotechnology/Amrita University.
Archana Angrup	PGIMER Chandigarh
	University of Kwa-Zulu Natal
	University of KwaZulu-Natal, Westville, Durban, South Africa
Hamsaveni S M	Dayananda Sagar College of Engineering
Ganesan J	Chettinad Academy of Research and Education
DIVYA	Jamia Millia Islamia
IKRAM	JAMIA HAMDARD UNIVERSITY DELHI
SREEJITH S	Mahatma Gandhi University, Kerala, India
Rik Ganguly	North-Eastern Hill University
Manisha yadav	Hansraj college
Angneh	North-Eastern Hill University, Shilong
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HARSIDDHI. A	Sathyabama Institute of Science and Technology
Dr.KSN Jyothi	University College for Women
Baitali Guha	Pondicherry University

Prakash Shankaran	SASTRA deemed to be University
Monika Rajput	Banaras Hindu University
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RUPESH KUMAR	JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY
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Saandra Manoj	Stella Maris College
Aruna M	JIPMER
Shaunak Raole	VIT Vellore
SONAL SANGWAN	Central University of Tamil Nadu
Bhavan ganesh k	Dayanand sagar college of engineering
Likhindra Reang	Junagadh Agricultural University, Junagadh
Puranapanda Sameera	Central University of Kerala
Megha	university of delhi
Mujtaba Husaini	GGDSD College, Chandigarh
Debadip Bhattacharjee	North - Eastern Hill University
Saranya Jayapalan	Pondicherry University
Dr Meenakshi Sharma	Delhi University
Tanushree	CSIR - Institute of Genomics and Integrative Biology
Dr Meenakshi Sharma	Delhi University
Narun Gambhir	CSIR-Institute of Genomics and Integrative Biology
Martina Pukhrambam	ICAR-National Research Centre on Yak, Dirang
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HEMANT KUMAR	Banaras Hindu University
Mohini	University of Delhi India
Hemant Kumar	Banaras Hindu University
Yashika Tandon	Delhi pharmaceutical sciences and research university
M Divya Gnaneswari	Gargi College, Delhi University
Priyanka Vyas	MAHILA PG MAHAVIDYALAYA
Kunal Tanwar	Banaras Hindu University
SNEHA	National forensic science University

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Sagarika Khamkar	MIT ADT
IFTEKHAR AHMAD	CSIR - Institute of Genomics and Integrative Biology
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Sanyukta Kalita	Assam agricultural university
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Diksha Rani	Dr. B. R. Ambedkar Center for Biomedical Research, University of Del
Rohit Mukund Deshmukh	Assam Agricultural University
vandana yadav	MIT Art Design and Technology University
Aaron Manish Chopade	MIT ADT UNIVERSITY
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Bishmitha K	University of Kerala
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Harikrishnan.R	cochin university of science and technology
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Jeril Philip	Amity University Uttar Pradesh
Siddharth Raghuvir Hanje	MIT ADT University
Surati Kumari	Banaras Hindu University
Ravi Kumar Majhi	Aiims New Delhi
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Jayasri Kantheti	Sri Venkateswara Veterinary University
DR. POONAM SHARMA	GARGI COLLEGE UNIVERSITY OF DELHI

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Harvin Siag	Delhi University
D Elaa Justina	Tezpur university
Dr Amanpreet Kaur	Delhi Pharmaceutical Sciences & Research University
Anjana kumari	National Forensic science University
Vipra Sharma	AIIMS, New Delhi
RASHI DIXIT	Central University of Tamil Nadu
SAGARIKA SAHA	MIT ADT UNIVERSITY, PUNE
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Keerti Maheshwari	Delhi pharmaceutical sciences and research university
	Universidade do Algarve
Nisha Lakshmi.K	Nitte University Centre for Science Education and Research
Vaishali Gupta	Hansraj College
Shubham Trivedi	Integral University, Lucknow
Tuba Nazeer	University College for Women- Osmania University
Lambodar swain	Central university of punjab
KIRAN KUMAR SALAM	MANIPUR UNIVERSITY
Shivangi krishnatra	G.B pant university of agriculture and technology
Khyati Chowdhary	Deshbandhu College
Aditya Kashyap	Madurai Kamaraj University
	Gene Solutions JSC
Anubha Mittal	GeneHealth global research & diagnostics
Akanksha Verma	Jawaharlal Nehru University New Delhi India
Rajani Singh	Jawaharlal Nehru University
Sunita Sharma	Jawaharlal Nehru University
Mani Gupta	JNU
sneh lata singh	jawaharlal nehru university
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ABHISHEK MISHRA	DDU GORAKHPUR UNIVERSITY
Dr Divya Singhal	Chandigarh University
Kavita Dixit	ACBR, University of Delhi
Sarika Bano	ACBR University of Delhi
Neha Panwar	Acbr, University of Delhi
Manoj Kumar	Industrial Biotechnology
Prakash Ch. Sahoo	Industrial Biotechnology
Shoba G	Dr. MGR educational and research institute
Deepika Pal	Deshbandhu college (Delhi university)

Vinothini Vijayaragavan	Dr. MGR educational and research institute
KEERTHIKA K	Dr. Mgr Educational and Research institute
Yoga Manjula	MGR University