IIT Jodhpur, Rajasthan

Post Graduate Diploma on

Next-Generation OMICS Technologies & Applications

Continuing Education Program Office ***Indian Institute of Technology Jodhpur***

Sessions by IIT Jodhpur Faculty Members and OmicsLogic Experts with Campus Immersion

In Collaboration with Industry Partners

premas life sciences

OMICSLOGIC Bioinformatics & Data Science Training

miBiome® therapeutics

12 Months Online

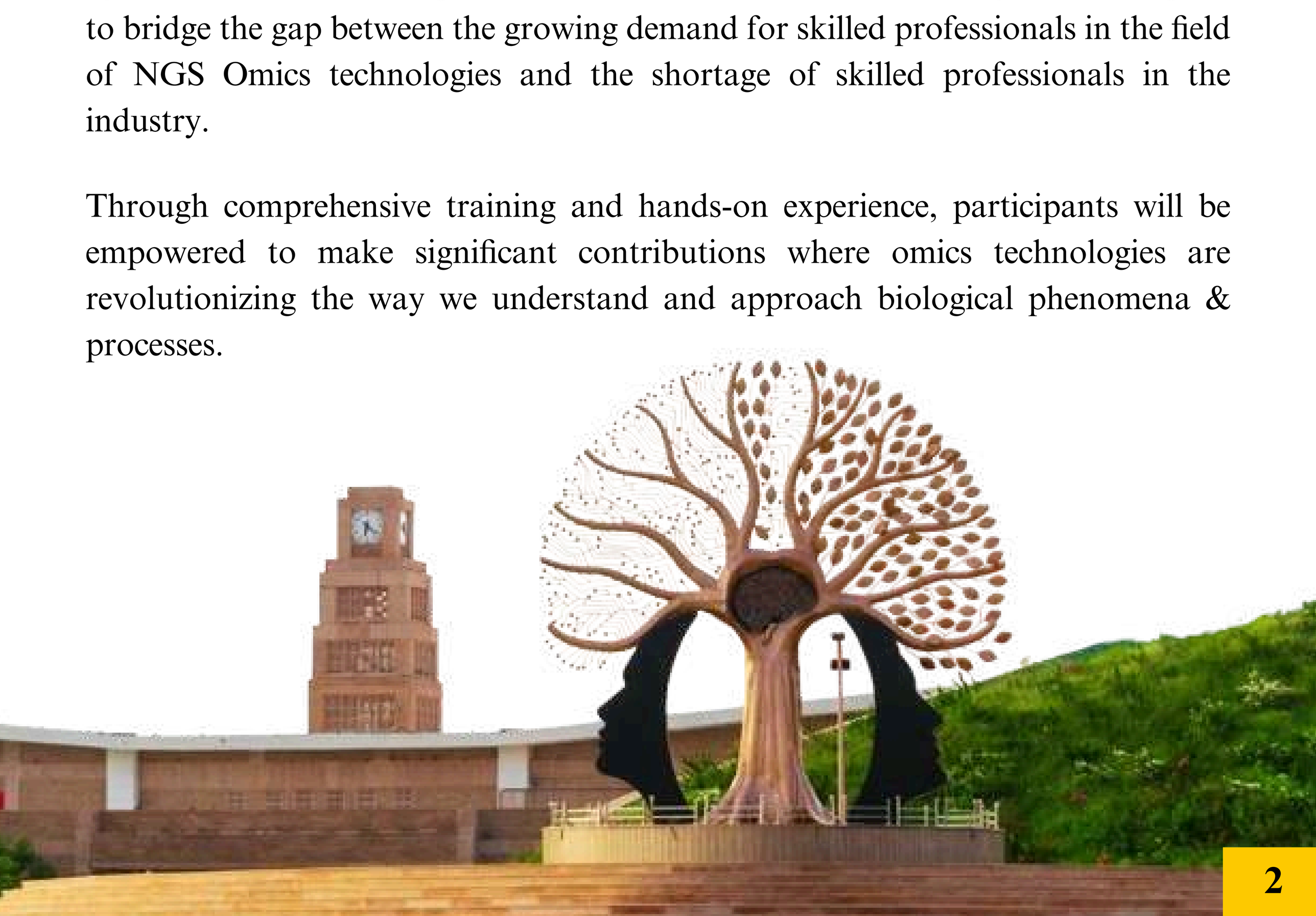
IIT Alumni Status

ABOUT THE PROGRAM

The **Next Generation Omics Technologies and Applications PG Diploma Program** is a comprehensive training program that provides participants with the industry skills and knowledge necessary to design, execute, and analyze multi-omics experiments.

The program covers a wide range of topics, including **next-generation sequencing techniques, multi-omics technologies, computational methods, machine learning algorithms,** and **statistical approaches.** Upon successfully completing the program, participants will be well prepared to tackle the challenges and complexities associated with high-throughput data analysis in biology. The program is offered by IIT Jodhpur, OmicLogic & Premas LifeSciences collaboratively and is designed to bridge the gap between the growing demand for skilled professionals in the field of NGS Omics technologies and the shortage of skilled professionals in the industry.

Through comprehensive training and hands-on experience, participants will be empowered to make significant contributions where omics technologies are revolutionizing the way we understand and approach biological phenomena & processes.



WHO IS THE PROGRAM FOR ?

Working Professionals from Pharma, Sports, Nutrition, Health, Wellness and Diagnostic Industries; Researchers from Academia & Industry; Clinicians and Service Providers; PhD, B.Tech or Masters students in Bioscience, Bioengineering or related fields.

ELIGIBILITY

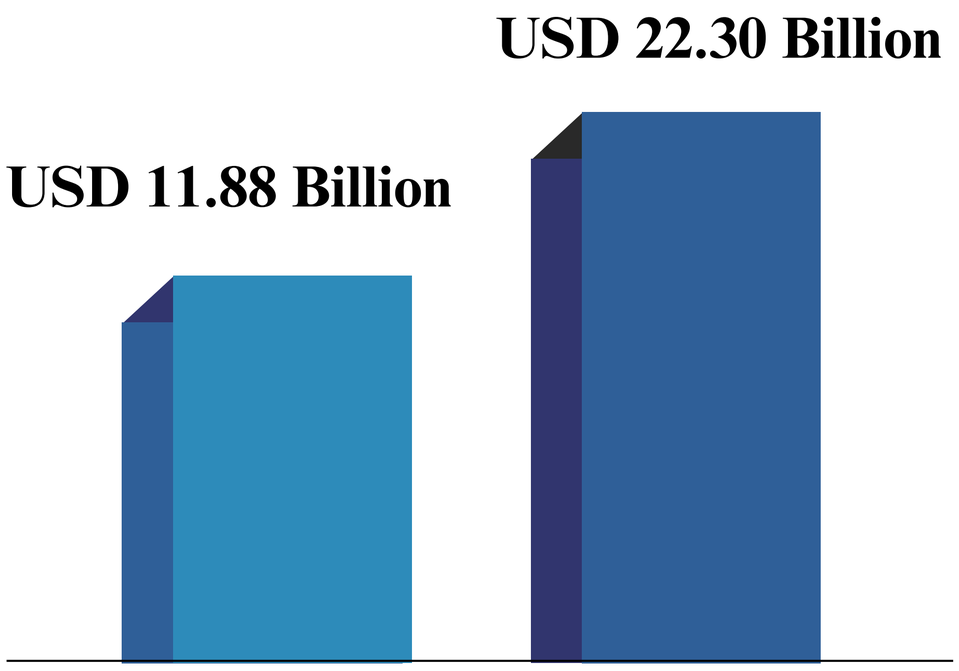
The applicant must have a Bachelor's degree in Engineering or Science or Medicine (min. 4-year program) or a Master's degree in Bioengineering or Bioscience or in a related field.

A minimum of 60% marks in UG/PG or a minimum CGPA of 6.0 on a scale of 10 with corresponding proportional requirements when the scales are other than 10.

IIT Jodhpur may at its discretion conduct a written test and/or interview to select candidates for the program.

WHY NGS OMICS TECHNOLOGIES ?

GLOBAL NEXT GENERATION SEQUENCING MARKET



Global Next Generation Sequencing Market is anticipated to experience a CAGR of 13.43% from 2025 to 2030.

The Next-Generation Sequencing (NGS) market is projected to grow from USD 11.88 billion in 2025 to **USD 22.30 billion by 2030**, with a **CAGR of 13.43%** during the forecast period (2025-2030).

This growth is driven by the expanding use of NGS in clinical diagnostics, its advantages in speed, cost, and accuracy over traditional technologies like microarrays, and its increasing role in drug discovery, supported by advancements in **bioinformatics and AI-driven data analysis.**

Source: Mordor Intelligence

Service Type Outlook

- Human Genome
- Single Cell Sequencing Services
- Microbial Genome-Based Sequencing Services
- Gene-Regulation Services
- Animal & Plant Sequencing Services

Regional Outlook

- North America
- Europe
- Asia Pacific
- Latin America
- Middle East & Africa

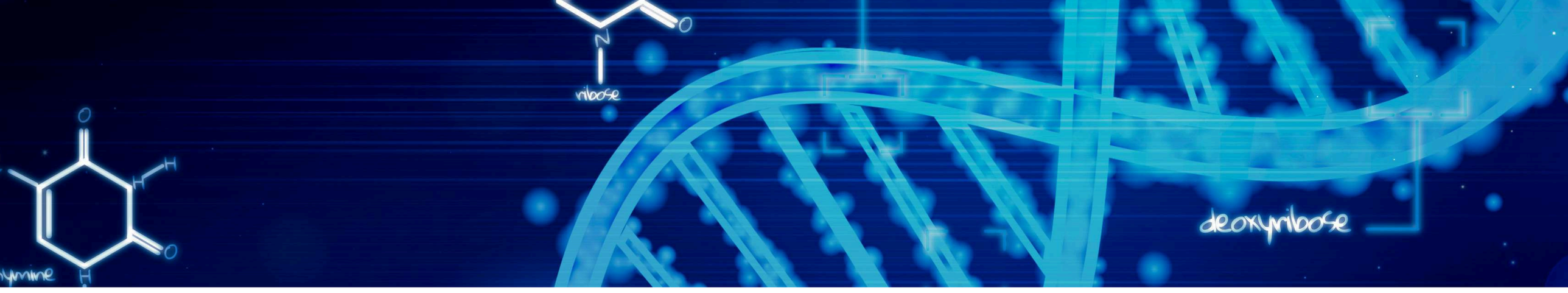
Workflow Outlook

- Pre-sequencing
- Sequencing
- Data Analysis

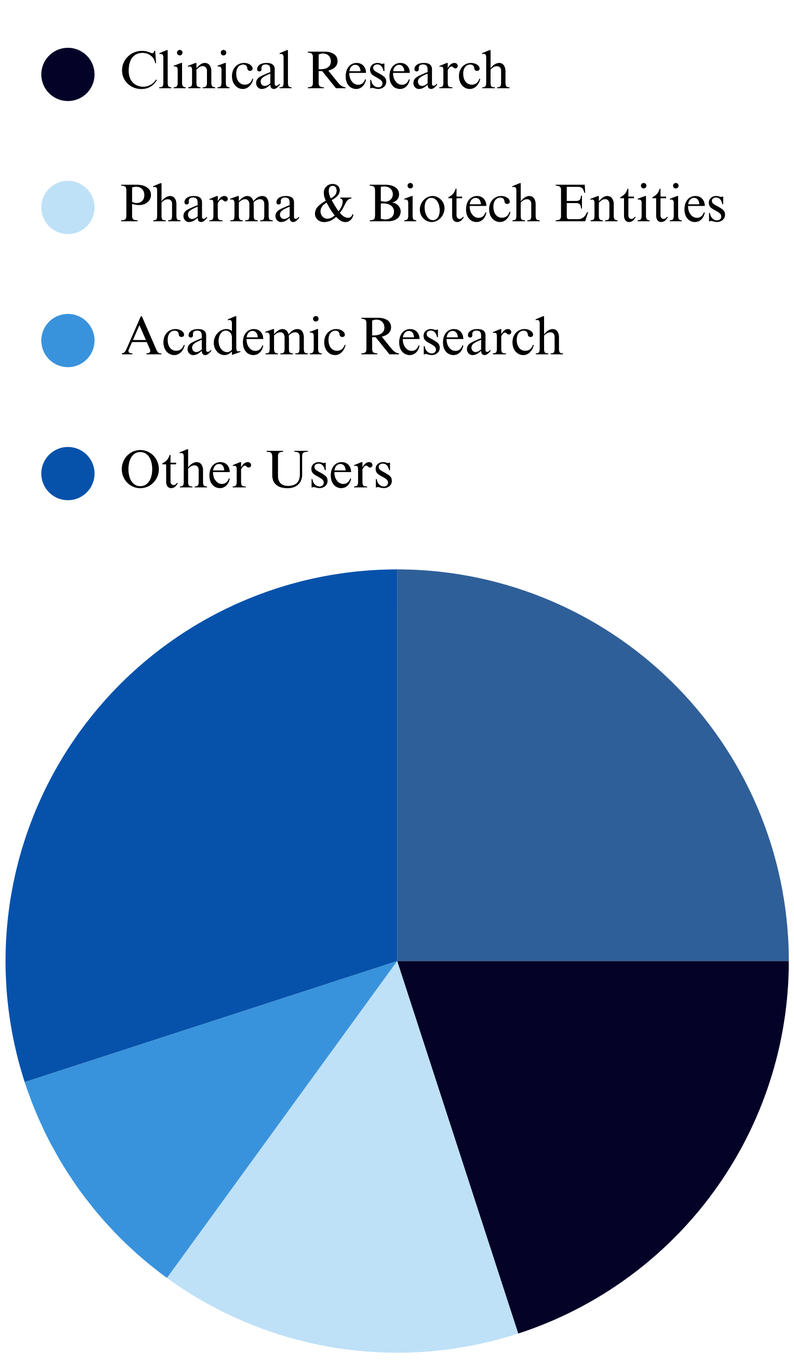
End-Use Outlook

- Universities & Other Research Entities
- Hospitals & Clinics
- Pharma & Biotech
- Others

Source: Grand View Research



INDIAN NGS MARKET



In 2022, hospitals and clinics accounted for about 35% of the market share, driven by the rising incidence of cancer and the need for improved diagnostic strategies.

The introduction of NGS-based cancer tests and panels in Asia has significantly enhanced initial cancer testing in Indian hospitals and clinics.

17.4 % Indian Market CAGR, 2023 - 2030

Source: Grand View Research

Key Players In Indian NGS Market

illumina®

premas life sciences

TECAN.

xcelris™ WE MAKE DNA SPEAK

eurofins

4baseCare *Together, We Beat Cancer*

MEDGENOME

SAYRE THERAPEUTICS

Redcliffe labs

Partek™ an Illumina company

BIO-RAD

Myriad genetics

HOLOGIC®

VELA DIAGNOSTICS

Genotypic genomics simplified

PROGRAM KEY FEATURES

~500 hrs of real-time support from **IIT Jodhpur faculty & industry experts** from leading sequencing & data science companies.

Bridge the gap between academic & industry by staying ahead with techniques for **sequencing & data analysis.**

Work with **open source scientific tools, softwares and powerful packages in R & Python to analyze omics data** for your projects.

Engage in an **interactive virtual classroom.** Access recorded lectures at your convenience for **flexible learning.**

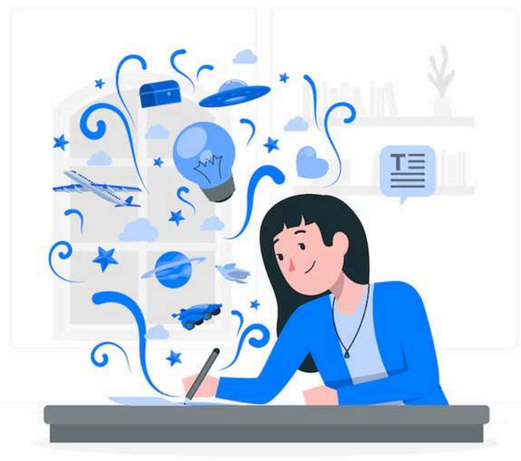
Comprehensive online learning platform comprising of 20+ courses & case studies on omics data analysis & research.

Educational pipelines on bioinformatics cloud research infrastructure for analyzing **different omics data types.**

Successfully complete **28 credits** to fulfill the requirements and graduate from the **PG Diploma Program.**

Prestigious **certification upon completion** and join the **esteemed network of IIT alumni.**

STUDENT JOURNEY



Fill Out Registration Form

Submit Registration Fee

Submit Documents for Verifying Eligibility

Receive Offer Letter

Complete Program Fee Payment

Commencement of LIVE Classes

Option to Exit at Certification Program

***Direct Entry at Advanced Certification Program**

Option to Exit at Advanced Certification Program

Become an IIT Jodhpur PG Diploma Graduate & Alumni

Placement Support and Opportunities

Certification Program

Advanced Certification Program

Postgraduate Diploma

LEADERSHIP, TRAINERS & MENTORS

Dr. Amit Kumar Mishra
Professor & Head of Dept.,
Biosci. & Bioeng. (BSBE),
IIT Jodhpur, Rajasthan

Dr. Mitali Mukerji
Professor
Biosci. & Bioeng. (BSBE),
IIT Jodhpur, Rajasthan

Praveen Gupta
Managing Director,
Premas Life Sciences,
New Delhi Area

Dr. Mohit Mazumder
CEO & Co-founder,
OmicsLogic India & US,
Houstan Texas &
New Delhi, Delhi, India

Dr. Sucharita Dey
Assistant Professor,
Department of BSBE,
IIT Jodhpur, Rajasthan

Dr. Pankaj Yadav
Assistant Professor,
Department of BSBE,
IIT Jodhpur, Rajasthan

Dr. Gautam Das
Co-Founder & Director,
miBiome Therapeutics,
Mumbai, Maharashtra

Rajshekhar Chatterjee
National Head,
Premas Life Sciences,
New Delhi Area

TRAINERS & MENTORS

Dr. Dinesh Kumar Ahirwar
Assistant Professor,
Department of BSBE,
IIT Jodhpur, Rajasthan

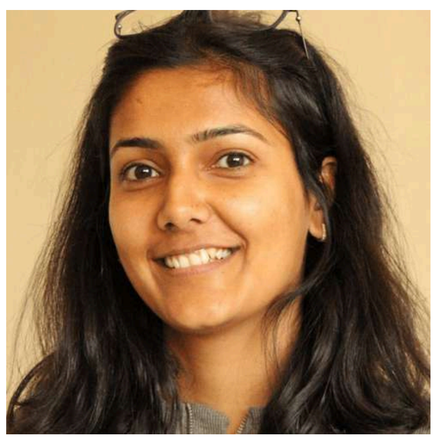
Dr. Siddharth Srivastava
Professor of Practice,
Department of BSBE,
IIT Jodhpur, Rajasthan

Dr. Sudipta Bhattacharyya
Associate Professor,
Department of BSBE,
IIT Jodhpur, Rajasthan

Dr. Ayan Sadhukhan
Assistant Professor,
Department of BSBE,
IIT Jodhpur, Rajasthan

Dr. Rintu Kutum
Faculty Fellow,
Ashoka University,
Sonipat, Haryana

Dr. Anuj Pandey
NGS Training Specialist,
Premas LifeSciences,
New Delhi Area



Ritika Patial
Trainer & Mentor,
OmicsLogic US & IN,
Chandigarh, Punjab

Dr. Vishu Gupta
Guest Faculty,
OmicsLogic,
N.Delhi, India

"Gain Hands-On Experience in both Wet Lab and Dry Lab settings with our NGS Diploma Program."

COMPULSORY MODULES

OMICS EXPERIMENTS & TECHNOLOGIES

- Basics of Experiment Design
- Omics Study Design
- NGS Technologies
- Microarrays & SNP typing
- Single Cell Technologies
- Spatial Transcriptomics

OMICS DATA SCIENCE

- Basic of Data Science
- NGS Data Analysis
- Omics Data Types
- Data Science Methods for Omics
- AI & ML Applications in Omics

OMICS APPLICATIONS

- Modern Approaches of Drug Designing
- Precision Medicine
- Drug Target and Drug Discovery
- Clinical Genomics
- Plant Functional Genomics
- Microbial Genomics & Metagenomics

Click on the Course Booklet for complete list of topics

"From Clinical Interpretation to Precision Medicine, AI-Driven Drug Discovery, and Applications - Discover the Potential of Omics Data"

ELECTIVE MODULES

- Introduction to Non-Clinical NGS Applications and Genomics Analysis Tools
- Statistics for Clinical Interpretation from Omics Data
- Microbial Genomes & Microbiomes
- Principles of Drug Discovery
- Transcriptome Data Analysis
- Proteomics and Metabolomics
- Protocols for Clinical Next Generation Sequencing Applications
- OMICS-Based Precision Medicine
- Computational Personal Genomics
- Artificial Intelligence (AI) in Healthcare
- AI/ML based Rational Drug Discovery
- Computational Structural Bioinformatics
- Applications of OMICS in Plant Science

Click on the Course Booklet for complete list of topics

EXPECTED LEARNING OUTCOMES

Design OMICS experiments, considering various study designs and data modeling techniques, to drive precision medicine advancements.

Design and implement **non-clinical NGS experiments** using various library preparation methods, data analysis tools, and best practices.

Effectively **utilize and manage various OMICS databases**, ensuring data quality, appropriate data submission and retrieval practices.

Apply OMICS technologies - **genomics, transcriptomics (bulk & single cell), and metagenomics**, to understand complex biological systems.

Perform **OMICS data analysis** and **integrate multi-omics datasets** using bioinformatics tools and techniques.

Acquire **foundational skills in R and Python coding** for data manipulation, visualization, & basic analysis required for omics data.

Utilize **machine learning algorithms** to identify patterns, classify data points, and make predictions within the context of omics research.

POTENTIAL CAREER OPPORTUNITIES

Pharmaceutical and Biotechnology Companies:

Sun Pharmaceutical Industries Ltd.
Dr. Reddy's Laboratories Ltd.
Serum Institute of India Pvt. Ltd.
Glenmark Pharmaceuticals Ltd.
Jubilant Life Sciences Ltd. Cipla Ltd.
Bharat Biotech International Ltd.
Biocon Ltd.
Piramal Enterprises Ltd.
Torrent Pharmaceuticals
Cadila Healthcare Ltd.
Cipla Ltd.
Lupin Limited

Research Institutions and Laboratories:

Council of Scientific and Industrial Research Laboratories
Department of Biotechnology Laboratories
Indian Institutes of Technology
National Institutes of Technology
Indian Institutes of Science Education and Research

Healthcare Organizations and Hospitals:

Apollo Hospitals
Max Healthcare
Narayana Health
AIIMS
PGIMER
Fortis Healthcare
Manipal Hospitals
Medanta - The Medicity
Tata Memorial Hospital
Rajiv Gandhi Cancer Institute

Data Analytics and Bioinformatics Companies:

Illumina
Seven Bridges
TCS Bioinformatics Centre
BioAxis DNA Research Centre
Genotypic Technology
Thermo Fisher Scientific
Persistent Systems
Wipro Bioinformatics
Strand Life Sciences
Ocimum Biosolutions

Genomic Diagnostic Laboratories:

MedGenome Labs
Mapmygenome
DNA Labs India
SciGenom Labs
Xcode Life Sciences
CORE Diagnostics
Positive Bioscience
Neuberg Diagnostics

REGISTRATION PROCESS

COMPLETE YOUR REGISTRATION

Candidates interested in enrolling must first complete the registration form: **Click Here**. Last date: **20 April, 2025**

SCREENING PHASE

Next, applicants are required to submit a fee of Rs. 300/-, followed by which an eligibility form will be shared with you for uploading documents for verification.

RECEIVE OFFER LETTER

Once reviewed and deemed eligible, you'll get an offer letter with program details such as start date, program schedule, and other instructions.

COMPLETE FEE PAYMENT

Payment methods and deadlines will be provided to you. You can reach out to our team for recommendation for payment options.

PROGRAM COMMENCEMENT

Following the orientation session to acquaint you with the program structure, faculty, and resources available, regular classes will commence from **August, 2025.**

***Commencement of the program is contingent upon meeting the required minimum number of enrollments*

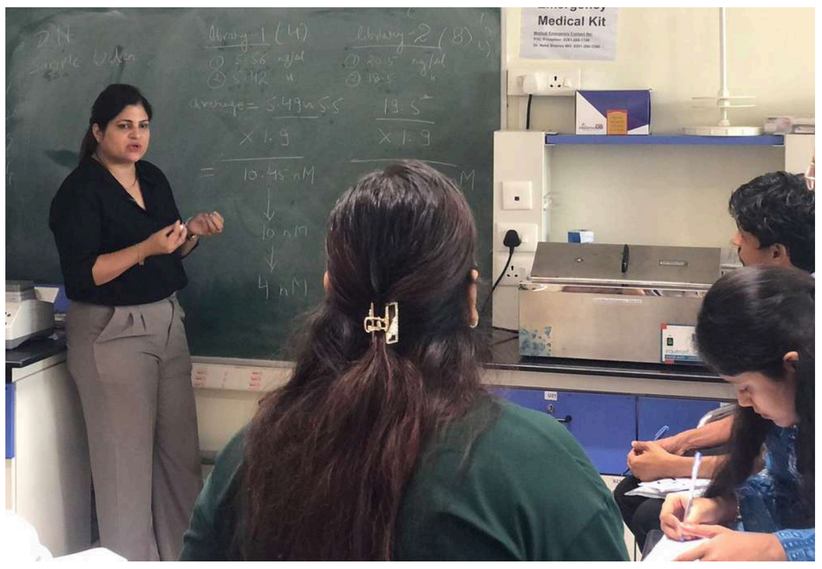
CAMPUS IMMERSION

The campus immersion is designed to bridge the gap between **theoretical knowledge and practical application**, equipping participants with the skills and confidence needed to excel in the field of NGS Omics. It provides participants with the opportunity to:

- ✔ Engage in **wet and dry lab practicals**, allowing them to apply their theoretical knowledge to real-world scenarios.
- ✔ Access the **latest NGS equipment and technologies**, enabling them to develop practical skills.
- ✔ Work alongside **faculty members and industry professionals,** gaining valuable insights and mentorship.

Highlights of Hands-On NGS Training:
Moments from IIT Jodhpur's Campus Immersion 2023-24

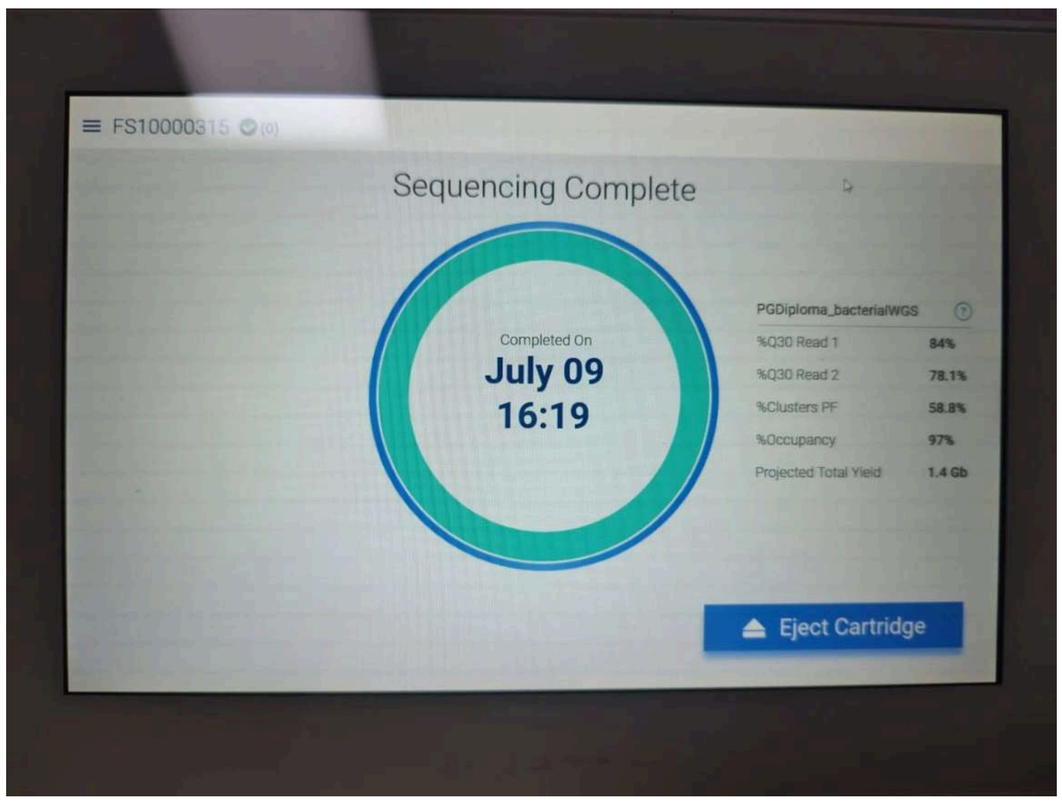
The campus immersion featured an **onsite lecture series** led by **esteemed academic and industry experts** enriching the learning experience with their insights and expertise.



CAMPUS IMMERSION

Students also engaged in hands-on training for **bacterial whole genome sequencing**, gaining practical experience with **IIT Jodhpur's cutting-edge infrastructure.**

They worked through the entire sequencing workflow, including **sample preparation, quality checks, NGS library preparation, and setting up the NGS run.**



The immersive protocol allowed students to understand key steps and calculations involved in **transforming raw samples into sequencing data**, bringing theoretical concepts to life through direct experience.

MINI PROJECT

The mini project is a compulsory practical component for **Certificate II and PG Diploma students.** Under the guidance of faculty and industry mentors, participants work on **real-world research problems related to next-generation sequencing (NGS) technologies and data analysis.**

This hands-on experience allows them to apply their theoretical knowledge, develop essential skills such as **data analysis, interpretation, and communication**, and collaborate with experts in the field.

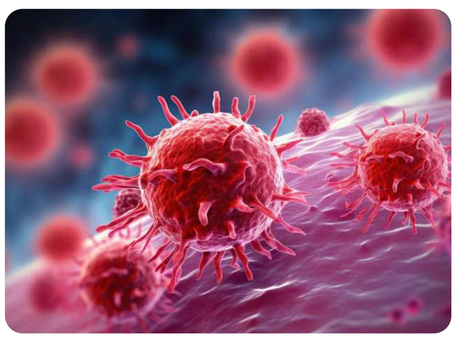
Academic Achievements:
A Glimpse into Student Research Projects 2023-24

1) Meta-Analysis of Differential Gene Expression in Psoriasis: Uncovering Consistent Molecular Signatures and Pathways

Faculty In-Charge: Omicslogic | **Students:** Anamta, Sonal

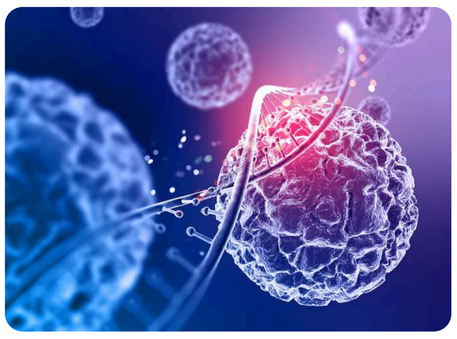
2) Bacteria Whole Genome Sequencing

Faculty In-Charge: PLS IITJ | **Students:** Arvind, Sakaram



3) Predictive Modeling and Feature Extraction in Breast Cancer Subtypes

Faculty In-Charge: OmicsLogic | **Students:** Manisha



4) Developing R package for the Extraction, Audit and Visualize Genomic Metadata from NCBI

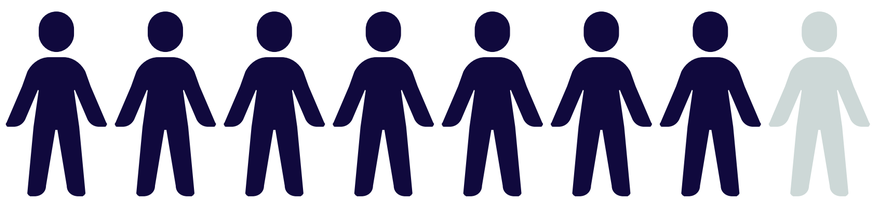
Faculty In-Charge: Dr. Rintu Kutum| **Students:** Mrinal

5) Transcriptomic Profiling of Long COVID: Identifying Differentially Expressed Genes and Pathways in Diverse Patient Groups

Faculty In-Charge: IITJ OmicsLogic | **Students:** Seetha, Rajesh

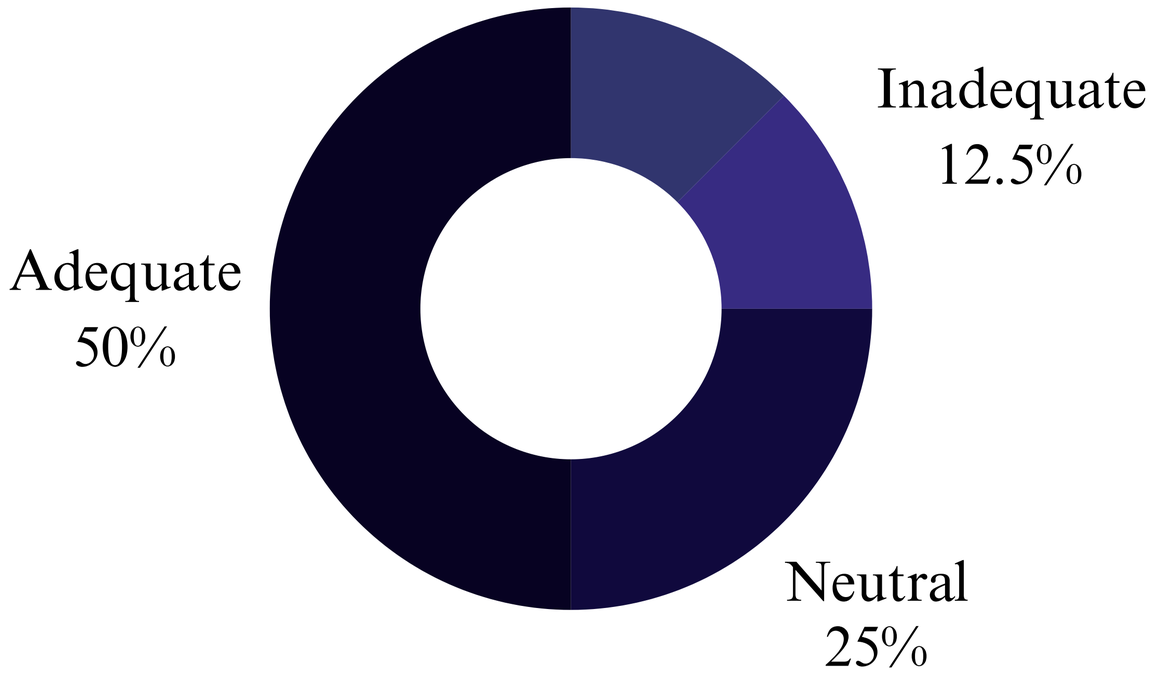
STUDENT FEEDBACK & HIGHLIGHTS

87.5% of participants would recommend the program

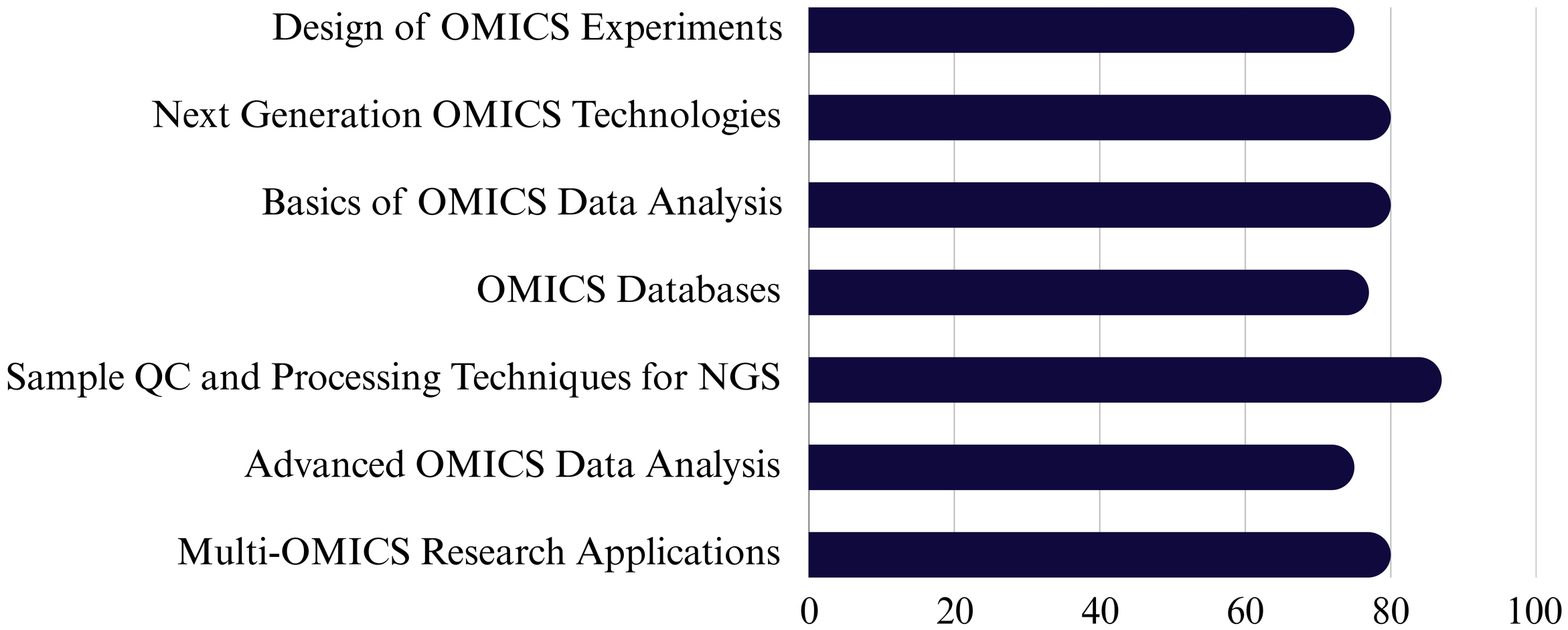


To what extent did the program help you develop practical skills relevant to your field?

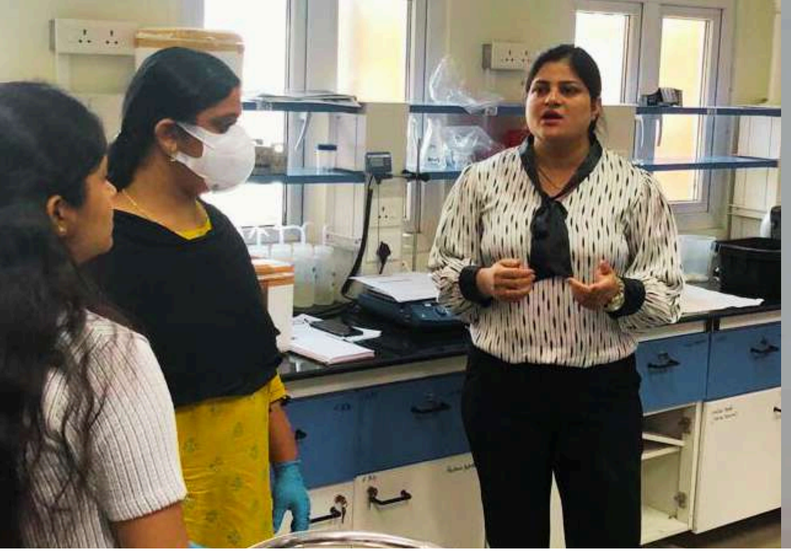
Were the learning resources (e.g., session recordings, supplementary reading materials) adequate and helpful?



Overall Course Rating



The highest ratings were for **Sample QC and Processing Techniques for NGS (87.5%)**, **Next Generation OMICS Technologies (80%)**, **Basics of OMICS Data Analysis (80%)** & **Multi-OMICS Research Applications (80%)**. Students find practical and technology-focused content particularly valuable.



GLIMPSE INTO CAREER PATHWAYS & ACHIEVEMENTS OF PREVIOUS PGD STUDENTS

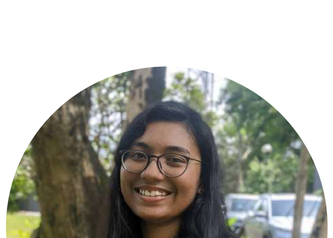
Susree M
Staff Scientist,
Georgetown University

Shraddha W
Assistant Professor,
MGM Dental College

Mrinal B
Junior Research Fellow,
Ashoka University

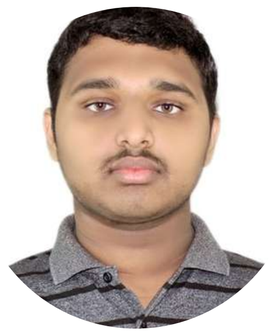
Kumar P
Data Analyst
PDxRL, West Bengal

Sonal N
PhD Zoology,
Jawaharlal Nehru University



Vandana S
Junior Research Fellow,
Institute of Immunology

Ganesh K
Assistant Professor and
HOD, **SRMIST**



Revanth M
M.Tech in Bioscience and
Bioengineering, **IIT Jodhpur**

Arvind P
Project Support (Genomics),
Sathyabama Institute

Karkhanis R
Associate Scientist,
BioMarkIQ

Source: Current Data sources from Public platforms LinkedIn & ResearchGate



GLIMPSE INTO CAREER PATHWAYS & ACHIEVEMENTS

Anshul M
Sr. Application Specialist
Biostring Inc.

Dr. G. Lakshmi
Training & Scientific Writer,
Score Plus | Princeton Review

Manjisa C
Project Manager
DBT-BIRAC

Tanisha S
Training & Development Intern
Premas Life Sciences

Seetha H
Professor of Pharmacology,
Kerala University

Mano C
Endodontics Resident
Mohammed Rashid University

Anamta
CSIR-Indian Institute of Toxicology Research (IITR)

Rajesh K
Professor of Pharmacology,
Kerala University

Manisha M
Trainee/Intern,
Premas LifeSciences

Saka R
Technical Specialist,
Tomar Scientific Corporation

Source: Current Data sources from Public platforms LinkedIn & ResearchGate

STUDENT FEEDBACK & HIGHLIGHTS

Arvind P.
Project Technical Support (Genomics)
Sathyabama Institute of Science & Technology, Chennai

🌟 I'm thrilled to announce the completion of my Post Graduate Diploma in Next-Generation OMICS Technologies and Applications (AY 2023-24) at IIT Jodhpur! 🌟

I am immensely grateful for the cutting-edge expertise and invaluable mentorship provided by our country's distinguished educators: **Dr Mitali Mukerji, Dr Shankar Manoharan, Dr Rahul Ramekar, PhD, Dr Pankaj Yadav, Dr Sucharita Dey, Dr Dinesh Kumar Ahirwar, Dr Sonalika Ray, Shwetaa Bhardwaj** and eminent external scientists for sharing their knowledge and expertise for my growth and development.

The journey offered hands-on training with advanced technologies such as the NextSeq 2000, MiSeq, HLA typing, metagenomics, Sanger sequencing, and high-throughput data analytics. I have developed crucial experimental design, genomics, proteomics, transcriptomic, metagenomics, scRNA-seq and data interpretation skills, enabling me to contribute meaningfully to scientific and societal advancements.

Sincere thanks to all my mentors at **Indian Institute of Technology Jodhpur, Premas Life Sciences Pvt Ltd., OmicsLogic Inc., Shiva Scientific, GeneDx** and my peers for their unwavering support and guidance. I am excited to apply these skills in my future endeavours.

Mrinal Bamhotra
Junior Research Fellow
Ashoka University, Haryana

I am really excited to share that I did my first NGS sequencing for the WGS of Bacterial DNA using the Illumina iSeq100.

All the hard work paid off when we got the bands during gel QC. I am really thankful for the support and guidance provided by **Rahul Ramekar, PhD** sir, and **Shankar Manoharan** sir along with their team and **Indian Institute of Technology Jodhpur** for opportunity of using such wonderful NGS facility.

The sequence ran successfully, and excellent quality data was generated from the machine on which we performed pre-qc using the Illumina software to get the fundamental insights of the data, after we performed Fastqc, Fastp, SPAdes, Prokka using Linux, where we got precious insights from the graphs and completed my first ever NGS experiment.

PROGRAM FEES & DETAILS

Program Duration	Certificate 1	Certificate 2
12 Months (PGD)	06 Months	06 Months

No. of Credits	Semester 1	Semester 2
(Total 28 Credits)	(13 Credits)	(15 Credits)

Program Mode	Weekend Classes
LIVE, Hybrid	10 Days Immersion

Hours of LIVE Sessions	Mini Project
= ~500 Hours	Wet Lab & Dry Lab

Program Fees for PGD*	or Certificate 1
= ₹2.5 Lakhs	= ₹1.2 Lakhs

Certification & IIT Alumuni	Placement Support
= Yes	= Yes

**Commencement of the program is contingent upon meeting the required minimum number of enrollments*

ABOUT IIT JODHPUR

The **Indian Institute of Technology Jodhpur**, a technological Institute of National importance was founded in **2008.** Today, the Institute has undergone transformational changes since its humble origins.

The Institute has **over 240 Faculty Members** spread across various academic units including departments, centres, and schools with expertise in diverse thrust areas.

At the Department of Biological sciences and Bioengineering (BSBE), IIT Jodhpur, we aspire to provide state-of-the-art domain knowledge and training to understand biological systems, provide innovative Bio-Tech solutions for applications in medical and environmental engineering domains that include biofuels, diagnostics, therapeutics, smart healthcare devices.

- Dr. Mitali Mukerji

Dr. Amit Kumar Mishra,
Head, Dept. of BSBE
IIT Jodhpur, Rajasthan

Dr. Mitali Mukerji,
Professor, Dept. of BSBE
IIT Jodhpur, Rajasthan

Apart from imparting world-class education through its unique undergraduate and postgraduate programs, the Faculty Members are also pursuing cutting-edge research across disciplines.

ABOUT OMICSLOGIC

OmicsLogic, formerly Pine Biotech, is a US-based company recognized as a leading innovator in Omics bioinformatics education. OmicsLogic has developed a range of solutions that simplify complex data analysis tasks and help everyone get started, particularly those without a background in modern biology. Its expertise covers multiple bioinformatics domains, including all aspects of **NGS Genomics, Bulk and Single-Cell Transcriptomics, Metagenomics, and other Omics analyses** in biological research. It utilizes data-driven technologies such as **Statistics, Machine Learning, Generative AI, Cheminformatics, and Structural Biology** to tackle scientific questions.

NGS Multi-Omics & Biomedical Data Science Technology

Industry Relevant Project Based Training

Hands-On for Critical Analytical Skills

We have developed a range of solutions that simplify complex data analysis tasks and get everyone started, especially those who have no background and exposure to modern biology.

With a focus on educational initiatives, we aim to equip the next generation of students and scientists with the skills they need to excel in the rapidly evolving landscape of big data bioinformatics.

- Dr. Mohit Mazumder

Dr. Mohit Mazumder
CEO & Co-founder
OmicsLogic India & US

ABOUT PREMAS

We are
Great Place To Work® Certified™
Recognized by Great Place To Work® India

Great Place To Work. Certified JAN 2023 – JAN 2024 INDIA

Premas Life Sciences (PLS) is a young, dynamic, and focused organization introducing game-changing niche technologies in Genomics, Cell Biology, and Biopharma to boost innovative research and diagnostics in India. We are also the knowledge partners to several reputed research institutes and hospitals, enabling them to set up core genomics facilities with complete support at all fronts.

The biggest motivation behind the inception of PLS was to set up an organization that could contribute significantly to the life science research landscape in India and has the convergence of a committed and highly skilled workforce to catalyze this process.

We are really hoping to create a space where technology can be used to answer important problems in science and how it influences people's lives. We believe in fostering the spirit of science among students and young adults through our scientific outreaches and we would definitely like PLS, in its own unique capacity, to contribute to the India story.

- Praveen Gupta

Praveen Gupta,
Managing Director,
Premas Life Sciences

Genomics & Cell Biology

illumina · 10x GENOMICS · STANDARD BIOTOOLS · Covaris · CareDx · GENOLUTION · Agilent Technologies · JN MEDSYS · TWIST BIOSCIENCE · CODEX DNA · ASKION

IIT Jodhpur

Post Graduate Diploma

Next Generation Omics Technologies and Applications

Enquire Now

IIT Jodhpur, NH62 Nagaur Road, Jodhpur, Rajasthan, India

Ms. Sharma: +91-9814499511
Ms. Jauhari: +91-8744902881
Dr. Pandey: +91-9873859752
Dr. Ghosh: +91-8447870387

communication@omicslogic.com

Reach out to us for any query related to the program and registrations.

12 Months Online | **IIT Alumni Status**