

Pragya Kashyap

Senior Research Fellow

Department of Bioscience and Bioengineering
Indian Institute of Technology Jodhpur
☎ (+91) 8630587339
✉ kashyap.3@iitj.ac.in
🐙 Github in LinkedIn



Education

- 2020–present **M.Tech-PhD, Computational Biology** *Indian Institute of Technology (IIT), Jodhpur, India*
Algorithm development in Lung Microbiome data science, Omics data analysis, Machine & Deep learning
- 2018–2020 : **M.Sc (Life Sciences)** *Jawaharlal Nehru University (JNU) New Delhi, India* (Thesis in Radiation and Cancer therapeutics)
- 2015–2018 : **B.Sc (Life Sciences)** *University of Delhi (DU) New Delhi, India*

Research Experience

Indian Institute of Technology, Jodhpur, India

2021 – **Decoding Cancer Complexity via Multi-Omics Analysis**

- Present
- Design of machine learning framework for classification of adenocarcinoma and squamous cell carcinoma using lung microbiome
 - Development of computational method to detect somatic mutations using RNA sequencing data in small cell lung cancer
 - The colibactin-producing *Escherichia coli* alters the tumor microenvironment to immunosuppressive lipid overload facilitating colorectal cancer progression and chemoresistance
 - Integrate multi-omics datasets of single-cell transcriptomics data to identify cell-type-specific markers for lung cancer research.

Advisor : Dr. Pankaj Yadav, Associate Professor, Department of BSBE, IIT, Jodhpur, India ([Web-page](#))

Jawaharlal Nehru University New Delhi, India

2019–2020 **New developments in cancer therapy using iron oxide nanoparticles**

- Evaluated the effect of chemical coated and plant extract coated iron oxide nanoparticles in A549 (lung cancer) and DU145 and PC3 (prostate cancer) cell lines

Advisor : Dr. Ashu Bhan Tikku, Associate Professor (Radiation and Cancer therapeutics), School of Life Sciences, JNU, New Delhi, India ([Web-page](#))

Publications

- 2025 **Pragya Kashyap**, Kalbhavi Vadhi Raj, Jyoti Sharma, Naveen Dutt, and Pankaj Yadav, "**Classification of NSCLC subtypes using lung microbiome from resected tissue based on machine learning methods**". (*npj Systems Biology and Applications*, [doi of paper](#))
- 2024 **Pragya Kashyap**, Naveen Dutt, and Pankaj Yadav, "**Lung microbiome in lung cancer: A new horizon in cancer study**". (*Cancer Prevention Research*, [doi of paper](#))
- 2024 Nilmara de Oliveira Alves, Guillaume Dalmasso, Darja Nikitina, Amaury Vaysse, Richard Ruez, Lea Ledoux, Thierry Pedron, Emma Bergsten, Olivier Boulard, Lora Autier, Sofian Allam, Laurence Motreff, Pierre Sauvanet, Diane Letourneur, **Pragya Kashyap**, Johan Gagnière, Denis Pezet, Catherine Godfraind, Michel Salzet, Emmanuel Lemichez, Mathilde Bonnet, Imène Najjar, Christophe Malabat, Marc Monot, Denis Mestivier, Nicolas Barnich, Pankaj Yadav, Isabelle Fournier, Sean Kennedy, Amel Mettouchi, Richard Bonnet, Iradj Sobhani, Mathias Chamillard. "**The colibactin-producing *Escherichia coli* alters the tumor microenvironment to immunosuppressive lipid overload facilitating colorectal cancer progression and chemoresistance**". (*Gut Microbes*, [doi of paper](#))

- 2024 **Pragya Kashyap***, Rajveer Singh Shekhawat*, Asish Kumar Swain, Vedikaa Dhiman, Jyoti Sharma, and Pankaj Yadav, "**Bioinformatics for Multi-Omics Data Integration**". (Reference Module in Life Sciences, [doi of book chapter](#)) *equal contribution
- 2023 **Pragya Kashyap**, Kalbhavi Vadhi Raj, Naveen Dutt, and Pankaj Yadav, "**Machine learning analysis of lung adenocarcinoma and squamous cell carcinoma microbiome datasets reveals biomarkers for early diagnosis**". (bioRxiv, [doi of paper](#))
- 2024 **Pragya Kashyap**, Kalbhavi Vadhi Raj, and Pankaj Yadav, "**Machine learning framework for classification of Adenocarcinoma and Squamous cell carcinoma using lung microbiome dataset for their early diagnosis**". (Conference paper [doi of conference paper](#))

Fellowships & Achievements

- 2022 **Second Runnerup**(400m relay race in VARCHAS-IITJ Sports meet 2022)
- 2020 **Qualified GATE-XL** (Graduate aptitude test in engineering- Life Sciences)
- 2018 **Qualified JGEEBILS** (Joint Graduate Entrance Examination for Biology and Interdisciplinary Life Sciences)
- 2018 **Qualified JNU EE** (Jawaharlal Nehru University Entrance Exam)
- 2016-2018 **Qualified NCC B & NCC C Certificate**

Skills

Computational Skills

Programming languages **Python | R | Bash (Intermediate to Proficient level | HPC Basics (Ubuntu & CentOS))**
LaTeX (Beginner to intermediate level)

Multi-omics **Microbiome Data Analysis**

Tools and databases and pipelines: NCBI | QIIME2 | Cytoscape | Gephi |

NGS Data Analysis

Tools and databases and pipelines: NCBI | Docking | Mutect2 | GATK |

Single cell Transcriptomics Data Analysis

Tools and databases and pipelines: TCGA | HCA | CellChat | Seurat |

Machine & **Classification | MLP | RF**

Deep learning Libraries : numpy | pandas | sklearn | scipy | seaborn

Certifications

Conferences

- Presented poster at 92nd Annual Meeting Society of Biological Chemists (INDIA) on 18-20 Dec 2023, hosted by BITS Pilani K K BIRLA GOA CAMPUS
- Attended Summit for Health Equity: Spotlight on Digital Health organized by Centre for Digital Health, IIT Jodhpur on 28 Oct 2023.
- Presented poster at the 2nd Asian Student Council Symposium 2023 (ASCS2023), hosted by the International Society for Computational Biology (ISCB) Student Council and its Regional Student Groups on 25 Nov 2023 virtually.
- Presented poster in the Symposium on "Accelerating Biology 2024", hosted by the Centre for Development of Advanced Computing (CDAC) Pune on 06-08 Feb 2024.
- Presented poster at ICGA Meeting 2024 on "Unlocking Insights: Data-driven discovery in Indian landscape", held at BRIC- National Institute of Immunology, New Delhi on 18-22 Sep 2024.

Workshops

- Participated and presented poster at "Workshop on Computational Oncology: Integrating Experiments and Computational Models (WoCON-24)", organized by IIT-BHU & IISc Bangalore, held at IIT-BHU (Varanasi) on 17-18 Dec 2024.
- Code Innovation Series - GitHub workshop organized by Github on 25 Feb 2023.
- AICTE Training And Learning (ATAL) Academy sponsored FDP on Multi-omics Data Science Workshop held on 7th Jan 2020, IIT, Jodhpur.
- In house skill development certificate course on Instrumentation, Analytical & Computational Chemistry organized by Daulat Ram College, University of Delhi in 2017

Teaching Assistantship

- 2025 : **Systems Biology** IIT Jodhpur
2024 : **Systems Biology** IIT Jodhpur
2022 : **Introduction to bioengineering - theory** IIT Jodhpur
2022 : **Introduction to bioengineering - lab** IIT Jodhpur
2021 : **Computational and systems biology** IIT Jodhpur

Languages

Hindi and English

References

Dr.Pankaj Yadav (M.Tech-PhD Supervisor), Associate Professor, Department of Bioscience & Bioengineering Indian Institute of Technology (IIT), Jodhpur Rajasthan 342030, India Email: pyadav@iitj.ac.in

Dr.Naveen Dutt (MD, FCCP), Professor and Head of Department, Department of Pulmonary Medicine All India Institute of Medical Sciences Jodhpur Rajasthan 342005, India Email: aiimsjdj.pulmed@gmail.com