

Manish Pratap Singh, M. Tech., PhD

Assistant Professor

Department of Zoology

DDU Gorakhpur University, Gorakhpur

Contact: +91-9452719829

Email: manish.biophd@mnnit.ac.in; manishbtmits@gmail.com

Educational Qualifications:

- Ph.D. Biotechnology from MNNIT Allahabad.
- M.Tech. Biotechnology from MITS Gwalior.
- M.Sc. Biotechnology from CSJM University Kanpur.
- B.Sc. Zoology, Botany, Chemistry from CSJM University Kanpur.

Technical Expertise:

Transcriptomic Data analysis; Complete pipeline for RNA seq data analysis (QC analysis of reads (FASTp), Trimming of adaptor (Trimmomatic 2.0), mapping of reads (Bowtie) and differential expression analysis of genes (DeSeq 2) heat map generation and identification of Hub genes (Cytoscape)), Methylome data analysis; (MeDIP analysis, comparative methylome and RNA seq analysis). Basic molecular docking techniques including identification of druggable targets. Hands on experience of PCR, Real time PCR, gene cloning, DNA sequencer, basic molecular biology techniques, Animal Cell culture and mice handling.

Publications:

- **Singh, M. P.**, Rai, S., Gupta, S. K., Singh, N. K., & Srivastava, S. (2023). Unsupervised machine learning-based clustering identifies unique molecular signatures of colorectal cancer with distinct clinical outcomes. *Genes & Diseases*. <https://doi.org/10.1016/j.gendis.2023.01.023> (IF 7.2)
- Sandhya Rai, **Manish Pratap Singh**, Abhipsa Sinha, Ankit Srivastava, Dipak Datta, Sameer Srivastava, Unravelling a novel CTNND1-RAB6A fusion transcript: Implications in colon cancer cell migration, *International Journal of Biological Macromolecules*, Volume 262,2,2024. <https://doi.org/10.1016/j.ijbiomac.2024.129981>. (IF 8.2)
- Abhipsa Sinha, Krishan Kumar Saini, Kiran Tripathi, Muqtada Ali Khan, Saumya Ranjan Satrusal, Ayushi Verma, Biswajit Mandal, Priyanka Rai, Sanjeev Meena, Mushtaq Ahmad Nengroo, **Manish Pratap Singh**, Namratha Shashi Bhushan, Madavan Vasudevan, Atin Singhai, Kulranjan Singh, Anand Kumar Mishra, Dipak Datta, ACSL4 activity drives TNBC metastasis by positively regulating Histone H3 Acetylation mediated SNAIL expression, *bioRxiv* 2023.10.16.562466; doi: <https://doi.org/10.1101/2023.10.16.562466>. *Nature communications* (Under revision).
- Krishan Kumar Saini, Priyank Chaturvedi, Abhipsa Sinha, **Manish Pratap Singh**, Muqtada Ali Khan, Ayushi Verma, Mushtaq Ahmad Nengroo, Saumya Ranjan Satrusal, Sanjeev

Meena, Akhilesh Singh, Sameer Srivastava, Jayanta Sarkar, & Dipak Datta. (2023). PERK arm of UPR selectively regulates ferroptosis in colon cancer cells by modulating the expression of SLC7A11 (System Xc-), *Redox Biology*, 2023.03.28.534659. <https://doi.org/10.1101/2023.03.28.534659> (IF 10.7)

- Verma, A., Singh, A., **Singh, M.P.** et al. EZH2-H3K27me3 mediated KRT14 upregulation promotes TNBC peritoneal metastasis. *Nat Commun* 13, 7344 (2022). <https://doi.org/10.1038/s41467-022-35059-x>, **Nature Communications (IF 17.2)**
- Rai S, **Singh MP**, Srivastava S. Integrated Analysis Identifies Novel Fusion Transcripts in Laterally Spreading Tumors Suggestive of Distinct Etiology Than Colorectal Cancers. *J Gastrointest Cancer*. 2022 Dec 8. doi: 10.1007/s12029-022-00881-5.
- **Manish Pratap Singh**, Shradha Suyal, Sandhya Rai, Saumya Yadav, Alka Singh, Manisha Sachan, Nand K. Singh, Sameer Srivastava, Investigation of BRCA1 methylation and FAT3 mutation as a potential biomarker in ovarian cancer samples, *Human Gene*,33,2022. <https://doi.org/10.1016/j.humgen.2022.201032>
- **Manish Pratap Singh**, Sandhya Rai, Nand K Singh, Sameer Srivastava, Transcriptomic landscape of early age onset of colorectal cancer identifies novel genes and pathways in Indian CRC patients, *Scientific Reports*, 2021. doi.org/10.1038/s41598-021-91154-x . (IF 4.1)
- **Singh, M.P.**, Rai, S., Pandey, A., Singh, N.K., and Srivastava, S. (2019). Molecular subtypes of colorectal cancer: An emerging therapeutic opportunity for personalized medicine. *Genes & Diseases*. doi.org/10.1016/j.gendis.2019.10.013 (IF 7.1)
- **M.P. Singh**, S. Rai, S. Suyal, S.K. Singh, N.K. Singh, A. Agarwal, S. Srivastava, Genetic and epigenetic markers in colorectal cancer screening: recent advances, *Expert Review of Molecular Diagnostics*. 17 (2017) 665–685. doi:10.1080/14737159.2017.1337511. (IF 5.1)
- S. Suyal, **M.P. Singh**, H. Shekhar, S. Srivastava, In silico screening of proteins targeting circulating miRNAs for improved diagnosis of multiple myeloma, *Biochemical and Biophysical Research Communications*. 497 (2018) 577–582. doi:10.1016/j.bbrc.2018.02.103.(IF 3.5)
- Nidhi Chaudhary, **Manish Pratap Singh**, Preeti Sirohi, Shadma Afzal, Nand K. Singh, Biosynthesis of Zinc Oxide Nanoparticles Using Senna Occidentalis Leaf Extract and Evaluation of their Cytotoxic Effect on SW480 Colon Cancer Cell Line, *Biotechnology Letters*, 2022. DOI: 10.21203/rs.3.rs-1215740/v1 (IF 2.4).
- **Singh MP**, Saxena S. Phytochemical analysis and antimicrobial efficacy of methanolic extract of some medicinal plants at Gwalior region. *Journal of Pharmacy Research*. 2011;3.
- **Manish Pratap Singh**, Ashish Kumar Saxena, Sarika Saxena. Drug-induced hepatotoxicity and genotoxicity in pulmonary tuberculosis patients receiving directly observed therapy, short-course (DOTS) *International Journal of Current Research and Review*. 2012, Vol 4, 12, 213-223.

- A.K. Yadav, S. Saraswat, P. Sirohi, M. Rani, S. Srivastava, **M.P. Singh**, N.K. Singh, Antimicrobial action of methanolic seed extracts of *Syzygium cumini* Linn. on *Bacillus subtilis*, *AMB Express*. 7 (2017). doi:10.1186/s13568-017-0500-4. (IF 2.4)
- A.K. Yadav, P. Sirohi, S. Saraswat, M. Rani, **M.P. Singh**, S. Srivastava, N.K. Singh, Inhibitory Mechanism on Combination of Phytic Acid with Methanolic Seed Extract of *Syzygium cumini* and Sodium Chloride over *Bacillus subtilis*, *Current Microbiology*. 75 (2018) 849–856. doi:10.1007/s00284-018-1457-5. (IF 1.5)
- Afzal S, Sirohi P, Yadav AK, **Singh MP**, Kumar A, Singh NK. A comparative screening of abiotic stress tolerance in early flowering rice mutants. *J Biotechnol*. 2019 Aug 20;302:112-122. doi: 10.1016/j.jbiotec.2019.07.003. Epub 2019 Jul 4.(IF 3.5)
- Sandhya Rai, **Manish Pratap Singh**, Sarvesh K Gupta, Sameer Srivastava, Systematic analysis identifies fusion transcripts functionally implicated in the colorectal cancers, *Cancer Genetics* (Under review).
- Preeti Sirohi, **Manish Pratap Singh**, Nand K Singh, Assessment of the inhibitory potential of phytic acid against key events of cell proliferation on colorectal cancer cell lines SW480 and HCT116, *Chemico-Biological Interactions*. (under review)
- **Manish Pratap Singh**, Sandhya Rai, Nand K Singh, Sameer Srivastava, Integrated multi omics identified novel methylated genes in early onset colorectal carcinomas in Indian population (under preparation).

Work Experience

- Scientist II CSIR CDRI from May 2022 to Nov 2022.
- Principal Project Associate CSIR CDRI Lucknow in Cancer Biology Division (Aug 21 to March 22).
- Six years (From July 2014 to Dec 2020) as MHRD, JRF, and SRF in the Department of Biotechnology, MNNIT Allahabad.
- Three months industrial training on chemical analysis of vitamins and drugs from OZONE Pharma ltd. Haryana.

Academic projects

Project title Ph.D.: *Molecular Profiling and NGS analysis for identification of Molecular Subtypes and Novel Genetic Signatures in Sporadic CRCs*

Mentor: Dr. Sameer Srivastava (Assistant Professor) and Dr. N K Singh (Associate Professor) Department of Biotechnology, MNNIT Allahabad.

Project title MTech.: **Project 1:** Phytochemical Screening of Some Medicinal Plants Present at M.I.T.S. campus.

Project 2: The Study of Drug Induced Hepatotoxicity and Genotoxicity in Pulmonary Tuberculosis Patients Receiving DOTS Therapy.

Mentor: Mrs. Sarika Saxena Assistant Professor, Madhav Institute of Technology Gwalior.

Post-Doctoral Research

Project Title: *Development of new Smac Mimetic against chemotherapy resistant colon cancer.*

Mentor: Dr. Dipak Datta, Senior Principal Scientist and Head Cancer Biology Division, CSIR CDRI Lucknow.

Project Title: *PAN CSIR Cancer Research Program making Cancer care affordable empowering women's health: Focusing on Breast and Gynecological Cancers of Indian Relevance.*

Mentor: Dr. Dipak Datta, Senior Principal Scientist and Head Cancer Biology Division, CSIR CDRI Lucknow.

Member Professional Bodies

Student Member of European Association of Cancer research since 8 January 2018.

Honors & Awards

- Ambassador G20 Uttar Pradesh Chapter.
- Recipient of Senior Research Fellowship (**SRF**) MHRD-New Delhi (From July 2016).
- Recipient of Junior Research Fellowship (**JRF**) MHRD-New Delhi (From July 2014).
- GATE (Graduate Aptitude Test for Engineering) qualified in year 2009.
- UP CET (Combined Eligibility Test) for Ph.D. qualified in year 2012.
- ICAR (Indian council of Agricultural Research) NET 2013 qualified.
- Received third prize in poster presentation on “Methylation status and clinical relevance of promoter of six tumor suppressor genes in ovarian cancer” at international conference “Bio Sangam 2018”.

Book Chapters:

- N.K. Singh, A.K. Yadav, P. Sirohi, M. Rani, S. Saraswat, **M.P. Singh**, A. Mani, S. Srivastava, Anticancer Activity of Herbal Medicine: Mechanism of Action, in: M.S. Akhtar, M.K. Swamy (Eds.), Anticancer Plants: Mechanisms and Molecular Interactions, Springer Singapore, Singapore, 2018: pp. 165–196. doi:10.1007/978-981-10-8417-1_7.
- Pandey, A., **Singh, M.P.**, Kumar, S., and Srivastava, S. (2019). Phycoremediation of Persistent Organic Pollutants from Wastewater: Retrospect and Prospects. In Application of Microalgae in Wastewater Treatment: Volume 1: Domestic and Industrial Wastewater Treatment, S.K. Gupta, and F. Bux, eds. (Cham: Springer International Publishing), pp. 207–235.
- Srivastava, A., Rai, S., **Singh, M.P.**, Srivastava, S. (2022). Computational Intelligence-Based Gene Expression Analysis in Colorectal Cancer: A Review. In: Raza, K. (eds) Computational Intelligence in Oncology. Studies in Computational Intelligence, vol 1016. Springer, Singapore. https://doi.org/10.1007/978-981-16-9221-5_22.
- Shadma Afzal, **Manish P. Singh**, Nidhi Chaudhary, Nand K.Singh, Application of nanoparticles in developing resilience against abiotic stress in rice plant (*Oryza sativa* L.), Plant Perspectives to Global Climate Changes, Developing Climate-Resilient Plants, 2022, Pages 151-172

Oral and Poster presentation

- Krishan K. Saini, Priyank Chaturvedi, Ayushi Verma, Mushtaq A. Nengroo, Abhipsa Sinha, Akhilesh Singh, Sanjeev Meena, Muqtada A. Khan, **Manish P. Singh**, Dipak Datta; Abstract 6249: PERK arm of UPR selectively regulates ferroptosis in colon cancer cells by modulating the expression of system x_c^- (SLC7A11). *Cancer Res* 15 June 2022; 82 (12_Supplement): 6249. <https://doi.org/10.1158/1538-7445.AM2022-6249>
- **Manish P. Singh**, Sandhya Rai, Shradha Suyal, Nand K. Singh, Sameer Srivastava*. *A simple Q-PCR test to evaluate various molecular subtypes in CRC for better prognosis and treatment. 3rd EACR Conference on Cancer Genomics* Cambridge, UK, 25 June 2017 - 28 June 2017.
- Shradha Suyal, **Manish Pratap Singh**, B.S. Yadav, Sameer Srivastava, *In silico screening of proteins targeting circulating miRNAs for improved diagnosis of Multiple Myeloma. 3rd EACR Conference on Cancer Genomics* Cambridge, UK, 25 June 2017 - 28 June 2017
- **Manish Pratap Singh**, Shradha Suyal, Alka Singh, Sandhya Rai, Manisha Sachan, N K Singh, Sameer Srivastava, *Methylation status of promoter of six tumor suppressor genes in ovarian cancer, Biosangam* 2018
- **Manish Pratap Singh**, Sandhya Rai, N K Singh, Sameer Srivastava* *Molecular profiling and colorectal cancer in Indian population, 3rd International Conference on New Frontiers in Industrial and Applied Biotechnology, GenoPro2016.*

Post graduate student Guided

Name of the student	Subject	Title
Madhuri Upadhyaya	Bioinformatics	Deciphering the immunological signatures promoting the PDX grafting in triple negative breast cancer
Kriti Tripathi	Bioinformatics	Identification of altered pathways between high and low-risk diffuse large B-cell Lymphoma
Shilpi Pandey	Plant Biotechnology	Identification of carbon storage genes and pathways in marine algae

Academic References:

Dr. Sameer Srivastava
Assistant Professor
Department of Biotechnology
MNNIT, Allahabad
+91-9889864633
sameers@mnnit.ac.in

Dr. N K Singh
Associate Professor & Head
Department of Biotechnology
MNNIT, Allahabad
+91-9794049630
nksingh@mnnit.ac.in

Dipak Datta, Ph.D
Principal Scientist
Cancer Biology Division
Life-Science South, Lab # 006
CSIR-Central Drug Research Institute
dipak.datta@cdri.res.in

Declaration:

I hereby declare that all the information provided herein above is correct to the best of my knowledge and belief and I promise to abide by all the norms laid down by your esteemed organization.

**Manish Pratap Singh**