



Dr. Shilpi Gupta

Assistant Professor-III

Specialization: Cancer Biology | HPV Biology | Transcriptional Regulation | Cancer Stem Cells | Drug Resistance | miRNA-Mediated Gene Regulation | Liquid Biopsy-Based Biomarkers | Cancer Drug Discovery | Cancer Genomics & Proteomics

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Dr. Shilpi Gupta earned her PhD in Biomedical Sciences from University of Delhi, Delhi in 2015, where Dr. Gupta first time investigated the functional role of two key transcription factors; AP-1/FRA-2 and NF- κ B/c-REL in poor cell differentiation, aggressive tumorigenesis and metastasis during tongue carcinogenesis (TSCC).

During her doctoral journey, she was deeply engaged in a series of notable research projects. Some of the most prominent research projects that she handled as a Senior Research Fellow were “Prevalence of human papillomavirus in healthy adolescent girls in Tamil Nadu” and “Prevalence of HPV infection and its physical status in cancers of different organ sites”. After completing PhD, Dr. Gupta assumed a position at Amity Institute of Molecular Medicine and Stem Cell Research (AIMMSCR), Amity University Uttar Pradesh, Noida, as a National Postdoctoral Fellow (NPDF), where her research efforts were primarily dedicated on transcriptional and epigenetic targeting of HPV+ve and HPV-ve oral-tongue cancers and cancer stem cells (CSCs). Her work concentrated extensively on understanding mechanisms of drug-resistance and chemo-sensitization to chemo-radiotherapy through novel herbal-based chemotherapeutic agents. After completing NPDF, Dr. Gupta joined at National Institute of Cancer Prevention and Research (NICPR), Noida, India, as a ICMR-Centenary-Post Doctoral Fellow (PDF). Here, her research revolved around an in-depth exploration of the AP-1/FRA-2 and NF- κ B/c-REL-associated protein-protein interactome. The core objective was to unravel non-canonical and de-novo protein-protein interactions (PPIs) in relation with HPV infection and tobacco/alcohol usage in oral-tongue cancer patients. This investigation aimed to identify potential therapeutic targets for the development of precision and personalized medicine for the treatment of highly aggressive and drug-resistance oral-tongue cancers. Throughout her scientific career, Dr. Gupta has made substantial contributions to the field and published several papers in esteemed journals including The Lancet Oncology, Scientific Reports, Oncotarget, Translational Oncology, Biomedicines and IJMR etc. Dr. Gupta’s research focuses on elucidating the role of key transcription factors and signalling pathways in the context of oral cancer and cancer stem cells with the main aim to pinpoint key pathways that could be targeted for therapeutic benefit to cancer patients. She is also working on liquid-biopsies-based biomarkers, microbiome, exosomal-micro RNAs (Exo-miRNAs), CRISPR/Cas9-based genome editing and multi-omics. Apart from her research activities, Dr. Gupta is actively involved in the educational domain. Her teaching responsibilities encompass a range of courses including cancer biology, bioethics and clinical trials, cancer stem cells, biomarkers & molecular diagnostics, advanced clinical biochemistry, microbiology, molecular biology, tissue and stem cells culture etc.

Current ongoing research projects:

1. 2024-2027: Principal Investigator. Council of Science and Technology (CST-UP) awarded project entitled “**Evaluating the Chemo-sensitizing and Therapeutic Effects of Aspirin and Curcumin Combination in Oral Cancer and Reduction of Adverse Effects Induced by Anti-Cancer Drugs**”.
2. 2021-2025: Principal Investigator (Young Scientist). DHR awarded research project entitled “**Deciphering BMI-1 Protein in Cancer Stem Cells as Potential Therapeutic Target for Aggressive Tongue Cancer Therapy**”.

Awards & achievements:

1. **Biotechnology Career Advancement & Re-orientation Programme (BioCARE)-Women Scientist**, Awarded by Department of Biotechnology (DBT), Government of India, 2023. (Not availed).
2. **Young Scientist-A**, Awarded by Department of Health Research (DHR)-ICMR, Government of India, 2021.
3. **Dr. D. S. Kothari Postdoctoral Fellowship (DSKPDF)**, Awarded by University Grant Commission (UGC), Government of India (GOI) in 2018. (Not availed).
4. **ICMR-Post-Doctoral Fellowship (ICMR-PDF)**, Awarded by Indian Council of Medical Research (ICMR), Government of India, 2018.
5. **National Post-Doctoral Fellowship (NPDF)**, Awarded by DST-SERB, Government of India, 2016.
6. **Best Post Presentation Award** by Indian Association for Cancer Research (IACR) in 2013.
7. **Senior Research Fellowship (SRF)**, Award by Indian Council of Medical Research (ICMR), Government of India, 2011.

Selected Publications:

1. Prabhat Kumar, Rishabh Lakhera, Sadhna Aggarwal, **Shilpi Gupta**[#]. Unlocking the Therapeutic Potential of Oral Cancer Stem Cell-Derived Exosomes. **Biomedicines**. 2024, (IF. 4.9). ^{#Corresponding Author}.
2. Prabhat Kumar*, **Shilpi Gupta***, Bhudev C. Das et al. Saliva as a potential non-invasive liquid biopsy for early and easy diagnosis/prognosis of head and neck cancer. **Translational Oncology**, 2023. doi.org/10.1016/j.tranon.2023.101827 (IF. 5). ^{*Equal Contribution}.
3. **Shilpi Gupta**, Prabhat Kumar & Bhudev C. Das. Opportunities and Challenges to Making Indian Women Cervical Cancer Free. Policy: Viewpoint, **IJMR**, 2023, DOI: 10.4103/ijmr.ijmr_1052_23 (IF. 5.274).
4. **Shilpi Gupta**, Prabhat Kumar and Bhudev C. Das. HPV+ve/-ve Oral Tongue Cancer Stem Cells: A Potential Target for Relapse-free Therapy. **Translational Oncology**, 2021 (IF. 4.8).
5. Prabhat Kumar*, **Shilpi Gupta***, Bhudev C. Das. Towards global elimination of cervical cancer in all groups of women. **The Lancet Oncology**, 2019 (IF: 54.433). ^{*Equal Contribution}.
6. Vaishali Chandel, Sibi Raj, Prabhat Kumar, **Shilpi Gupta** et al. Metabolic regulation in HPV associated head and neck squamous cell carcinoma. **Life Sciences**, 2020 (IF. 6.8).
7. **Shilpi Gupta**, Prabhat Kumar, Nishi Sharma, Daman Saluja, Alok C. Bharti, Bhudev C. Das. Constitutive Activation of NF- κ B p50/c-Rel Subunits Contribute in Tumor Aggressiveness and Metastasis during Tongue Carcinogenesis, **Oncotarget**. 2018 (IF. 5.2).
8. Anand N. Srivastava, Jata S. Misra, Shruti Srivastava, Bhudev C. Das & **Shilpi Gupta**, Cervical Cancer Screening in Rural India: Status and Current Concepts. **IJMR**, 2018 (IF. 5.274).
9. **Shilpi Gupta**, Prabhat Kumar & Bhudev C. Das. HPV: molecular pathways and targets. **Current Problems in Cancer**. 2018 (IF. 3.19).
10. **Shilpi Gupta**[#], Prabhat Kumar, Jayant Maini & Mausumi Bhardwaj. Long non-coding RNAs Emerging as Potential Epigenetic Biomarkers for Tobacco and/or Alcohol-Induced Head and Neck Cancer. **Journal of Cancer Genetics and Biomarkers**, 2019. (IF-3.45).
11. **Shilpi Gupta**[#], Prabhat Kumar, Jayant Maini et al. Epigenetic Biomarkers in head and neck cancers. **Journal of Cancer Genetics and Biomarkers**, 2018. (IF-3.45).
12. Abhishek Tyagi, **Shilpi Gupta**, Prabhat Kumar, Alok C. Bharti, and Bhudev C. Das. Emerging role of FRA-1 as a novel target for radio-sensitization in HPV-associated cancers. **AACR**, 2017 (IF. 9.1).
13. **Shilpi Gupta**, Prabhat Kumar and Bhudev C. Das. Selective participation of c-Jun with Fra-2/c-Fos promotes aggressive tumor phenotypes and poor prognosis in tongue cancer. **Scientific Reports**, Nature. 2015 (IF-4.99).

Selected articles in book/health magazine:

1. Bhudev C. Das and **Shilpi Gupta**. Safeguarding and Empowering Our Women. *Science India*, 2024, 19 (94), 8-11.
2. **Dr. Shilpi Gupta**. Cervical Cancer Is Fully Preventable, Treatable If Caught Early. 2023. bwhealthcareworld.businessworld.in.
3. **Shilpi Gupta**, Prabhat Kumar, Ankan Mukherjee Das, D. K. Gupta & B. C. Das. Human Viruses: Infection, Prevention and Potential Target(s) for Therapy – A Comprehensive Review. ‘Human Viruses: Diseases, Treatments and Vaccines- The New Insights. pp3-54. Springer. 2021.
4. Hoda Elkhenany and **Shilpi Gupta**, **Mesenchymal stem cell-derived exosomes and regenerative medicine**. Role of Exosomes in Biological Communication Systems. pp141-164, Springer-Nature. 2021.
5. **Shilpi Gupta**, Prabhat Kumar and Bhudev C. Das. “DNA Tumor Viruses” in Text Book of Oncology in Indian Context. 2018.

Research projects submitted:

1. Principal Investigator: **Analysing Exosomal miRNAs in Oropharyngeal Cancer and Cancer Stem Cells to Identify Potential Therapeutic Target(s) for Disease Progression and Drug Resistance**. Submitted: 15-Feb-2024.
2. Principal Investigator: **Deciphering the JUN-FOS Pathway in HPV and Tobacco-Induced Head and Neck Cancer: Impact of Mutations on Protein-Protein Interactions and Identification of Novel Therapeutic Target**. Submitted 15-Dec-2023.

Professional affiliation:

- American Association for Cancer Research (AACR), Associate Member (Membership ID-464501).
- Indian Association for Cancer Research (IACR), Life Member (Membership ID- LM-1096).
- Editor and reviewer: *Journal of Cancer Genetics and Biomarkers* (2022-present).
- Reviewer of *Journal of Toxicology Research*, *Cancer Medicine*, *BMC Cancer*, *JCCS* etc.