



**MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH AND STUDIES, FARIDABAD**

Sector 43, Aravalli Hills, Manav Rachna Campus Rd, Faridabad, Haryana 121004

**DR. VINEETA SHARMA**

**Designation:** Associate Professor

**Qualifications:** B.Sc. (Maharshi Dayanand University, Rohtak), M.Sc. Genetics (Maharshi Dayanand University, Rohtak), PhD. Genetics (Maharshi Dayanand University, Rohtak).

**Email ID:** vineeta.fet@mriu.edu.in

**Experience:** 10 Years



[Google Scholar Profile:](https://scholar.google.com/citations?view_op=list_works&hl=en&user=85kcMIsAAAAJ)

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**Research Interests: Toxicopigenetics, Maternal Stress and Child Health ( Kidney Disease), Oral Microbiome and Dental Health**

**+ Journal Publication Details:**

- **Sharma V<sup>\*#</sup>**, Gangopadhyay S<sup>#</sup>, Shukla S, Chauhan A, Singh S, Dutt SR, Mandrah K, Roy SK, Singh D, Ansari MK, Srivastava V (2022) Gestational inflammatory conditioning by arsenic accelerates skin tumorigenesis in the offspring through modulation of polycomb repressive element EZH2. *Toxicology and Applied Pharmacology* 443:116004.
- Pal S, Singh N, Dev Indra, **Sharma V**, Jagdale PR, Ayanurb A, Ansari KM (2022) TGF- $\beta$ /Smad signaling pathway plays a crucial role in patulin-induced pro-fibrotic changes in rat kidney via modulation of slug and snail expression. *Toxicology and Applied Pharmacology* 434:115819.
- Singh RD, Koshta K, **Sharma V<sup>\*</sup>**, Srivastava V (2021) Developmental exposure to Endocrine Disrupting Chemicals and its impact on Cardio-metabolic-renal health *Frontiers in Toxicology*. doi: 10.3389/ftox.2021.663372.
- Tiwari R, Singh RD, Binwal M, Srivastava AK, Khan H, Gangopadhyay S, Arjaria N, Saxena PN, Roy SK, Kumar M, **Sharma V**, Srivastava V. (2021) Perinatal exposure to silver nanoparticles reprograms immunometabolism and promotes pancreatic beta-cell death and kidney damage in mice. *Nanotoxicology* doi.org/10.1080/17435390.2021.1909767
- **Sharma V<sup>\*#</sup>**, Gangopadhyay S<sup>#</sup>, Chauhan A, Srivastava V. (2019) Potential facet for Prenatal arsenic exposure paradigm: Linking Endocrine disruption and Epigenetics *The Nucleus*. doi.org/10.1007/s13237-019-00274-3.
- **Sharma V<sup>\*</sup>**, Kohli S, Brahmachari V. (2017) Alteration in epigenetic modifications in response to desiccation stress in *Drosophila melanogaster*: an example of environment-epigenome interaction. *BBA Gene Regulatory Mechanisms* 1860:1058-68.

<ul style="list-style-type: none"> <li>• Parkash R, Chahal J, <b>Sharma V</b>, Dev K. (2012) Adaptive associations between total body color dimorphism and climatic stress related traits in a stenothermal circumtropical <i>Drosophila</i> species. <i>Insect Science</i> 19: 247-262.</li> </ul>
<ul style="list-style-type: none"> <li>• Parkash R, <b>Sharma V</b>, Chahal J, Chanderkala, Kajla B. (2011) Impact of body melanisation on mating success in <i>Drosophila melanogaster</i>. <i>Entomologia Experimentalis et Applicata</i>. 139: 47-59.</li> </ul>
<ul style="list-style-type: none"> <li>• Parkash R, <b>Sharma V*</b>, Kalra B. (2010) Sexual dimorphism for water balance mechanisms in montane populations of <i>Drosophila kikkawai</i>. <i>Biology Letters</i>, 6:570-574.</li> </ul>
<ul style="list-style-type: none"> <li>• Parkash R, <b>Sharma V</b>, Kalra B. (2010) Correlated changes in thermoresistance traits and body color phenotypes in montane populations of <i>D.melanogaster</i>: analysis of within and between population variation consequences of body melanisation in <i>Drosophila melanogaster</i>. <i>Journal of Zoology</i>, 280: 49-59.</li> </ul>
<ul style="list-style-type: none"> <li>• Parkash R, Kalra B, <b>Sharma V</b>. (2010) Impact of body melanisation on contrasting levels of desiccation resistance in a circumtropical and a generalist <i>Drosophila</i> species. <i>Evolutionary Ecology</i>, 24:207-225.</li> </ul>
<ul style="list-style-type: none"> <li>• Parkash R, <b>Sharma V*</b>, Kalra B. (2009) Impact of seasonal plastic changes of body size and melanisation on desiccation resistance in montane populations of <i>D.melanogaster</i>. <i>Journal of Insect Physiology</i>, 54(6):1050-56.</li> </ul>
<ul style="list-style-type: none"> <li>• Parkash R, <b>Sharma V</b>, Kalra B. (2008) Climatic adaptations of body melanisation in <i>Drosophila melanogaster</i> from Western Himalayas. <i>Fly</i>, 2:111-117.</li> </ul>
<ul style="list-style-type: none"> <li>• Parkash R, Ramniwas S, Rajpurohit S, <b>Sharma V</b>. (2008) Variations in body melanisation impact desiccation resistance in <i>Drosophila immigrans</i> from Western Himalayas. <i>Journal of Zoology</i>, 276:219-227.</li> </ul>
<ul style="list-style-type: none"> <li>• Parkash R, Kalra B, <b>Sharma V</b>. (2008) Changes in cuticular lipids, water loss and desiccation resistance in a tropical drosophilid: Analysis of within population variation. <i>Fly</i>, 2:189-197.</li> </ul>

**+ Mentor for Dissertation Training:**

- **Msc and Mtech. Dissertation Training at CSIR-IITR**
- Tanya Gupta (2019) Differential Gene expression of epigenetic regulators after in utero Arsenic exposure
- Rishisha Gupta (2018) Role of Polycomb group Proteins in Skin Tumorigenesis after Arsenic Exposure
- **MSc students of ACBR, University of Delhi, New Delhi.**
- Dhanya Ramachandran (2015): Epigenetic regulation of desiccation resistance in *Drosophila melanogaster*: Predication and validation of cis- regulatory elements
- Pragya Priyadarshini (2016): Functional validation of putative pre/tre and expression change

analysis of stress responsive genes in context of desiccation stress in *Drosophila melanogaster*.

- Jyotika Dalal (2017): The role of chromatin remodeller protein Ino80 in desiccation resistance of *Drosophila melanogaster*.
- **Summer Undergraduate Research programme at ACBR**
- Saloni RaviKumar (2014): Impact of chromatin remodeler (dINO80) on stress resistance in *Drosophila melanogaster*
- Satnam Singh (2016): To examine changes in histone modifications in progeny from crosses where either paternal or maternal partner is subjected to desiccation stress.
- **Combined Trainee of Rajiv Gandhi Cancer Institute and Research Centre Rohini, Delhi, and ACBR.**
- Priya Tyagi (2016): Review on childhood acute lymphoblastic leukemia: drug metabolism and toxicity of drugs used in chemotherapy.
- **Indian Academy of Sciences, Summer Training Programme**
- Devi Priya (2015): Effect of Polycomb genes on the expression of desiccation responsive targets in *Drosophila melanogaster*.
- **Summer Undergraduate Research programme at CCMB**
- Ritika Shah (2012) Impact of Polycomb and Trithorax Group Members in Modulation of Desiccation Resistance in *Drosophila melanogaster*.
- Doolthi Shambu Prasad (2011): Investigation of cis-regulating elements for Desiccation Resistance in *Drosophila melanogaster*.

+ **Book/Chapter Publications:**

- **Sharma V\***, Baby S, Singh S, Srivastava V \* (2021) Understanding emergence of SARS-CoV-2 viral variants from a genomic prospective (Royal Society of Chemistry, London)

+ **Professional Affiliation:**

1. **Research Associate-II on BIRAC-PACE Project:** Development and clinical validation of markers for a point of care diagnostic kit for diabetic nephropathy. CSIR-Indian Institute of Toxicology Research, Lucknow (Nov 2019- Feb2021).
  - We assessed the sensitivity as well as specificity of the selected biomarkers (already validated in animal model) for diabetic nephropathy (DN) in early and late onset diabetic patients.
  - Solely lead the SARS-CoV-2 genome sequencing by Nanopore, Oxford Technology. We have analyzed SARS-CoV-2 genome sequence for variants analysis and compared the variants of Ist and IInd wave of COVID-19 pandemic.
2. **Research Associate-I on DST-SERB Project:** Role of Sterile inflammation in accelerated skin carcinogenesis by In-utero arsenic exposure. CSIR-Indian Institute of Toxicology Research, Lucknow. (Nov.2017- Oct.2019).
  - Fetal origin of health and diseases is emerging as a possible explanation/cause for many adult onset disorders. Our research provides the mechanistic link to how maternal environmental stress could affect the disease susceptibility (Skin Cancer and Kidney

disease) in the offspring

**3. DST Women Scientist-A Project:** Impact of cellular memory modules of stress resistance in *Drosophila melanogaster*. Dr. B.R. Ambedkar Center for Biomedical Research, University of Delhi, New Delhi. (May 2014- May 2017).

- We have shown the Environment and Epigenome interactions and suggested that epigenetic modulation could be one possible mechanism for the different adaptability in different geological conditions with similar genetic architecture.

**4. Research Associate I on DBT Project:** Epigenetics and Functional Genomics of stress resistance in *Drosophila melanogaster*. Center for Cellular and Molecular Biology, Hyderabad. (July 2010 – July 2012).

- We proposed a Melanism –Desiccation hypothesis of adaptations for the natural Indian populations of *Drosophilids* and their epigenetic regulation.

**+ Expert Talk Delivered:**

- XLIV Annual Conference of Environmental Mutagen Society of India (EMSI-2020) at CSIR-IITR, Lucknow, February 18<sup>th</sup> to 20<sup>th</sup>, 2020 (Short Talk).
- 19<sup>th</sup> All India Congress of Genetics and Genomics at CSIR-IICB, Kolkatta, Dec 2<sup>nd</sup> to 4<sup>th</sup>, 2019 (Short Talk)
- 7<sup>th</sup> Meeting of the Asian Forum of Chromosome and Chromatin Biology at JNCASR, November 15<sup>th</sup> – 17<sup>th</sup>, 2018 (Short Talk)
- International Conference of Cell Biology (ICCB) at Hyderabad, India January 27-31, 2018
- 6<sup>th</sup> Meeting of Asia Forum on Chromosome and Chromatin Biology at CCMB, Hyderabad, March, 2017.
- 4<sup>th</sup> Chromatin Dynamics Symposium at LMU, Munich, Germany, March, 2016.
- 2<sup>nd</sup> Biennial Indian *Drosophila* Research Conference. InDRC, IIT, Kanpur, Dec., 2015.
- 10<sup>th</sup> Symposium on Frontiers in Biomedical Research, ACRB, University of Delhi, Oct., 2015.
- Upstream and Downstream of Hox Genes, EMBO Conference, CCMB, Hyderabad, Dec., 2014.
- 51<sup>st</sup> Annual *Drosophila* Research Conference, Washington, USA, Apr. 2010.
- 97<sup>th</sup> Indian Science Congress, Thiruvananthapuram Jan., 2010.
- International conference on Entomology. Punjabi University, Patiala. Feb, 2009 (Short Talk).
- 5<sup>th</sup> National *Drosophila* meeting held in Mysore University, Mysore. March, 2008.

**+ Awards:**

- Recognized as Toxicologist in the prestigious list of #365 Women in STEM by The LifeScience.com (2021)
- DBT-CTEP Foreign Travel Grant to attend the Conference “Chromatin Dynamics” at LMU,

Munich, Germany (March 2016).

- DST- Women Scientist - A Fellowship, Department of Science and Technology, New Delhi (May 2014- May 2017).
- DBT Research Associateship, Department of Biotechnology, New Delhi (July 2010-July 2012).
- CSIR Foreign Travel Grant to attend the conference “51<sup>st</sup> Annual Drosophila Research Conference, Washington, USA (April 2010).
- Senior Research Fellow (SRF) of Council of Scientific & Industrial Research (CSIR), New Delhi (2009).
- Doctoral Fellowship award of National Testing & Evaluation Centre, Mysore (2009).
- University Research Scholarship, Maharshi Dyanand University, Rohtak (2008).

**+ Projects:**

- **DST Women Scientist-A Project:** Impact of cellular memory modules of stress resistance in *Drosophila melanogaster*. Dr. B.R.Ambedkar Center for Biomedical Research, University of Delhi, New Delhi. (May 2014- May 2017). Grant Allocated –Rs. 28 Lakhs.
- We have shown the Environment and Epigenome interactions and suggested that epigenetic modulation could be one possible mechanism for the different adaptability in different geological conditions with similar genetic architecture.

**+ Key Skills:**

**1. Molecular Biology Techniques-**

- Whole Genome Sequencing Run on Oxford Nanopore MINION and Bioinformatics analysis of associated Data
  - Luminex Assay, RT-PCR, Chromatin immunoprecipitation (ChIP), Immunohistochemistry (IHC)
  - Clinical samples, COVID-19 patients samples, Mouse, Drosophila and Primary Cell culture handling and dissections.
- 2. Software-** ImageJ, GraphPad Prism, MS Office Suite, Photoshop, STASTICA
- 3. Scientific/Medical Writing-** Medical terminology, basic statistical/clinical concepts, data interpretation, attention to details. Good command in Literature Review.
- 4. Reviewer for Frontiers in Physiology Journal.**
- 5. Grant writing-** Conceptualization of the ideas, identification of Gap knowledge and writing a grant on different scientific domains to various Indian funding Organizations i.e. DST, ICMR, DBT, DHR, BIRAC etc.