

## CURRICULUM VITAE

Dr. Neha Singh

Assistant Professor

Department of Zoology

Harsh Vidya Mandir (P.G.) College, Raisi, Haridwar-247671

Mob- 7037460914, 8881216487

Email: dr.neha.hvm@gmail.com, neha88728@gmail.com



### Academic qualifications

Exam/Degree	University/Institution	Year of passing	Percentage of marks & Class/ Grade
Bachelor of Science (B.Sc)	Kurukshetra University	2009	First
Master of Science (M.Sc)	Banasthali University	2011	First
Ph.D.	Indian Institute of Technology Roorkee	2018	Awarded

### Academic Awards and Fellowships

- 1.Awarded **UGC-NET-JRF-LS**, (University Grants Commission, India) fellowship for Ph.D.
- 2.Qualified **Graduate Aptitude Test in Engineering (GATE)**, 2012, AIR-332.
- 3.Qualified **UGC-SLET (UTTARAKHAND)**, Subject-Life Sciences, JUNE-2013

### **Ph.D. Details:**

**Topic:** “Xenobiotic compounds degradation and their effects on important enzymes”

Under the Supervision of **Prof. Pravindra Kumar**, Macromolecular Crystallography Lab

Department of Biotechnology, Indian Institute of Technology Roorkee, Roorkee, India

### Teaching and Research Experience

Position	University/Institution	Duration
Assistant Professor	Harsh Vidya Mandir (P.G.) College, Raisi, Haridwar (Affiliated to Shri Dev Suman University, Uttarakhand).	Aug 2020- Present
Research Fellow	<b>Project:</b> ‘Namami Gange’: Clean Ganga Mission, Uttarakhand pollution control Board (UKPCB), Head office, Dehradun.	Nov 2019-July 2020
Research Associate (RA)	Project Research associate in the Regional Centre for Biotechnology, Department of Biotechnology, Under the auspices of UNESCO Faridabad, Haryana, India.	June 2018- Dec 2018

## **Area of Interest**

Cell Biology and Molecular biology, Structure and computational biology/Bioinformatics.

## **Research Skills**

Microbiology: Culture enrichment approach, Antibiotic susceptibility tests Scanning electron microscopy (SEM).

Structure and Computational Biology/Bioinformatics: Protein Structure determination using X-ray crystallography, In silico- protein modeling using MODELLER, PHYRE, molecular docking AUTODOCK, AUTODOCK VINA, PATCH DOCK and molecular simulation studies by using GROMACS, protein-protein docking using HADDOCK, Cluspro softwares, virtual screening using various drug libraries.

Molecular Biology: Cloning and construction of expression plasmids, plasmid isolation, site-directed mutagenesis to engineer mutations in gene segment, truncations and deletions in the gene.

Biochemistry: Protein expression and protein purification, Affinity chromatography, Ion exchange chromatography, Size exclusion chromatography using Akta prime and purifier, Western blotting, Enzyme activity and kinetics. Protein Crystallization: Protein crystallization using vapor drop sitting as well as hanging drop method Biophysical Studies: UV-visible spectroscopy, Circular Dichroism, Dynamic Light Scattering (DLS), HPLC and GC-MS

## **PUBLICATIONS**

### **Patent Published**

Patent published entitled as “A system and method for providing Computational Model for the Blood flow in stenosed Artery with Complete bypass graft” in the patent office journal No. 27/2023, with the application number: 202311037719 on 07/07/23.

### **Research papers in Journals**

1. Biodegradation of Phthalic acid esters (PAEs) and in silico structural characterization of mono-2-ethylhexyl phthalate (MEHP) hydrolase on the basis of close structural homolog. **Neha Singh**, Vikram Dalal, Jai Krishna Mahto and Pravindra Kumar. *Journal of Hazardous Materials* 338 (2017) 11-22. **Impact factor: 14.224**
2. Structure based mimicking of Phthalic acid esters (PAEs) and inhibition of hACMSD, an important enzyme of the tryptophan kynurenine metabolism pathway. **Neha Singh**, Vikram Dalal and Pravindra Kumar. *International Journal of Biological Macromolecules*, 108 (2018) 214-224. **Impact factor: 8.025**
3. Characterization of phthalate reductase from *Ralstonia eutropha* CH34 and in silico study of phthalate dioxygenase and phthalate reductase interaction. **Neha Singh**, Vikram Dalal, Vijay Kumar, Monika Sharma and Pravindra Kumar. *Journal of Molecular Graphics and Modelling*, 90 (2019) 161-170. **Impact factor: 2.942**

4. Molecular docking and simulation analysis for elucidation of toxic effects of Dicyclohexyl phthalate (DCHP) in glucocorticoid receptor-mediated adipogenesis. **Neha Singh**, Vikram Dalal and Pravindra Kumar. *Molecular Simulation*, (45), Article ID: GMOS 1662002, (2019), 1-13, **Impact factor: 2.346**

### **Articles in Books**

1. Biodegradation of Explosives. Vikram Dalal, Ravi Yadav, **Neha Singh** and Pravindra Kumar. Environmental Pollution Biodegradation and Bioremediation of the series Envi. Sci. & Engg. Studium Press, USA, 2017, pp 331-357.

2. Phthalates - A class of ubiquitous pollutant: Microbial and enzymatic degradation perspectives. **Neha Singh**, Vikram Dalal, Poonam Dhankhar, and Pravindra Kumar. Removal of Toxic Pollutants Through Microbiological and Tertiary Treatment, **Elsevier**, 2020. pp. 487-513.

3. Bioremediation of synthetic dyes: Dye decolorizing peroxidases (DyPs). Poonam Dhankhar, Vikram Dalal, **Neha Singh**, Bhola Ram Gurjar, Ashwani Kumar Sharma, and Pravindra Kumar. Removal of Toxic Pollutants Through Microbiological and Tertiary Treatment, **Elsevier**, 2020 pp. 453-486.

### **Abstract published in journals**

1. An in-silico toxicity assessment of DEHP and its metabolites on metabolism of essential amino acid. **Neha Singh**, Vikram Dalal and Pravindra Kumar. **Journal of proteins and proteomics**, **Springer**, 8(3), 2017, 49.

2. Binding of Polychlorinated biphenyl to Hormone receptor: an in silico study. Vikram Dalal, **Neha Singh** and Pravindra Kumar. **Journal of proteins and proteomics**, **Springer**, 8(3), 2017, 45.

### **Abstracts in conference/symposia/Oral Presentation (International Level)**

1. Identification and Characterization of Phthalates degrading bacterial strains from plastic landfill site. **Neha Singh**, Jai Krishna Mahto and Pravindra Kumar 57th International Annual Conference of the Association of Microbiologists of India & International Symposium on "Microbes and Biosphere: What's New What's Next, p. 154-155, Guwahati University, Guwahati, Assam, India, November 24-27, 2016.

2. In-silico studies on phthalate dioxygenase from *Mycobacterium vanbaalenii* PYR-1. **Neha Singh**, and Pravindra Kumar. INDO-US International Conference on Recent advances in structural biology and drug discovery. Indian Institute of Technology-Roorkee, India from October 9-11, 2014.

3. **Oral presentation** entitled as "In-silico assessment of Biphenyl Dioxygenase activity from *Pandoraea Pnomenusa* B-356 with different PCBs congeners **Neha Singh**, Vikram Dalal,

Pravindra Kumar. 33rd International Conference Global Initiatives in Agricultural, Forestry and Applied Sciences (GIAFAS-2021) at Guru Ram Rai University, Dehradun, Uttarakhand, India, from October 17-18, 2021).

4. **Oral presentation** entitled as “Insilico assessment of non-covalent interactions of Biphenyl Dioxygenase from *Pandoraea Pnomenusa* B-356 with PCBs **Neha Singh**, Vikram Dalal, Pravindra Kumar. International Conference on Multidiscipline Academic Research and Innovation (ICMARI-2022) organised by Aryabhat Institute of Academics and Research, Lucknow and Goel Institute of Higher Studies Mahavidyalaya (Affiliated to University of Lucknow, Lucknow), from September 10-11, 2022 (Online Mode)

#### **Abstracts in conference/poster presentation/symposia (National Level)**

1. Identification and In Silico Structural Characterization of Mono-2-Ethylhexyl Phthalate Hydrolase on the Basis of Close Structural Homologue. **Neha Singh**, Jai Krishna Mahto, Vikram Dalal and Pravindra Kumar. Indian Biophysics Symposium (IBS) 2017, p.148, Indian Institute of Science and Educational Research (IISER), Mohali, Chandigarh, India, March 23-25, 2017
2. In-silico assessment of inhibition of hACMSD, an enzyme of the tryptophan kynurenine metabolism by di-(2-ethylhexyl) phthalate (DEHP) and its metabolites. **Neha Singh**, Vikram Dalal, and Pravindra Kumar\*. National Conference on Recent Advances in Environmental Sciences (NCARES-2018), School of Environmental Sciences (SES), Jawaharlal Nehru University, Delhi, India, March 22, 2018, p.54.
3. Computational study of binding of hydroxylated biphenyl congeners with hormone receptors. Vikram Dalal, **Neha Singh**, Ruchi Rani and Pravindra Kumar\*. National Conference on Recent Advances in Environmental Sciences (NCARES-2018), School of Environmental Sciences (SES), Jawaharlal Nehru University, Delhi, India, March 22, 2018, p.77.
4. Structural elucidation of biphenyl dioxygenase complex with 2,3',5' trichlorobiphenyl. Vikram Dalal, **Neha Singh**, Michel Sylvestre and Pravindra Kumar. 46<sup>th</sup> National Seminar on Crystallography (NSC 46), National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru, India, June 27-29, 2018, p.152.
5. “Effects of xenobiotic organic compounds persistence and distribution on soil microbial biodiversity” **Neha Singh**, Rashmi Nautiyal in National Seminar on Biodiversity: In the service of mankind organized by Department of Botany and sponsored by Uttarakhand State council for science and technology (UCOST), Dehradun dated 18<sup>th</sup> September, 2021.

### **Seminar/Webinar/Conference/Quiz participation details**

1. National Enviro-Meet (a national convention) organized by environment and social development association (ESDA) May 07, 2017 at Gandhi Peace Foundation, Delhi, India.
2. International conference on “molecular signalling: recent trends in biomedical and translational research”. 17-19 December, 2014 at Indian Institute of Technology-Roorkee, India.
3. Two days National Conference on “Natural Products and Human Health: Opportunities and Challenges in Present Scenario” sponsored by University Grants Commission, New Delhi under STRIDE programme Component 1, organized by Maharishi Dayanand University, Rohtak from 9-10 April, 2021 in online mode.
4. Webinar on HPTLC: Technique and Herbal Applications jointly organized by Anchrom Enterprises and STRIDE, Maharishi Dayanand University, Rohtak on 23 July, 2021.

### **Short term courses details**

1. **GIAN Course:** Global Initiative of Academic Networks (GIAN) course on Methods and techniques in integrated structural biology: towards structure-based drug development. Indian Institute of Technology- Roorkee, Roorkee Uttarakhand - 247667, India, Jan 15-21, 2018.
2. **Faculty Development Programme (FDP):** Completed **One-Week** Faculty Development Programme on “Open-Source Tools For Research” organized by Teaching Learning Centre, Ramanujan College, University of Delhi under the aegis of Ministry of Education Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching from 03-09 April, 2021, obtained Grade A+.
3. **Induction Training/Orientation Programme:** Completed **One-Month** Induction Training/Orientation Programme for “Faculty in Universities/Colleges/Institutions of Higher Education” Organized by Teaching Learning Centre, Ramanujan College, University of Delhi under the aegis of Ministry of Education Pandit Madan Mohan Malaviya National Mission on teachers and teaching from 19 June-18 July, 2021, obtained Grade A+.
4. **Faculty Development Programme (FDP):** Completed **One-Week** Faculty Development Programme on “E-content Development” organized by Teaching Learning Centre, Ramanujan College, University of Delhi under the aegis of Ministry of Education Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching from 19-25 April, 2023, obtained Grade A+.
5. **Faculty Development Programme (FDP):** Completed **One day** Faculty Development Programme on “Degrading scenario of Human value: Reason and Solutions” organized by Directorate of Distance education, Swami Vivekanand Subharti University, Meerut, on 29<sup>th</sup> April, 2023.

6. **Refresher Course (Zoology):** Completed **two-week** refresher course (Online) on in Zoology organized by Teaching Learning Centre, Ramanujan College, University of Delhi under the aegis of Ministry of Education Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching in collaboration with Harmal Panchakroshi Shikshan Mandal's Ganpat Parsekar College of Education, Goa, from 16-30 September, 2023, obtained Grade A+.

### **Workshop/Training program Participation Details**

1. BioTecNika-Schrodinger Joint Workshop on **Computer - Aided Drug Discovery** Organized by **Biotechnika Info Labs Pvt Ltd** on 22nd July to 2nd August 2019.

2. One day Training Program on “**National Ambient Air and Water Quality Monitoring**” organized by, **Central Pollution Control Board (Ministry of Environment Forest and Climate Change, Govt of India)** Research Division (RD), Lucknow on Feb 28<sup>th</sup> , 2020 at UKPCB, Dehradun, Uttarakhand.

3. “**Regional Sensitization and Training Workshop of Water Quality Management for Educational Institutions**” Organized jointly by Joint **Project Management (PMU) of Uttarakhand State Council for Science and Technology (UCOST)**, Dehradun and Uttarakhand Jal Sansthan (UJS), Dehradun on 09-03-2021, at Harsh Vidya Mandir (PG) College, Raisi, Haridwar.

4. “**Workshop on Ecosystem Restoration**” organized by **Department of Botany, Harsh Vidya Mandir (PG) College**, Raisi, Haridwar on World Environment Day held on 5 June, 2021 in online mode.

5. Selected in workshop entitled “**Impact of surrounding environment on Biology of Animals**” organized by **Department of Zoology, Chaudhary Charan Singh University (CCS University)**, Meerut, funded by **Science and Engineering Board (SERB)**, New Delhi from Aug 18, 2021 to Aug 19, 2021

6. National Workshop on '**Techniques of Solid Waste Management with Reference of Swachh Bharat Abhiyan**' Organized by Faculty of Science, **Motherhood University**, and **Uttarakhand Science Education and Research Centre (USERC)** Roorkee, Dist- Haridwar from 26-02-2022 to 27-02-2022.

7. Online Workshop on the occasion of “Shikshak Parv” on the topic “**NEP 2020: Changing Role of Teachers**” Organized by **University Grant Commission in collaboration with Human Resource Development Center (HRDC)**, Jawaharlal Nehru University (JNU), New Delhi, on 6<sup>th</sup> September, 2022.

8. Two days National Workshop on “Ensuring quality Sustenance of HEIs through the strategic implementation of Best practices”, sponsored by National Assessment and Accreditation Council (NAAC) and organized by Internal Quality Assurance Cell (IQAC), Swami Vivekanand Subharti University, Meerut, on 21<sup>st</sup> -22<sup>nd</sup> July, 2023.

9. Three days International Training cum workshop on “AGRIPRENEURSHIP: Opportunities and Current Challenges organized by Agriculture Forum for Technical Education for Farming Society (AFTEFS) and Vital Biotech. From 20<sup>th</sup> -22<sup>nd</sup>, 2023.

**Invited Speaker/Lecture/Talks**

1. Invited speaker in the webposium on “**Entrepreneurial Opportunities in Aquaculture and Entomopathogenic Parasite**” organized by Department of Zoology, Keral Verma Subharti College of Science, Swami Vivekanand Subharti University, Meerut on 30<sup>th</sup> October, 2021.