

CURRICULUM VITAE

Dr. Neha Singh, Assistant Professor

Department of Zoology

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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**, Subject-Environmental Sciences (University Grants Commission, India) fellowship for Ph.D.
- 2.Qualified **Graduate Aptitude Test in Engineering** (GATE in Biotechnology), 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 HNB Garhwal University)	Aug 2020-Present
Research Fellow	Project: ‘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

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: 10.588**

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: 6.953**

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: 2.518**

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: 2.178**

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 (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.

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. 46th 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 18th 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+

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. Central Pollution Control Board (Ministry of Environment Forest and Climate Change, Govt of India) One day Training Program on “**National Ambient Air and Water Quality Monitoring**” organized by CPCB. RD, Lucknow on Feb 28, 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