

Dr. Sneha Rai



Designation: Assistant Professor

Email ID: sneha.raai@dpu.edu.in

Qualification:

Ph.D, M. Tech, M. Sc

Area of Specialization: Systems Biology, Structural Bioinformatics, Computational Genomics

Research Interest: Lipid associated complex diseases

EDUCATIONAL QUALIFICATIONS:

1. PhD, Biotechnology specialization Bioinformatics, 2020, University of Delhi (Netaji Subhas Institute of Technology), New Delhi, India

Thesis Title: Systems and Structural Study of Lipid-Protein Interactions in Hyperlipidemia Induced Diseases

2. M. Tech, Biotechnology Specialization Bioinformatics, 2013, Gautam Buddha University, Greater Noida, India

Project Title: Modeling of human M1 aminopeptidases for in silico screening of potential Plasmodium falciparum alanine aminopeptidase (PfA-M1) specific inhibitors.

3. M. Sc, Bioinformatics, 2010, Banaras Hindu University, Varanasi, India.

4. B. Sc, Botany and Chemistry, 2007, V.B. S. Purvanchal University, Jaunpur, India.

ACADEMIC AND RESEARCH EXPERIENCE:

1. Guest Lecturer for Biocomputing (Department of Biological Sciences and Engineering) at NSUT (Formerly NSIT), New Delhi, November -December 2021.
2. Visiting Faculty for Genomics & Proteomics (Department of Biotechnology) at NIIT University, Neemrana, August - December 2021.
3. Assistant Professor (Department of Biotechnology), at NIET, Gr. Noida, May -June 2021.
4. Assistant Professor (Department of Biotechnology), at MIMT, Gr. Noida, July 2019 – April 2021.
5. Guest Lecturer for Computational biology and drug design (Department of Biomedical Sciences), at Acharya Narendra Dev College, University of Delhi, Kalkaji, New Delhi, January – May 2018.
6. Senior Research Fellow at Computational and Structural Biology Lab, NSIT, University of Delhi, Feb 2014 – June 2019.

AWARDS AND ACHIEVEMENTS:

1. Senior Research Fellowship (2014 - 2019) of Netaji Subhas Institute of Technology (University of Delhi).

PUBLICATIONS:

1. Raj U, **Rai S**, Mathur SK, Saxena A, Kaushik AC (2021). A Comprehensive Study on SARS-CoV-2 Through Gene Expression Meta-Analysis and Network Biology Approach. *Journal Applied Biotechnology Report*, 8:242-253.
2. Raj U, Gupta S, **Rai S**, Ghosh R (2021). A Comprehensive Review on the Hantavirus Epidemiology and Potential Therapeutic Prospects. *International Journal of Pharmaceutical and Phytopharmacological Research*, 11:1-12.
3. **Rai S**, Bhatia V and Bhatnagar S (2021). Drug repurposing for hyperlipidemia associated disorders: An integrative network biology and machine learning approach. *Computational Biology and Chemistry*, 92: 107505.
4. Singh S, **Rai S**, Bhatnagar R, Bhatnagar S (2020). Network analysis of host-pathogen protein interactions in microbe induced cardiovascular diseases. *In Silico Biology*, 14, no. 3-4, 115-133.
5. Roy N, Raj U, **Rai S**, Varadwaj P (2019). Deciphering the novel target genes involved in the epigenetics of hepatocellular carcinoma using graph theory approach. *Current Genomics*, 20 (8): 545-555.
6. **Rai S**, Raj U, Varadwaj P (2018). Systems Biology: A Powerful Tool for Drug Development. *Current Topics in Medicinal Chemistry*, 18, 1745 - 1754.
7. **Rai S**, Mohanty P, Bhatnagar S (2018). Modeling, dynamics and phosphoinositide binding of the Pleckstrin homology domain of two novel PLCs: η_1 and η_2 . *Journal of Molecular Graphics & Modeling*, 85, 130-144.

8. **Rai S** and Bhatnagar S (2017). Novel Lipidomic Biomarkers in Hyperlipidemia and Cardiovascular Diseases: An Integrative Biology Analysis. *Omics: Journal of Integrative Biology*, 21 (3): 132- 142.
9. **Rai S** and Bhatnagar S (2016). Hyperlipidemia, Disease Associations and Top 10 Potential Drug Targets: A Network View. *Omics: Journal of Integrative Biology*, 20(3):152-68.
10. **Rai S** et. al. (2016). Recent Trends in Computer Aided Drug Discovery. *International Journal for Computational Biology*, 5(1): 54-76.
11. Sahi S, **Rai S**, Chaudhary M and Nain V (2014). Modeling of human M1 aminopeptidases for in silico screening of potential Plasmodium falciparum alanine aminopeptidase (PfA-M1) specific inhibitors. *Bioinformation*, 10(8): 518-525.

BOOK CHAPTERS:

12. **Rai S** and Bhatnagar S (2016). Computational methods for Prediction of Protein-Protein Interactions. In *Handbook of Research on Computational Intelligence Applications in Bioinformatics*. Sujata Dash (Ed.). IGI Global.

CONFERENCE PROCEEDINGS:

13. **Rai S** and Bhatnagar S (2017). Drug targets and lipid biomarkers of Hyperlipidemia associated diseases. *Canadian Journal of Biotechnology*, 1: 28.
14. **Rai S** and Bhatnagar S (2016). Integrated Lipid-Protein Interaction Network for study of Hyperlipidemia: Pathogenesis, Progression and Drug Targets. *International Journal of Basic and Applied Biology*, 3: 147.

CERTIFICATIONS:

1. R programming
2. Python programming
3. NGS data analysis
4. Genomic variant analysis and clinical interpretation

CONFERENCES (ABSTRACTS/ORAL/POSTER):

1. **Rai S** and Bhatnagar S. Drug Targets and Lipid Biomarkers of Hyperlipidemia Associated Diseases. Poster presented at: NextGen Genomics, Biology, Bioinformatics and Technologies (NGBT); 2017 Oct 2-4; Odisha, India.

2. **Rai S** and Bhatnagar S. Drug Targets and Biomarkers for Hyperlipidemia and its Associated Diseases. Poster presented at: Research Showcase 2017 (RS17); 2017 April 1; New Delhi, India.
3. **Rai S** and Bhatnagar S. Integrating Lipidomics Data to Identify Novel Lipid Biomarkers for Hyperlipidemia and CVD. Oral presentation at: International Conference on Innovative Research in Biomedical Engineering, Cancer Biology, Stem Cells, Bioinformatics and Applied Biotechnology (BECBAB-2016); 2016 November 19; New Delhi, India.
4. **Rai S** and Bhatnagar S. Integrated Lipid-Protein Interaction Network for study of Hyperlipidemia: Pathogenesis, Progression and Drug Targets. Oral presentation at: International Conference on Advances in Biomedical Engineering, Cancer Biology, Bioinformatics and Applied Biotechnology (ABECBAB-2016); 2016 May 21; New Delhi, India.
5. **Rai S** and Bhatnagar S. Computational Methods for Maximizing Confidence and Significance in Protein-Protein Interactions. Poster presented at: International Conference on Advances in Biomedical Engineering, Cancer Biology, Bioinformatics and Applied Biotechnology (ABECBAB-2015); 2015 July 25-26; New Delhi, India.
6. **Rai S**, Raj U, Buddham R, Sahi S. Virtual Screening and Simulation Studies on PfA- M17 Poster presented at National Conference on BioLife at SGPGI; 2013 March 9 -10, Lucknow.

WORKSHOPS:

1. **Cancer Genomics** organized by DecodeLife, 3rd to 24th May 2021
2. **Genome Informatics** organized by DecodeLife, 5th to 21 April 2021
3. **Big Data in Genomics** organized by Centre for Computational Biology, IIIT-Delhi on 4th February 2017.
4. **Data Mining: Task, Tools, Techniques and Applications** organized by Division of Computer Science, NSIT from 27th November to 1st December 2017.
5. **National Workshop on Big Data Analytics and Visualization** organized by Department of Computer Science and Engineering of Jaypee Institute of Information Technology, Noida from 5th September to 7th September 2016.
6. **Python Programming Bioinformatics Applications** organized by Department of Bioinformatics, MMV, BHU, Varanasi from 3rd to 5th May 2010.

BIOINFORMATICS AND BIOTECHNOLOGY SKILLS:

1. NGS data analysis
2. Network Biology
3. Structural Bioinformatics
4. Computational Genomics
5. Computer aided drug designing