



Ph.D. student
Peter Schlögelhofer Group



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OBJECTIVE

Seeking challenging and rewarding opportunities to interact and learn with diverse Research-minds to learn and enhance my logical, analytical and technical skills, and to upgrade my knowledge for visualizing research from different angles.

WORK EXPERIENCE

Mentor Ph.D. Fellow: (May 2022-Present)

- Organization: Max Perutz Labs Vienna.
- Project entitled: "Uncovering the Interrelation of DNA damage and Pathogen Response Pathways"
(<https://mentor.univie.ac.at/>)

Senior Research Fellow: (Feb 2021-Mar 2022)

- Organization: **National Institute of Plant Genome Research**, New Delhi, India.
- Project entitled: "Determination the role of (Cysteine- Rich Secretory Proteins, Antigen 5, and Pathogenesis-Related 1 Proteins (CAP) during Arachis- Bradyrhizobium symbiosis".
- Technical expertise:
 - Biochemical techniques: Estimation of proteins and nucleic acids, UV-visible spectroscopy.
 - Protein Techniques: SDS-PAGE, Affinity chromatography(Ni-NTA), Protein-lipid interaction assays, Western blot.
 - Microbial Techniques: Bacterial Transformation (E. coli DH5a and BL21), Bacterial and Fungal subculturing and growth assay.

Research Analyst (July 2020 to Feb 2021)

- Organization: **Eminent Biosciences**, Indore, Madhya Pradesh, India.
- Technical expertise:

1. Genomics analysis: Gene finding from Virus, Prokaryotes and Eukaryotes, Gene sequence analysis, FASTA/FLAT file Gb analysis, Annotation of genes and genomes, Molecular weight analysis of gene, GC% , AT%, Nucleotide composition, Restriction Enzymes analysis, Primer Designing, Probe Designing, cDNA Conversion, Introns and exons analysis, SNP analysis, EST analysis, Poly-A tail analysis, SSR analysis (microsatellites/mini satellites), STS analysis, Promoter analysis, Transcription start site analysis, UTR analysis, Fuzzy techniques, Sequence chopping analysis, Pairwise alignment, Multiple sequence alignment, local alignment, global alignment, Conserved region analysis, Phylogenetic analysis, Distance matrices analysis, Neighbor Joining, Dynamic programming.
2. Proteomics analysis: Protein Coding Regions prediction(CDS), Protein amino acid composition, Molecular weight analysis, Iso electric point, Biochemical studies such as hydrophobic , hydrophilic, polar, non-polar, positive residues, negative residues, Aromatic analysis, aliphatic residues, Protein Primary structure prediction, Protein secondary structure prediction, Protein Motif and domain analysis, Protein structure retrieval and analysis, Protein 3D structure mutagenesis, Protein Structure Ramachandran Mapping, Loop Modeling, Side chain modelling, Protein 3D structure modeling and Structure Validation, Protein Cavity Prediction. Protein Structure comparison.
3. Drug Designing techniques: Molecular Modeling of Drug and other chemical compounds, Ligand preparation, Physicochemical properties of drugs analysis, Molecular docking, Pharmacophore studies, Lipinski's Rule of 5, ADMET Studies, Virtual Screening.
4. Programming languages- R and Python.
5. NGS Analysis, Shell scripting, RNA Seq, DnaSeq, Exome analysis, variant calling.

**Junior Research Fellow:
(Sep 2018-Jan 2020)**

- Organization: **CSIR-Centre for Cellular & Molecular Biology (CCMB)**, Hyderabad, Telagana India.
- Project entitled: "Epigenetic regulation Of Arabidopsis root stem cell niche."
- Technical expertise:
 1. DNA/RNA Techniques: Isolation of plasmids and genomic DNA, Primer design and site directed mutagenesis, Blue-white screening, cloning of genes, PCR, Primer extension, Total RNA isolation, RT-PCR and gene expression analysis, gene editing using CRISPR- Cas9.
 2. Biochemical techniques: Estimation of proteins and nucleic acids, UV-visible spectroscopy.
 3. Protein Techniques: SDS-PAGE, Western blotting.
 4. Microbial Techniques: Bacterial Transformation (E. coli and A.tumefaciens), Genetic mapping of mutations, culturing bacterial strains for experimental purposes. Preliminary experience in Arabidopsis genetics.
 5. Plant handling: Arabidopsis plant maintenance (sterile and non-sterile conditions), plant transformation by floral dip method, transient expression of plasmid in Nicotiana Benthamiana leaves, Arabidopsis protoplast isolation and transformation, Wheat Hybridisation Procedures and Field Experiments.

**M.Sc Dissertation Student
(Nov2017 - Apr2018)**

- Organization: **Indian Institute of Science Education and Research**, Pune, Maharashtra, India.
- Project entitled: “Identification, Amplification and Cloning of *Solanum Tuberosum* Nonexpressor of Pr Gene 1 (Stnpr1) in Binary Vector pBI121”.
- Technical expertise:
 1. DNA/RNA Techniques: Inoculation, Isolation of plasmids and genomic DNA, Primer design and site directed mutagenesis, *Solanum tuberosum* L. cv. Desiree total RNA isolation and cDNA preparation by RT-PCR.
 2. Microbial Techniques: Bacterial Transformation (E. coli and A.tumefaciens), Genetic mapping of mutations, Competent cell preparation, culturing and sub culturing phytophthora infesta for potato infestation.
 3. Bioinformatic analysis: Identification of a novel gene in *Solanum tuberosum* with the help of protein and nucleotide blast taking Arabidopsis thaliana as a reference and its analysis, Identifying ORF in a given polypeptide, Determination of reading frame, exons and introns of gene, primer designing.
 4. Plant handling- Basics of *Solanum tuberosum* L. cv. Desiree plant handling its sub culturing.

**B.Sc. Internship Student
(Feb 2016)**

- Organization: ICAR-Indian Agricultural Research Institute, Regional Station, Indore, M.P., India.
- Project entitled: “Wheat Hybridisation Procedures, Field Experiments, Phenotyping, Genotyping and Molecular Approaches and Methods in Wheat Biotechnology”.
- Technical expertise:
 1. Plant hybridization Techniques: selection of parent on the basis of phenotyping and genotyping analysis, tagging, emasculation, bagging, cross-pollination by dusting the desiredanthers on emasculated female flower and Hybrid screening.

ACADEMICS

Master of Biotechnology (2016-2018)

- University: Bharati Vidyapeeth Deemed University, Pune, India.
- Personal development: acquired skills to give presentations, to write thesis or manuscripts, to adapt in adverse environments.
- Final grade: 8.3 out of 10.

Bachelors of Biotechnology (2013-2016)

- College: Govt. Holkar Science College, Indore, India.
- Personal development:
 1. Represented my university in nationals in Basketball. (2014-15).
 2. Won 2nd prize in Model making competition organized by M.P. council of Biotechnology on the topic "Carcinopathy by transgenic adenovirus".
 3. Represented my college during NAAC visit. (2015-2016).
 4. Won many Intra and Inter college Basketball and Handball tournaments.
 - Final grade: 72.66 out of 100.

Higher secondary school:(2009-2010)

- School: ST. Norbert School, Indore, Indore,India.
- Subjects studied: Chemistry, Biology, Physics, English, Physical education.
- Personal development: Won prizes in various Intra and Inter school debate, extempore oration and sports competitions.

AWARDS AND RECOGNITIONS

Exam	Year	Rank
GATE	2019	348
CSIR-NET	June-2018	37 (LS)
DBT-BET(CATEGORY-II)	Oct-2020	Qualified
JGEEBILS	2018	Qualified
IITJAM(BT)	2016	177
IITJAM(BL)	2016	612
CBEE(JNU,India)	2016	238
SAU(M.Sc.Entrance)	2016	39
DBT-BITP	2020-21	Qualified

PUBLICATIONS

- Isha Joshi and Anuraj Nayarisseri: Machine learning, an impetus approach for molecular functional annotation in plants

<https://sciforum.net/paper/view/conference/8917>

- **Book chapter:** "Artificial Intelligence, Big Data and Machine Learning approaches in Genome-wide SNP based prediction for Precision Medicine & Drug Discovery"

<https://www.elsevier.com/books/big-data-analytics-in-chemoinformatics-and-bioinformatics/basak/978-0-323-85713-0>

- Chopra, I., Panwar, U., Madhavi, M., Bhrdwaj, A., Soni, L., Sharma, K., ... & Singh, S. K. (2022). Structural insights into conformational stability of ESR1 and structure base screening of new potent inhibitor for the treatment of Breast Cancer.

<http://dx.doi.org/10.21203/rs.3.rs-1413803/v2>

CERTIFICATIONS

R programming certification course from John Hopkins University.

CONFERENCES ATTENDED

- International conference on Emerging Challenges in Biotechnology, human health and environment at School of Biotechnology, Devi Ahilya Vishwavidyalaya, Indore.
- 4th NATIONAL ARABIDOPSIS MEETING organized by NISER Bhubaneswar.
- National Conference on Role of Biotechnology in Human Welfare at School Of Biotechnology, Devi Ahilya Vishwavidyalaya, Indore.

PERSONAL DETAILS

- Name - Isha Joshi
- Date of Birth- 27/12/1996
- Languages Known- Hindi, English
- Permanent Address- 31 A Sector C Vaishali Nagar, Indore
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REFERENCES

<p>Prof. Dr. Peter Schlögelhofer Department of Chromosome Biology Max Perutz Labs University of Vienna Dr. Bohr-Gasse 9 1030 Vienna, Austria Phone: +43 1 4277 56240 Email: peter.schloegelhofer@univie.ac.at</p>	<p>Dr. Senjuti Sinharoy Staff Scientist National Institute of Plant Genome Research Aruna Asaf Ali Marg, 110067 New Delhi, India E-mail: ssinharoy@nipgr.ac.in</p>
<p>Dr. Anuraj Nayariseri Principal Scientist & Director Eminent Biosciences Mahalaxmi Nagar, 452010, Indore, M.P., India Phone : 097522 95342 E-mail : anuraj@eminentbio.com</p>	<p>Dr. Mukesh Lodha Ramalingaswami Fellow New R&D building 2nd Floor Centre for Cellular and Molecular Biology Uppal Road, Habsiguda, 500007 Hyderabad, Telangana, India Phone : 04027192942 E-mail : mukesh@ccmb.res.in</p>
<p>Prof. Anjan K Banerjee Professor And Co- Chair Biology. Indian Institute of Science Education and Research (IISER-PUNE) Dr. Homi Bhabha Road, Pashan, Pune-411 008 Maharashtra, India Phone: +91 20 2590 8057 Email : akb@iiserpune.ac.in</p>	<p>Dr. Jang Bahadur Singh Senior Scientist (Plant Breeding) ICAR – Indian Agricultural Research Institute - Regional Station Old Sehere Road Indore- 452 001 (M.P.), India Phone: 07312702921 Email: jbsingh@iari.res.in</p>

Declaration

I, hereby, declare that the above information is true to the best of my knowledge and belief.

Date: 29/05/22

Place: Vienna

Isha Joshi