

Curriculum Vitae

Poonam Pant, Ph.D.

Glycobiology lab
Institute Post-doctorate Fellow
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Qualifications

- **Postdoctoral Fellowship:** Glycobiology Lab, Indian Institute of Technology Bombay (IITB), India.
Mentor: Dr. Petety V. Balaji
Topic: Pipeline development for identification of Hydroxyproline (Hyp)-rich glycoproteins (HRGPs).
(Nov 2019-Oct 2021)
- **Ph.D. (Biological Sciences):** National Botanical Research Institute (CSIR-NBRI) under AcSIR (Academic of Science and Innovative Research), Lucknow, India. **(2014-2018)**
Thesis Advisor: Dr. Samir V. Sawant
Title: “Computational analysis of Calmodulin-Binding Transcription Activator (CAMTA) gene family in *Gossypium* species: identification, evolutionary analysis and transcriptional gene regulatory networks”.
- **MSc. (Bioinformatics):** Banasthali University, Rajasthan, India **(2010)**
- **BSc. (Biotechnology):** Kumaun University, Nainital, India **(2008)**

Publications:

Research Articles:

Pant, P., Iqbal, Z., Pandey, B.K., Sawant, S.V. (2018) Genome-wide comparative and evolutionary analysis of Calmodulin-binding Transcription Activator (CAMTA) family in *Gossypium* species. *Scientific reports* **8** (1), 5573.

Kumar, V., Singh, B., Singh, S., Rai, K.M., Singh, S.P., Sable, A., **Pant, P.,** Saxena, G., Sawant, S.V. (2018) Role of GhHDA5 in H3K9 deacetylation and fiber initiation in *Gossypium hirsutum*. *The Plant Journal*. Accepted for publication.

Yadav, V.K., Yadav, V.K., **Pant, P.**, Singh, S.P., Maurya, R., Sable, A., Sawant, S.V. (2017) GhMYB1 regulates SCW stage-specific expression of the GhGDSL promoter in the fibres of *Gossypium hirsutum* L. *Plant biotechnology journal* **15**(9), 1163-1174.

Imran, M., **Pant, P.**, Shanbhag, Y.P., Sawant, S.V., Ghadi, S.C. (2017) Genome Sequence of *Microbulbifer mangrovi* DD-13 T Reveals Its Versatility to Degrade Multiple Polysaccharides. *Marine Biotechnology* **19**(1), 116-124.

Singh, H., Rai, K.M., Upadhyay, S.K., **Pant, P.**, Verma, P.C., Singh, A.P., Singh, P.K. (2015) Transcriptome sequencing of a thalloid bryophyte; *Dumortiera hirsuta* (Sw) Nees: assembly, annotation, and marker discovery. *Scientific reports* **5**, 15350.

Pandey, N., Ranjan, A., **Pant, P.**, Tripathi, R.K., Ateek, F., Pandey, H.P., Patre, U.V., Sawant, S.V. (2013) CAMTA 1 regulates drought responses in *Arabidopsis thaliana*. *BMC genomics* **14**(1), 1.

Research experience

1. As Senior Research Fellow (SRF) in National Botanical Research Institute, Lucknow from 10th April, 2017 to 30th Dec, 2018.
2. As Project Assistant II in CSIR- National Botanical Research Institute, Lucknow in the project entitled “Development of Universal expression vector for developing male sterile lines for improvement of crop varieties using hybrid vigor” from 13.09.2011 to 31.12.2012.
3. As Project Assistant II in CSIR- National Botanical Research Institute, Lucknow in the project entitled “Genomics of Medical plants and Agronomically important traits (PlaGEN) (BSC0107)” from 07.01.2013 to 06.01.2014.
4. As Project Assistant III in CSIR- National Botanical Research Institute, Lucknow in the project entitled “Genomics of Medical plants and Agronomically important traits (PlaGEN) (BSC0107)” from 24.06.2014 to 31.03.2017.

Research areas of interest and Specialization

- Whole genome and RNA-Seq Sequence Analysis (Illumina and 454Pyrosequencing)
- Differential gene expression analysis
- Microarray analysis
- ChIP-Seq (Chromatin immunoprecipitation) data analysis
- Sequence analysis
- Promoter region and motif analysis
- Co-expressing gene network analysis
- Statistical analysis of gene expression data through R packages
- Gene family analysis
- Comparative genomics
- Functional genomics
- Glycobiology

Research Presentations

1. "In-Silico Gene Expression profiling of CAMTA1 mutant of Arabidopsis under water deficient condition" poster presented at SciGenome Conference 2012 "Next-Generation Sequencing and Bioinformatics for Genomics & Healthcare", IIT Chennai, 1-3, November, 2012.
2. "Computational analysis of Calmodulin-binding transcription activator (CAMTA) gene family in Gossypium species: identification, evolutionary analysis and transcriptional gene regulatory networks" poster presented at SciGenome Conference 2012 "Plant Biotechnology for Crop Improvement & 37th Annual Meeting of PTCA", CSIR-NBRI, Lucknow, 25th - 27th, February, 2016.

Symposia/Workshops attended

1. Workshop on "Biotechnology Education" organized by Dolphin (P.G.) Institute of Bio Medical and Natural Sciences, Dehra Dun, 6th - 7th, October 2007.
2. National seminar on "Stress, development and adaption: Biochemical Basis and Biotechnological Approaches" in university of Lucknow, 15-16, March 2013.
3. Workshop on "High Performance Computing" in jointly organized by Centre for development of development of advanced computing & CSIR-national Botanical Research Institute, Lucknow, 8-11, August, 2017.
4. Workshop on "Science and Technology Sensitization Program" jointly organized by The national Academy of Sciences, India, NASI-Lucknow Chapter & CSIR-national Botanical Research Institute, Lucknow, 27th - 28th, October, 2017.

Project Training:

One month Project Training on "Computer Aided Structure Prediction And drug Designing" in BCS- InSilico Biology, Lucknow, 9th june to 8th july, 2009.

Proven Skills

Computational skills:

Operating systems: Strong experience in working systems like LINUX/UNIX, Windows/DOS etc.

Programming/scripting languages: Strong programming skill in Perl, Python, CGI-Perl, R and moderate skill of Java, MATLAB and scripting languages as Shell, AWK, Sed, excel-macro.

Bioinformatics skills: Well versed with popular bioinformatics tools and databases like Standalone BLAST, HMMER, MEME/MAST, ClustalW/X, EMBOSS, MEGA, Phylip, InterPro-scan, BLAST-Clust, CD-HIT, BLAT, Proset, Psi-Pred, PSSM, DSSP, PyMol,

Rasmol, VMD, Modeler, I-TASSER, Pymol, etc. Databases like NCBI, TAIR, PLACE, CGP, Phytozome, AgriGO etc.

RNA-seq tools: STAR, Tophat, Cufflinks, BWA, Bowtie, HISAT (Reference Based), Trinity, SOAPdenovo, TransAbyss, SAMTools (Denovo assembly), FastX-toolkit, NGSQC-toolkit etc.

ChIP-seq tools: MACs (Model-based Analysis for ChIP-Seq) and Seqminer.

Tools for Integration of ChIP-seq and Transcriptome data: BETA (Binding and Expression Target Analysis) and Epigenomix.

Computational genomics: Motif enrichment analysis (motif enrichment tool like MEME, Motif scan etc.), Transcription factor binding site analysis (TRANSFAC, PROMO), Bioconductor (R packages), dCHIP, MeV, DAVID etc.

Differential gene expression analysis: Experience on Cuffdiff, DEGseq, EdgeR etc.

Systems biology tools: KEGG pathway analysis, KOBAS server, Cytoscape, Mapman, Pathway studio etc.

Functional annotation: AgriGO, Revigo etc.

Statistical analysis: Student t-test, parametric and non-parametric test, ANOVA etc.

Evolutionary analysis: Knowledge of phylogenetic tree construction tools like MEGA, phylip, FigTree etc. and also has experience on nonsynonymous substitutions (ka) and synonymous substitutions (ks) analysis tools like MCScanx, CIRCOS PAL2NAL web server etc.

Docking: Experience on AutoDock (ligand-protein), NPDock, PatchDock (RNA-Protein).

Statistical packages: Proficiency in statistical packages as GraphPad Prism 5, Sigmaplot, R-bioconductor and moderate expertise of Statistica, SPSS.

Languages Known: English and Hindi.

Excellent communication, writing, teaching skills and sound theoretical knowledge of Bioinformatics and Genomics.

Technical Proficiency

Operating Systems	Windows, Linux
Languages/Analytical tools	Python, PERL, R language, and Macro
Packages	MS Office, Bioconductor

Awards/Achievements/Recognition

1. Awarded Senior Research Fellowship from Council of Scientific Research (CSIR) from 10th April to 9th April 2019.
2. Received Best Research Paper Award in the area of Genetics and Molecular Biology entitled as “Transcriptome sequencing of a thalloid bryophyte; *Dumortiera hirsuta* Nees: assembly, annotation, and marker discovery” by CSIR-NBRI, Lucknow, October, 25th, 2016.
3. Research work appear as “**Cover Page**” in "plant biotechnology journal", Volume 15, Issue 9, Pages 1069-1224, September 2017.
4. Won CSIR 44th SSBMT indoor level tournament (Badminton) held in IIMT, Chandigarh, India, Feb. 13, 2013.

Extracurricular activities

1. Participated in “Cultural program” during the National symposium on Plant Biotechnology for Crop Improvement & 37th Annual Meeting of PTCA", CSIR-NBRI, Lucknow, 25th - 27th, February, 2016.
2. Participated in “Entrepreneurship Awareness Camp” organized by Entrepreneurship Development Institute of India, Lucknow, 26th -28th, December, 2007.

Personal:

Date of birth	November 15, 1986
Marital status	Married
Nationality	Indian
Linguistic Proficiency	English and Hindi

I hereby declare that all the information mentioned above is true to the best of my knowledge.

Poonam Pant