

Personal information

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Profile

I am a **Plant Developmental Epigeneticist and Molecular Biologist**. I have experience conducting comprehensive research projects, with a proven ability to design and implement experimental protocols, analyze complex data sets, and integrate findings into cohesive research outputs. I possess strong collaboration skills, having worked with international research teams and participated in multiple research internships and conferences.

Professional and research experience

- **Researcher, Biology Centre CAS, České Budějovice, Czech Republic**
01/08/2019_Present
Supervisor: Dr. Iva Mozgová
Role of Polycomb repressive complex 2 (PRC2) during early seedling establishment in *Arabidopsis thaliana*
- **Research Internship, École Normale Supérieure de Lyon, France**
01/11/2022_01/12/2022
Supervisor: Dr. Daniel Bouyer
Modulating the embryonic development phenotype in PRC2 double mutants through CRISPR-Cas9-mediated gene editing
- **Research Internship, Austrian Academy of Sciences, VBC, Vienna, Austria**
01/05/2020_01/06/2020
Supervisor: Prof. Ortrun Mittelsten Scheid
CRISPR-ing catalytic subunits of PRC2 to understand their contribution in early seedling establishment
- **Researcher, Rice Research Institute, SWUST, Main Yang, Sichuan, China.**
30/07/2018_30/07/2019
Supervisor: Prof. Xuechun Wang
Rice root dynamics: Integrating agronomic and molecular perspectives for stress tolerance and yield improvement strategies
- **Post-graduation (M.Sc.), Laboratory of Plant Molecular Genetics, SWUST, Main Yang, Sichuan, China.**
01/08/2016_30/07/2018
Supervisor: Prof. Hu Shanglian
Cloning and characterization of BeSNAC1 and BeWRKY2 and their overexpression analysis in *Triticum aestivum* to improving the stress tolerance capacity

Education

- **Ph.D. in Plant Molecular Biology, Cell Biology And Genetics**
University of South Bohemia, České Budějovice, Czech Republic
- **M.Sc. in Plant Biology**
Southwest University of Science and Technology, Main Yang, Sichuan, China
- **B.Sc. in Botany**
University of Sindh Jamshoro, Pakistan

Research/technical skills

I have expertise in construct design, molecular cloning, expression in *E. coli*, yeast, plant transformation, CRISPR gene editing, transgene screening and characterisation, protein-protein and protein-DNA interaction assays, protein localisation, microscopy techniques. I am experienced in analysing and interpreting next generation sequencing data (ChIP and RNA seq), integration and pathway analysis, ChIP-qPCR, RT-qPCR and their data analysis, electronic laboratory data management.

Manuscripts under communication/ preparation

1. **Samo N et al.** PRC2 facilitates the transition from heterotrophy to photoautotrophy during seedling emergence. *Plant Cell* (in process), a preprint available on bioRxiv (<https://doi.org/10.1101/2024.10.08.616934>).
2. **Samo N et al.** Modulating the embryonic development phenotype in PRC2 double mutants through CRISPR-Cas9-mediated gene editing. (*In preparation*).
3. Mingxi Z, Lenka B, María TA, Lenka G, Jiří K, Fatemeh A, Eliška Kuthanová T, Aurelie C, Helena HM, Abdoallah S, Tihana V, Jan Pi, **Samo N**, Jiří Š, Roman S, Iva M. PRC2 moderates response to ambient light during photomorphogenesis and growth in Arabidopsis. (*In preparation*).

Published papers

1. **Samo N et al.** Plant chromatin, metabolism and development—an intricate crosstalk. *Current opinion in plant biology* 61 (2021): 102002. <https://doi.org/10.1016/j.pbi.2021.102002>
2. Imran M, Hu SL, Luo X, Ying C, and **Samo N**. Screening and signifying the uranium remediation level of *Alternanthera philoxeroides* and *Eichhornia crassipes* from aquatic medium. *Environmental Pollution* 342 (2024): 123063. <https://doi.org/10.1016/j.envpol.2023.123063>
3. Long Z, Imran M, Hu SL, Luo X, Ying C, **Samo N**, and Daoyong G. Physiological quantification and molecular detection *BeNRT1. 1* of neosinocalamus (*bambusa emeiensis*) treated with different types of nitrogen fertilizers. *Industrial Crops and Products* 150(2020):112323. <https://doi.org/10.1016/j.indcrop.2020.112323>
4. **Samo N et al.** Molecular characterization and expression pattern analysis of a novel stress-responsive gene *BeSNAC1* in *Bambusa emeiensis*. *Journal of Genetics* 98, no. 2 (2019): 1-9. <https://doi.org/10.1007/s12041-019-1098-x>
5. **Samo N et al.** Molecular characterization, transactivation and expression analysis of *BeWRKY2* from *Bambusa emeiensis*. *plant gene* (2019). <https://doi.org/10.1016/j.plgene.2019.100191>
6. **Samo N et al.** NAC vs: Abiotic stresses, current understanding and perspective, with special reference to the crops of poaceae family. *Pakistan journal of botany* 51, no. 6 (2019): 2037-2045. [https://doi.org/10.30848/PJB2019-6\(17\)](https://doi.org/10.30848/PJB2019-6(17))
7. Wang X, **Samo N**, Lamei L, Mengran W, Muslim Q, Kaifeng J, Jian Q, Fahd R, Guotao Y, and Yungao H. Root distribution and its impacts on the drought tolerance capacity of hybrid rice in the Sichuan basin area of China. *Agronomy* 9, no. 2 (2019): 79. <https://doi.org/10.3390/agronomy9020079>
8. Wang X, **Samo N**, Changkun Z, Hongni W, Guotao Y, Yungao H, Youlin P, and Fahd R. Negative and positive impacts of rape straw returning on the roots growth of hybrid rice in the Sichuan Basin area. *Agronomy* 9, no. 11 (2019): 690. <https://doi.org/10.3390/agronomy9110690>
9. Wang, X, **Samo N**, Mengran W, Muslim Q, Guotao Y, Yungao H, and Kawsar A. Dynamic changing of soil water in artificial ryegrass land in the hilly regions of Sichuan Basin area. *Agricultural Water Management* 221 (2019): 99-108. <https://doi.org/10.1016/j.agwat.2019.04.032>
10. Imran M, Hu SL, Luo X, Ying C, and **Samo N**. Phytoremediation through *Bidens pilosa* L., a nonhazardous approach for uranium remediation of contaminated water. *International journal of phytoremediation* 21, no. 8 (2019): 752-759. <https://doi.org/10.1080/15226514.2018.1556594>
11. Imran M, Hu SL, Luo X, Ying C, and **Samo N**. Molecular cloning of *BeMYB140* from *Bambusa emeiensis*, canvassing transactivation and expression profiling for its dynamic chunk against abiotic stresses. *Pakistan journal of botany* 53(1):1-7. [https://doi.org/10.30848/PJB2021-1\(36\)](https://doi.org/10.30848/PJB2021-1(36))

Participation in conferences/workshop

- **Poster presentation**, 10th Plant Genomics & Gene Editing Congress USA
Title: Modulating the embryonic development phenotype in PRC2 double mutants through CRISPR-Cas9-mediated gene editing
- **Poster presentation**, 3rd PlantEd Conference – Germany
Title: CRISPR-ing catalytic subunits of PRC2 to understand their contribution in the early seedling establishment
- **Oral presentation**, 7th European Workshop on Plant Chromatin, Czech Republic
Title: Polycomb repressive complex 2 represses storage reserve metabolism during seedling emergence
- **Poster presentation**, National conference of plant biology, Chongqing, China
Title: Cloning and Characterization of BeSNAC1 and BeWRKY2 and their overexpression in Triticum Aestivum to improve the stress tolerance capacity
- **Poster presentation**, Food and Agriculture Organization Seminar, Sindh, Pakistan
Title: X-rays induced mutation in chickpea (*Cicer arietinum* L.)

Prizes and awards

- **Two-Year GAJU Individual Research Grant** (Grant Agency of University of South Bohemia)
Registration No: 049/2021 / P
Proposal title: CRISPR-ing catalytic subunits of PRC2 to understand their contribution in early seedling establishment.
- Award to support the international travel from University of South Bohemia.
- Award to support the international research stay from Anchoring the Biology Centre Czech Academy of Sciences in European Research Area (ABERA)
- Received a talented student scholarship (M.Sc.) Southwest University of Science and Technology
- Award to support the M.Sc. program by qualifying for the chinses scholarship from Southwest University of Science and Technology
- Awarded a Gold medal from the University of Sindh for getting 1st position in B.Sc.
- Award to support the B.Sc. program by qualifying for the Diya Pakistan scholarship.

Organisation of scientific meetings

- 7th European Workshop on Plant Chromatin, Czech Republic
Place: Průhonice Castle, Prague, Czech Republic, UNESCO World Heritage in a season of flowering Rhododendrons
- International conference on livestock breeding and wastewater treatment
Place: SWUST Sichuan, China.

Co-supervising and mentoring activities

Name of the student: Emily ozlberger

2022-Present

Name of the student: Klára Mášová

2024-Present

Course: Biological Chemistry

Affiliation: University of South Bohemia, České Budějovice, Czech Republic