



**Dr. Manoj Kumar**

**Designation: Professor,  
Amity Institute of Genome Engineering (AIGE)**

**Specialization: Plant Developmental Biology, Abiotic stress, Plant nutrition, Arabidopsis, Rice, Crop development, Genome engineering, Cell signalling, Epigenetics, Genomics and big data analysis.**

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After completing his PhD from Max Planck Institute for Plant Breeding Research and University of Cologne, Germany, Dr. Manoj Kumar pursued his postdoctoral research at John Innes Centre, Norwich and Sainsbury Laboratory, University of Cambridge, UK, where he investigated how plants sense and respond to temperature. He contributed in the discovery of how Phytochrome B senses temperature and regulate plant growth. He further demonstrated Chloroplast Signaling Gates thermotolerance in Arabidopsis.

He has actively participated and delivered talks at various international conferences/meetings and workshops. His present research interest is to explore how cells sense and responds to external cues and uses different model systems to explore the molecular mechanism. One of the major goals in his laboratory is to develop climate resilient as well as nutrient enriched crop species. Apart from research, he is involved in teaching courses related to molecular biology as well as research methodology.

#### **Awards and honours:**

- 2016 “Young Scientist Award” by SERB, Department of Science and Technology, India
- 2015 Dr. DS Kothari Postdoctoral fellowship awarded by University Grant Commission, India
- 2011 Postdoctoral Fellowship by John Innes Centre, Norwich UK
- 2012 Postdoctoral fellowship by University of Cambridge, Cambridge, UK
- 2006 PhD fellowship awarded by International Graduate School in Genetics and Functional Genomics, University of Cologne, Germany
- 2004 National Eligibility for Lectureship in Life Science (NET) from CSIR-UGC, India

#### **Current Research Projects:**

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| <b>2023 – 2026</b><br>(Funding of INR 25 lakh) | <b>ICMR-Extra mural Research Grant (Co-PI)</b>           |
| <b>2019 – 2022</b><br>(Funding of INR 25 lakh) | <b>ICMR-Extra mural Research Grant (Co-PI)</b>           |
| <b>2021</b><br>(Funding of INR 10 lakh)        | <b>DBT-Workshop grant on Genome Editing Technologies</b> |
| <b>2016 – 2020</b><br>(Funding of INR 44 lakh) | <b>Start-Up Research Grant SERB-DST, India</b>           |

#### **Selected Publications:**

1. Jamsheer K, Gazara RK, Jindal S, **Kumar M** (2023). Stepwise origin and evolution of a transcriptional activator and repressor system integrating nutrient signalling in plants. bioRxiv 2022.04.15.488190; doi: <https://doi.org/10.1101/2022.04.15.488190> (Under Revision in Genome Biology and Evolution) **[IF – 4.07]**.
2. Romeiro Motta M, Zhao X, Pastuglia M, Belcram K, Roodbarkelari F, Komaki M, Harashima H, Komaki S, Kumar M, Bulankova P, Heese M, Riha K, Bouchez D, Schnittger A (2021). B1-type cyclins control microtubule organization during cell division in Arabidopsis. **EMBO Reports** Dec 9:e53995. doi: 10.15252/embr.202153995. **[IF – 9.42]**.
3. Jamsheer K, Muhammed, and **Kumar, Manoj**; (2021) “Transcription factors as zinc sensors in plants”. **Trends in Plant Science** 2021 Aug;26(8):761-763.) **[IF – 22.01]**.
4. Jamsheer K, Muhammed, **Kumar, Manoj**; Srivastava, Vibha (2021) SNF1-Related Protein Kinase 1: the many-faced signaling hub regulating developmental plasticity in plants. **Journal of experimental Botany** Sep 2;72(17):6042-6065. **[IF – 7.29]**.

5. Topno R<sup>§</sup>; Nazam N<sup>§</sup>; Kumari P, **Kumar M**<sup>\*</sup>; Agarwal P<sup>\*</sup> (2021); Integrative genome wide analysis of protein tyrosine phosphatases identifies CDC25C as prognostic and predictive marker for chemoresistance in breast cancer. *Cancer Biomarkers* July 9, 1-14 (**\*corresponding Author**) (IF- 4.38)
6. Rachel Topno<sup>1\*</sup>, Ibha Singh<sup>2\*</sup>, Manoj Kumar<sup>1#</sup>, Pallavi Agarwal<sup>2#</sup> (2021) Integrated bioinformatic analysis identifies UBE2Q1 as a potential prognostic marker for high grade serous ovarian cancer. *BMC Cancer* Mar 4;21(1):220. (**\*corresponding Author**) (IF- 4.7)
7. Aditi Chauhan, **Manoj Kumar**, Awanish Kumar, Kajal Kanchan (2021) Comprehensive review on mechanism of action, resistance and evolution of antimycobacterial drugs (In press, *Life Sciences Elsevier*, [IF: 6.78])
8. **Kumar M**, Sharma K, Yadav AK, Kanchan K, Baghel M, Kateriya S, Pandey GK (2020) Genome-wide identification and biochemical characterization of calcineurin B-like calcium sensor proteins in *Chlamydomonas reinhardtii*. *Biochemical Journal* 477:1879-1892 [IF – 4.35]
9. Dickinson P, **Kumar M**, Martinho C, Yoo SJ, Lan H, Artavanis G, Charoensawan V, Schöttler MA, Bock R, Jaeger KE and Wigge PA (2018) Chloroplast signalling gates thermotolerance in *Arabidopsis*. *Cell Reports* 22, 1657–1665 [IF – 9.99]
10. Zhang D<sup>\*</sup>, **Kumar M**<sup>\*</sup>, Xu L, Wan Q, Huang YH, Xu ZL, He XL, Ma JB, Pandey GK, Shao HB (2017) Genome-wide identification of Major Intrinsic Proteins in Glycine soja and characterization of GmTIP2; 1 function under salt and water stress. *Scientific Reports*, 7:4106 [IF – 5.22]
11. Zhang D<sup>\*</sup>, Huang Y<sup>\*</sup>, **Kumar M**<sup>\*</sup>, Wan Q, Xu Z, Shao HB, Pandey GK (2017) Heterologous expression of GmSIP1; 3 from soybean in tobacco showed growth retardation and tolerance to hydrogen peroxide. *Plant Science*, 263: 210-218 [IF – 5.36]
12. Jung JH<sup>\*</sup>, Domijan M<sup>\*</sup>, Klose C<sup>\*</sup>, Biswas S<sup>\*</sup>, Ezer D<sup>\*</sup>, Gao M, Khattak AK, Box MS, Charoensawan V, Cortijo S, **Kumar M**, Grant A, Locke JCW, Schäfer E, Jaeger KE, Wigge PA (2016). Phytochromes function as thermosensors in *Arabidopsis*. *Science*, 354(6314):886-889 [IF – 63.71]
13. Ungru A, Nowack M K, Reymond M, Shirzadi R, **Kumar M**, Biewers S, Grini P E and Schnittger A (2008) Natural variation in the degree of autonomous endosperm formation reveals independence and constraints of embryo growth during seed development in *Arabidopsis thaliana*. *Genetics*, 179(2): 829-841 [IF – 4.55]
14. Yadav SK<sup>\*</sup>, Singla-Pareek SL<sup>\*</sup>, **Kumar M**, Pareek A, Saxena M, Sarin NB, Sopory SK (2007) Characterization and functional validation of glyoxalase II from rice. *Protein Expression Purification*, 51:126–132 [IF – 1.51]
15. Pareek A<sup>\*</sup>, Singh A<sup>\*</sup>, **Kumar M**, Kushwaha HR, Lynn AM, and Singla-Pareek SL (2006). Whole-genome analysis of *Oryza sativa* reveals similar architecture of two-component signaling machinery with *Arabidopsis*. *Plant Physiology*, 142: 380–397 [IF – 8.00]