



## University of Delhi Faculty Details Page on DU

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Designation	<b>Professor</b>					
Department	Plant Molecular Biology					
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<b>Education</b>						
Subject	Institution				Year	
<b>Ph.D.</b>	Ph.D. (Life Sciences) Jawaharlal Nehru University, New Delhi.				1999	
<b>PG</b>	M.Sc (Biotechnology), Banaras Hindu University, Varanasi.				1994	
<b>UG</b>	B.Sc. (Hons) Biochemistry, University of Delhi, Delhi.				1992	
<b>Career Profile</b>						
<p>-Jan 2014-Till date, Professor, Department of Plant Molecular Biology, University of Delhi South Campus, New Delhi.</p> <p>-Jan 2011-Jan 2014, Associate Professor, Department of Plant Molecular Biology, University of Delhi South Campus, New Delhi.</p> <p>-October 2007 – Jan 2011: Reader, Department of Plant Molecular Biology, University of Delhi South Campus, New Delhi.</p> <p>-Feb 2000-Sept 2007: Post-doctoral Scientist, University of California, Berkeley, USA.</p>						
<b>Research Interests / Specialization</b>						

### ***Research Interests***

Research interest is to explore the function of Calcium-mediated Signaling Pathway in rice and Arabidopsis under abiotic stress condition. By enlarge a greater emphasis is being given to understand the global networking of CBL-CIPK pathway with other stress regulated signaling cascades such as Calmodulin and CaM-kinase, CDPK (Calcium dependent protein kinases), MAP kinase signaling network and their counteraction by protein phosphatases under different stress conditions. Moreover, I wanted to explore detail mechanistic interplay of signaling cascades, which involves a plethora of kinases and phosphatases regulating ion transporter, or channels and transcription factors in both Arabidopsis and rice model system under different stress conditions. Overall, my ultimate aim would be to target the molecular components such as key signaling components for developing or designing crop plant, which can withstand the abiotic stresses without losing the crop productivity.

### ***Field of specialization***

Calcium mediated signaling under abiotic and biotic stress, Plant mineral (Calcium, Potassium, Nitrogen) nutrition uptake and signaling, Functional genomics of abiotic stress signaling components, Role of protein phosphatases and phospholipases (PLA, PLC and PLD) in abiotic and nutrient deficient stress conditions, Elucidation of ethylene responsive factors in rice under abiotic stress conditions and their biotechnological implication.

### **Teaching Experience (Subjects/Courses Taught)**

- Taught Molecular Basis of Plant Growth and Development (M.Sc. Previous), Molecular Basis of Differentiation and Morphogenesis (M. Sc. Final), Molecular Cell Biology (M.Sc. Semester 1), Gene Expression in prokaryotes (M.Sc. Semester 2).
- Teaching M.Sc / Ph.D students subject such as Plant Signal Transduction and Cellular Communication, Molecular and Cellular Biology, Gene regulation in Prokaryotes and Eukaryotes, Molecular Basis of Development and Morphogenesis in plants, Molecular Biology and Biotechnology, Advance Concepts of Molecular Biology and Biotechnology.
- Supervised 7 Ph.D. (awarded), currently supervising 8 Ph.D. students.
- Supervised 15 M.Sc. dissertation students.

### **Honors & Awards**

1. J.J. Chinoy Gold medal award, Indian Society of Plant Physiology, New Delhi, India (2018).
2. Elected Fellow of National Academy of Agricultural Sciences (NAAS), New Delhi, India (2018).
3. Foreign Expert award, Institute of Agri-Biotechnology and Salt-Soil Agricultural Center, Institute of Agricultural Resources and Environment, Jiangsu Academy of Agricultural Sciences, Nanjing, China (2017).
4. Visiting Professor at Institute of AgriBiotechnology, Jiangsu Academy of Agricultural Sciences, Nanjing, China (2016-2017).
5. Elected Fellow of National Academy of Sciences, India, Allahabad (NASI) in 2016.
6. National Bioscience Career Development Award, DBT, India in 2015.
7. Visiting Professor at Institute of AgriBiotechnology, Jiangsu Academy of Agricultural Sciences, Nanjing, China (2015).
8. Visiting Professor at College of Life Sciences, Capital Normal University, Beijing, China (October 2012-Dec 2012).
9. DBT-CREST (Cutting-edge Research Enhancement and Scientific Training Award 2010-2011 to work in Prof. Sheng Luan's lab at Department of Plant and Microbial Biology, University of California, Berkeley.
10. Awarded INSA-DFG Bilateral Scientist Exchange Fellowship to visit Prof. Joerg Kudla's lab for three

months (June-August, 2011) at Institut für Biologie und Biotechnologie der Pflanzen, Schlossgarten 3, Wilhem WestFelisch University, Münster, Germany.

11. Awarded Far Eastern Regional Research Organization (FERRO) fellowship to work at BARC, United States Department of Agriculture, Beltsville, MD in 1998 with Dr. Autar K. Mattoo.
12. Awarded Senior Research Fellowship in the Dept. of Biotechnology, India sponsored Indo-Sri Lankan Project, Aug 1999.
13. Awarded Council of Scientific and Industrial Research, India (CSIR-NET) fellowship, 1994.

#### Publications

##### ***Research papers Published in Refereed/Peer Reviewed Journals***

1. 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 pii: BCJ20190960. doi: 10.1042/BCJ20190960.
2. Sanyal SK, Kanwar P, Fernandes JL, Mahiwal S, Yadav AK, Samtani H, Srivastava AK, Suprasanna P, Pandey GK (2020) *Arabidopsis* Mitochondrial Voltage-Dependent Anion Channels Are Involved in Maintaining Reactive Oxygen Species Homeostasis, Oxidative and Salt Stress Tolerance in Yeast. Frontier in Plant Science.11:50. doi: 10.3389/fpls.2020.00050. eCollection 2020.
3. Sanyal SK, Mahiwal S, Nambiar DM, Pandey GK (2020) CBL-CIPK module-mediated phosphoregulation: facts and hypothesis. Biochemical Journal 477(5):853-871.
4. Srivastava AK, Shankar A, Nalini Chandran AK, Sharma M, Jung KH, Suprasanna P, Pandey GK (2019) Emerging concepts of potassium homeostasis in plants. Journal of Experimental Botany,71(2):608-619.
5. Bheri M, Pandey GK (2019) Protein Phosphatases Meet Reactive Oxygen Species in Plant Signaling Networks. Environment and Experimental Botany, 161: 26-40.
6. Sharma M, Pandey GK (2019) OsPUB75, an Armadillo/U-box protein interacts with GSK3 kinase and function as negative regulator of abiotic stress response. Environmental and Experimental Botany, 161: 388-398.
7. Yadav AK, Jha SK, Sanyal SK, Luan S, Pandey GK. (2018) Arabidopsis Calcineurin B-like proteins differentially regulate phosphorylation activity of CBL-interacting protein kinase 9. Biochemical Journal, 475(16):2621-2636.
8. Singh A, Yadav AK, Kaur K, Sanyal SK, Jha SK, Fernandes JL, Sharma P, Tokas I, Pandey A, Luan S, Pandey GK (2018) Protein Phosphatase 2C, AP2C1 Interacts with and Negatively Regulates the Function of CIPK9 under Potassium Deficient Conditions in Arabidopsis. J. Exp. Bot. 69(16):4003-4015.
9. Yadav K, Jha SK, Sharma M, Pandey GK (2018) Mitogen activated kinase: A versatile signaling cascade in plants. Journal of Proteins and Proteomics, 9(1) 2018 pp 57-72.
10. Sharma M, Pandey GK (2018) Editorial: Genomics and Functional Genomics of Stress-mediated Signaling in Plants: Volume II. Curr Genomics. 2018 Jan;19(1):2-3.
11. Sharma M, Pandey GK (2017) Editorial: Genomics and Functional Genomics of Stress-mediated Signaling in Plants: Volume I. Current Genomics. 2017 Dec;18(6):467-468.
12. Nikalje GC, Srivastava AK, Pandey GK, Suprasanna P (2017) Halophytes in biosaline agriculture: mechanism, utilization and value addition. Land Degradation and Development. Accepted manuscript online: 21 Sept 2017, DOI: 10.1002/ldr.2819
13. Nikalje GC, Srivastava AK, Sablok G, Pandey GK, Nikama TD, Suprasanna P (2017) Identification and validation of reference genes for quantitative real-time PCR under salt stress in a halophyte, *Sesuvium portulacastrum*. Plant Gene 13 (2018) 18–24.
14. Sanyal SK, Kanwar PK, Samtani S, Kaur K, Jha SK and Pandey GK (2017) Alternative Splicing of CIPK3 Results in Distinct Target Selection to Propagate ABA Signaling in Arabidopsis. Front. Plant Sci. 8:1924. doi: 10.3389/fpls.2017.01924.
15. Shankar A, Fernandes JL, Kaur K, Sharma M, Kundu S, Pandey GK (2017) Rice Phytoalbumin regulate responses under low mineral nutrients and abiotic stresses in Arabidopsis thaliana. Plant Cell Environ. 2018 Jan;41(1):215-230.
16. Zhang DY, Huang Y, Kumar M, 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.
17. Pandey, Amita, Yadav V, Sharma A, Khurana JP, Pandey, Girdhar K. (2017) The unc-53 gene negatively regulates rac

- GTPases to inhibit unc-5 activity during Distal tip cell migrations in *C. elegans*. *Cell Adh Migr*. 2017 Jul 5:0. doi: 10.1080/19336918.2017.1345413.
18. Zhang, DY, Kumar M, Xu L, Wan Q, Huang YH, Xu ZL, He XL, Ma JB, Pandey, Girdhar K, Shao HB (2017) Genome-wide identification of Major Intrinsic Proteins in Glycine soja and characterization of GmTIP2;1 function under salt and water stress. *Sci Rep*. 2017 Jun 23;7(1):4106.
  19. Jha, Saroj K, Shikha Malik, Manisha Sharma, Amita Pandey and Girdhar K. Pandey (2017) Recent advances in substrate identification of protein kinases in plants and their role in stress management. *Current Genomics*, 18, 000-000.
  20. Singh, Amarjeet and Girdhar K. Pandey (2017) How Phospholipase C Regulates Stress Tolerance and Development in Plants? *J. Cell Signal* 1: 132.
  21. Sanyal, Sibaji K., Poonam Kanwar, Akhilesh K. Yadav, Cheshta Sharma, Ashish Kumar, Girdhar K. Pandey (2017) Arabidopsis CBL interacting protein kinase 3 interacts with ABR1, an APETALA2 domain transcription factor, to regulate ABA responses. *Plant Science* 254: 48-59.
  22. Zhao, Pingzhi, Lubomir N. Sokolov, Jian Ye, Cheng-Yi Tang, Jisen Shi, Yan Zhen, Wenzhi Lan, Zhi Hong, Jiang Qi, Gui-Hua Lu, Girdhar K. Pandey, Yong-Hua Yang (2016) The LIKE SEX FOUR2 regulates root development by modulating reactive oxygen species homeostasis in Arabidopsis. *Sci Rep*. 2016 Jun 28;6:28683. doi: 10.1038/srep28683.
  23. Pandey, Girdhar K., Amita Pandey, Manoj Prasad, Maik Böhmer (2016) Editorial: Abiotic Stress Signaling in Plants: Functional Genomic Intervention. *Front Plant Sci*. 2016 May 20;7:681. doi: 10.3389/fpls.2016.00681.
  24. Pandey, Amita, Manisha Sharma, Girdhar K. Pandey (2016) Emerging Roles of Strigolactones in Plant Responses to Stress and Development. *Front Plant Sci*. 2016 Apr 5;7:434. doi: 10.3389/fpls.2016.00434.
  25. Sharma, Manisha, Girdhar K. Pandey (2016) Expansion and Function of Repeat Domain Proteins During Stress and Development in Plants. *Front Plant Sci*. 11;6:1218.
  26. Jha, Saroj K., Manisha Sharma, Girdhar K. Pandey (2016) Role of Cyclic Nucleotide Gated Channels in Stress Management in Plants. *Current Genomics*, 2016, 17, 315-329.
  27. Yadav, Akhilesh K., Alka Shankar, Saroj K. Jha, Poonam Kanwar, Amita Pandey and Girdhar K. Pandey (2015) A rice tonoplast calcium exchanger, OsCCX2 mediates Ca<sup>2+</sup>/cation transport in yeast. *Scientific Reports* 26;5:17117.
  28. Singh, Amarjeet, Amita Pandey, Ashish K. Srivastava, Lam-Son Phan Tran, Girdhar K Pandey (2015) Plant protein phosphatases 2C: from genomic diversity to functional multiplicity and importance in stress management. *Crit Rev Biotechnol*. 18:1-13.
  29. Pandey, Girdhar K., Poonam Kanwar, Amarjeet Singh, Leonie Steinhorst, Amita Pandey, Akhilesh K. Yadav, Indu Tokas, Sibaji Sanyal, Beom-Gi Kim, Sung Chul Lee, Yong Hwa Cheong, Joerg Kudla, Sheng Luan (2015) CBL-interacting protein kinase, CIPK21, regulates osmotic and salt stress responses in Arabidopsis. *Plant Physiol*. 169(1):780-92.
  30. Shankar, Alka, Nisha Agrawal, Manisha Sharma, Amita Pandey and Girdhar K. Pandey (2015) Role of Protein Tyrosine Phosphatases in Plants. *Current Genomics*, 2015, Vol. 16, No. 4, 224-236.
  31. Sanyal, Sibaji K., Amita Pandey, Girdhar K. Pandey (2015) The CBL-CIPK signaling module in plants: a mechanistic perspective. *Physiol Plant*. 2015 May 7. doi: 10.1111/ppl.12344.
  32. Singh, Amarjeet, Nikita Bhatnagar, Amita Pandey, Girdhar K. Pandey (2015) Plant phospholipase C family: Regulation and functional role in lipid signaling. *Cell Calcium*. pii: S0143-4160(15)00066-4. doi: 10.1016/j.ceca.2015.04.003.
  33. Singh, Amarjeet, Saroj K. Jha, Jayram Bagri, Girdhar K. Pandey (2015) ABA Inducible Rice Protein Phosphatase 2C Confers ABA Insensitivity and Abiotic Stress Tolerance in Arabidopsis. *PLoS One*. 2015 Apr 17;10(4):e0125168.
  34. Kanwar, Poonam, Sibaji K. Sanyal, Indu Tokas, Akhilesh K. Yadav, Amita Pandey, Sanjay Kapoor, Girdhar K. Pandey (2014) Comprehensive structural, interaction and expression analysis of CBL and CIPK complement during abiotic stresses and development in rice. *Cell Calcium*, <http://dx.doi.org/10.1016/j.ceca.2014.05.003>.
  35. Sharma, Manisha, Amita Pandey, Girdhar K Pandey (2014)  $\beta$ -catenin in Plants and Animals: Common Players but Different Pathways. *Frontiers in Plant Science- Plant Genetic and Genomics*, 10;5:143. doi: 10.3389/fpls.2014.00143.
  36. Shankar, Alka, Ashish Kumar Srivastava, Akhilesh K. Yadav, Manisha Sharma, Amita Pandey, Vaibhavi V. Raut, Mirnal K. Das, Penna Suprasanna, Girdhar K. Pandey (2014) Whole Genome Transcriptome



Analysis of Rice Seedling Reveal Alterations in Ca<sup>2+</sup> Ion Signaling and Homeostasis in Response to Ca<sup>2+</sup> Deficiency. *Cell Calcium* 55: 155-165.

37. Sharma, Manisha, Amarjeet Singh, Alka Shankar, Amita Pandey, Vinay Baranwal, Sanjay Kapoor, Akhilesh K Tyagi, Girdhar K Pandey (2014) Comprehensive Expression Analysis of Rice Armadillo Gene Family During Abiotic Stress and Development. *DNA Research* 6 Jan 2014 PMID: 24398598.
38. Singh, Amarjeet, Poonam Kanwar , Akhilesh K. Yadav, Manali Mishra, Saroj K. Jha, Vinay Baranwal, Amita Pandey, Sanjay Kapoor, Akhilesh K. Tyagi, Girdhar K. Pandey. Genome-wide expressional and functional analysis of calcium transport elements during abiotic stress and development in rice. *FEBS J.* 2013 Nov 29. doi: 10.1111/febs.12656, PMID: 24286292.
39. Shankar, Alka, Amarjeet Singh, Poonam Kanwar, Ashish Kumar Srivastava, Amita Pandey, Penna Suprasanna, Sanjay Kapoor, Girdhar K. Pandey. Gene Expression Analysis of Rice Seedling Under Potassium Deprivation Reveals Major Changes in Metabolism and Signaling Components 2013. *PLoS ONE* 8(7): e70321. doi:10.1371/journal.pone.0070321.
40. Mishra, Manali, Poonam Kanwar, Amarjeet Singh, Amita Pandey, Sanjay Kapoor, Girdhar K. Pandey. Plant Omics: Genome-wide Analysis of ABA Repressor1 (ABR1) Related Genes in Rice During Abiotic Stress and Development. 2013. *OMICS: Journal of Integrative Biology*, 17: 439-450.
41. Singh, Amarjeet, Poonam Kanwar, Amita Pandey, Akhilesh K. Tyagi, Sudhir K. Sopory, Sanjay Kapoor, Girdhar K. Pandey. 2013. Comprehensive Genomic Analysis and Expression Profiling of Phospholipase C gene family during Abiotic Stresses and Development in Rice. *PLoS One* Apr 30;8(4):e62494.
42. Singh, Amarjeet, Vinay Baranwal, Alka Shankar, Poonam Kanwar, Rajiev Ranjan, Sandeep Yadav, Amita Pandey, Sanjay Kapoor, Girdhar K. Pandey. 2012. Rice phospholipase A superfamily: organization, phylogenetic and expression analysis during abiotic stresses and development. *PLoS One* 2012 7(2).
43. Singh, Amarjeet, Amita Pandey, Girdhar K. Pandey. 2012. Phospholipase D in stress activated signaling lipid signaling in plants. *Plant Stress* ; 6 (1): 10-17.
44. Yadav, Akhilesh K., Amita Pandey, Girdhar K. Pandey. 2012. Calcium Homeostasis: Role of CAXs Transporters in Plant Signaling. *Plant Stress*; 6 (1): 60-69.
45. Sharma, Manisha, Amita Pandey, Girdhar K. Pandey. Role of Plant U-BOX (PUB) Protein in Stress and Development. *Plant Stress*; 7(1):1-9.
46. Shanmugam, Thiruvankadam, Manisha Sharma, Amita Pandey, Girdhar K. Pandey. 2012. Small GTPases: Rho of Plant (ROP) in Development and Stress Signaling. *Plant Stress*; 7(1): 10-15.
47. Shanker, Alka, Amita Pandey, Girdhar K. Pandey. 2013. WRKY Transcription Factor: Role in Abiotic and Biotic Stress. *Plant Stress* 2013; 7(1): 26-34.
48. Singh, Amarjeet, and Girdhar K. Pandey. 2012. Protein phosphatases: a genomic outlook to understand the function in plants. *J. Plant Biochem. Biotechnol.* 2012 DOI 10.1007/s13562-012-0150-1.
49. Singh, Amarjeet, Amita Pandey, Vinay Baranwal, Sanjay Kapoor, Girdhar K. Pandey. 2012. Comprehensive Expression Analysis of Rice Phospholipase D Gene Family During Abiotic Stresses and Development. *Plant Signaling & Behavior.* 2012; 7:7, 1–8.
50. Singh, Amarjeet, Vinay Baranwal , Alka Shankar, Poonam Kanwar, Rajeev Ranjan, Sandeep Yadav, Amita Pandey, Sanjay Kapoor, Girdhar K. Pandey. 2012. Rice Phospholipase A Superfamily: Organization, Phylogenetic and Expression Analysis during Abiotic Stresses and Development. *PLoS One*;7(2):e30947.
51. Singh, Amarjeet, Jitender Giri , Sanjay Kapoor, Akhilesh K. Tyagi, Girdhar K. Pandey. 2010. Protein phosphatase complement in rice: genome-wide identification and transcriptional analysis under abiotic stress conditions and reproductive development. *BMC Genomics.* 11(1): 435. PMID: 20637108.
52. Das, Ritika and Girdhar K Pandey. 2010. Expressional Analysis and Role of Calcium Sensing Kinases in Abiotic Stress Signaling. *Current Genomics.* 11(1): 2-13.
53. Cheong, Yong Hwa, Sun Jin Sung, Beom-Gi Kim, Girdhar K Pandey, Ju-Sik Cho, Kyung-Nam Kim and Sheng Luan. 2010. Constitutive overexpression of the calcium sensor *CBL5* confers osmotic or drought stress tolerance in *Arabidopsis*. *Mol Cells.* 29(2): 159-65.
54. Mishra, Manali, Ritika Das and Girdhar K Pandey. 2009. Role of ethylene responsive factors (ERFs) in abiotic stress mediated signaling in plants. *eJournal of Biological Sciences.* 1(1): 133-146.
55. Li, Le-Gong, Lubomir N Sokolov, Yong-Hua Yang, Dong-Ping Li, Julie Ting, Girdhar K Pandey, and Sheng Luan. 2008. A Mitochondrial Magnesium Transporter Functions in Arabidopsis Pollen Development. *Molecular Plant.* 1(4):

675-685.

56. Mahajan, Shilpi, Girdhar K Pandey and Narendra Tuteja. 2008. Calcium- and salt-stress signaling in plants: Shedding light on SOS pathway. *Arch Biochem Biophys.* 471 (2): 146-158.
57. Pandey, Girdhar K. 2008. Emergence of a Novel Calcium Signaling Pathway in Plants: CBL-CIPK Signaling Network. *Physiol. Mol. Biol. Plants.* 14(1 &2): 51-68.
58. Pandey, Girdhar K, John J Grant, Yong Hwa Cheong, Beom-Gi Kim, Le Gong Li, and Sheng Luan. 2007. Calcineurin-B-Like Protein CBL9 Interacts with Target Kinase CIPK3 in the Regulation of ABA Response in Seed Germination. *Mol. Plant.* 1(2): 238-248.
59. Cheong , Yong Hwa, Girdhar K Pandey, John J Grant, Oliver Batistic , Legong Li , Beom-Gi Kim, Sung-Chul Lee, Joerg Kudla and Sheng Luan. 2007. Two calcineurin B-like calcium sensors, interacting with protein kinase CIPK23, regulate leaf transpiration and root potassium uptake in Arabidopsis. *Plant J.* 52(2): 223-239.
60. Lee, Sung Chul, Wan-Zhi Lan, Beom-Gi Kim, Legong Li, Yong Hwa Cheong, Girdhar K Pandey, Guihua Lu, Bob B Buchanan and Sheng Luan. 2007. A protein phosphorylation/ dephosphorylation network regulates a plant potassium channel. *Proc. Natl. Acad. Sci. U S A.* 104(40): 15959-15964.
61. Kim, Beom-Gi, R Waadt , Yong Hwa Cheong, Girdhar K Pandey, Jose R Dominguez-Solis, Stefanie Schultke , Sung Chul Lee, Joerg Kudla and Sheng Luan. 2007. The calcium sensor CBL10 mediates salt tolerance by regulating ion homeostasis in Arabidopsis. *Plant J.* Sep 6, 2007.
62. Pandey, Girdhar K, Yong Hwa Cheong, Beom-Gi Kim, John J Grant, Legong Li and Sheng Luan. 2007. CIPK9: a calcium sensor-interacting protein kinase required for low-potassium tolerance in Arabidopsis. *Cell Res.* 17(5): 411-421.
63. Pandey, Girdhar K, Amita Pandey, Vanga S Reddy, Renu Deswal, Alok Bhattacharya, and Sudhir K Sopory. 2006. Antisense expression of a gene encoding a calcium binding protein in transgenic tobacco leads to an altered morphology and enhanced chlorophyll. *J. Biosci.* 32(2): 251-260.
64. D'Angelo, Cecilia, Stefan Weinl, Oliver Batistic, Girdhar K Pandey, Yong Hwa Cheong, Veronica Albrecht, Sheng Luan, Ralph Bock and Jörg Kudla. 2006. Alternative complex formation of the Ca<sup>2+</sup>-regulated protein kinase CIPK1 controls abscisic acid-dependent and independent stress responses in Arabidopsis. *Plant J.* 48(6): 857-872.
65. Li, Legong, Beom-Gi Kim , Yong Hwa Cheong, Girdhar K. Pandey and Sheng Luan. 2006. A Ca<sup>2+</sup> signaling pathway regulates a K<sup>+</sup> channel for low-K response in Arabidopsis. *Proc Natl Acad Sci U S A.* 103(33): 12625-12630.
66. Pandey, Girdhar K, John J Grant , Yong Hwa Cheong, Beom Gi Kim, Legong Li and Sheng Luan. 2005. ABR1, an AP2-Domain Transcription Factor that Functions as a Repressor of ABA Response in Arabidopsis. *Plant Physiology.* 139(3): 1185-1193.
67. Pandey, Girdhar K, Kyung-Nam Kim, Yong Hwa Cheong, John J Grant, Legong Li, Wendy Hung, Cecilia D'Angelo, Stefan Weinl, Joerg Kudla and Sheng Luan. 2004. The calcium sensor CBL9 modulates ABA sensitivity and biosynthesis in Arabidopsis. *Plant Cell.* 16(7): 1912-1924.
68. Pandey, Girdhar K, Yong Hwa Cheong, Kyung-Nam Kim, Rajeev Gupta, John J Grant, and Sheng Luan. 2003. *CBL1*, a calcium sensor that differentially regulates salt, drought, ABA, and cold responses in Arabidopsis. *Plant Cell.* 15(8): 1833-1845.
69. Kim, Kyung-Nam, Yong Hwa Cheong, John J Grant, Girdhar K Pandey and Sheng Luan. 2003. *CIPK3*, a calcium sensor-associated protein kinase that regulate abscisic acid and cold signal transduction in Arabidopsis. *Plant Cell.* 15(2): 1-15.
70. Li, Legong, Zengyong He, Girdhar K Pandey, Tomofusa Tsuchiya and Sheng Luan. 2002. Functional cloning and characterization of a plant efflux carrier for multidrug and heavy metal detoxification. *J. Bio. Chem.* 277(7): 5360-5366.
71. Pandey, Girdhar K, M K Reddy, Sudhir K Sopory and Sneha Singla-Pareek. 2002. Calcium homeostasis in plants: Role of calcium binding proteins in abiotic stress tolerance. *Ind. J. Biotech.* 1(1): 135-157.
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73. Deswal, Renu, Girdhar K Pandey, Meena R Chandok, Nagander Yadav, Alok Bhattacharya, Sudhir K Sopory. 2000. A novel protein kinase from *Brassica juncea* stimulated by a protozoan calcium binding protein: Purification and partial characterization. *Eur. J. Biochem.* 267(11): 3181-3188.

#### **Other Publications**

74. Sanyal SK and Pandey GK (2017) How plants transmit signals through alternate routes during stress conditions? CBL-CIPK mediated calcium signaling. Atlas of Science, <http://atlasofscience.org>.
75. Agrawal AV and Pandey GK (2017) A dual specificity protein phosphatase and redox homeostasis in plants. Atlas of Science, <http://atlasofscience.org>.
76. Jha SK, Pandey GK (2017) Emerging roles of Cyclic Nucleotide Gated Channels in Plants. Atlas of Science, <http://atlasofscience.org>.
77. Sharma M and Pandey GK (2017) Abiotic stress signaling in plants: functional genomics intervention. Atlas of Science, <http://atlasofscience.org>.
78. Sanyal SK and Pandey GK (2017) A messenger and its disciples: Spreading stress messages in plants through Ca<sup>2+</sup>-CBL-CIPK network. Atlas of Science, <http://atlasofscience.org>.
79. Singh A and Pandey GK (2016) Phospholipase C break membrane lipid during plant adaptation under stress. Atlas of Science, <http://atlasofscience.org>.

#### **Book/Volume Edited**

80. Pandey GK (2018) Genomics and functional genomics of stress-mediated signaling in plants Vol I & Vol. II, Current Genomics Vol 18 and 19, ISSN: 1389-2029.
81. Pandey, Girdhar K. (2016) Mechanism of hormone signaling under stress, Wiley-Blackwell, USA, ISBN13: 9781118888964.
82. Pandey, Girdhar K., Manoj Prasad, Amita Pandey and Maik Boehmer (2016) Abiotic Stress Signaling in Plants: Functional Genomic Intervention, Special issue in Plant Physiology Section, Frontier in Plant Sciences.
83. Pandey, Girdhar K. Elucidation of biotic stress signaling in plants: Functional Genomics perspective, Vol. 1&2. Springer+Business media, New York, ISBN: 978-1-4939-2210-9.
84. Pandey, Girdhar K. Manisha Sharma, Amita Pandey, Thiruvankadam Shanmugam (2014). GTPases: Versatile regulator of signal transduction in plants. Springerbrief in Plant Sciences. ISBN-13: 978-3319116105.
85. Pandey, Girdhar K., Poonam Kanwar, Amita Pandey (2014). Global Comparative Analysis of CBL-CIPK Gene Families in Plants. SpringerBriefs in Plant Science. ISBN-13: 978-3319090771.
86. Pandey, Amita and Girdhar K. Pandey (2014). The UNC-53 mediated interactome: Analysis of its Role in the Generation of the *C. elegans* Connectome. Springerbrief in Neuroscience. Springer Heidelberg, Book ISBN: 978-3-319-07827-4.
87. Pandey, Girdhar K. Plant Stress, Guest Editor, Vol. 6 & 7, Special Issue1, 2012, 2013; Global Science Books, ISSN 1749-0349, ISBN 978-4-907060-07-7

#### **Book chapter**

88. Sanyal, Sibaji K., Satyajeet Rao, Lokesh K. Mishra, Manisha Sharma, Girdhar K. Pandey (2016) Plant Stress Responses Mediated by CBL-CIPK Phosphorylation Network. Enzymes. 2016;40:31-64.
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  96. Sharma, Chesta, Amita Pandey and Girdhar K. Pandey · 2011. Role of Calcium in Stress Mediated Signaling in Plants. In: Calcium Signaling, Editor: Masayoshi Yamaguchi, ISBN: 978-1-61324-313-8 ©2011 Nova Science Publishers, Inc.
  97. Pandey, Girdhar K, Akhilesh K Yadav, Poonam Kanwar and Narendra Tuteja. 2010. Role of Calcium in Regulating Potassium-Sodium Homeostasis and Nutrition Signaling under Stress condition. In: *Plant Stress* 4 (Special Issue 2), 94-103 ©2010 Global Science Books.
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#### **Conference Presentations/Invited Talks**

1. Pandey, Girdhar K. 2019. How calcium regulates phosphorylation-dephosphorylation network? K<sup>+</sup> deficiency stress signaling in plants International conference on Role of Genetics, Epigenetics, Environment and Nutrition towards plants, animal and Human health under climate change (GEENPAHH2019), 22-24 Feb 2019.
2. Pandey, Girdhar K. 2019. What we are learning from molecular biology research? National symposia on Recent advances in biological sciences, Shivaji College, New Delhi, 10 April 2019.
3. Pandey, Girdhar K. 2018. How calcium signaling regulates oxidative stress responses in Arabidopsis? Role of CIPK-VDAC module. Climate Resilient Open Partnership for Food Security (CROP-FS), World Universities Network, ICGEB-JNU, New Delhi, 7-8 Dec 2018.
4. Pandey, Girdhar K. 2018. Role of Armadillo/U-box proteins in plants: Utilization for development of stress tolerance. International Plant Physiology Congress, CSIR-NBRI, Lucknow, UP, India, 2-5 Dec 2018.
5. Pandey, Girdhar K. 2018. Towards functional genomics of calcium-mediated signaling in plants under stress conditions. Refresher course in Life Sciences for University and College Teachers, Centre for Professional Development in Higher Education (CPDHE), UGC-HRDC, University of Delhi, 28<sup>th</sup> July 2018.
6. Pandey, Girdhar K. 2018. Phytooglobins, mineral nutrient deficiency and abiotic stress in plants: What we are learning from functional genomic approach? International conference on Plant Genetics and Genomics:



- Next Gen Crops for Sustainable Agriculture, Chandigarh, India, 19-20 July 2018.
7. Pandey, Girdhar K. 2018. Functional Genomics of Armadillo/U-box proteins in plants: Utilization for development of stress tolerance. DAE-BRNS Life Science Sumposium 2018 (Frontier in Sustainable Agriculture), Bhabha Atomic Research Center, Mumbai, 26-28 April 2018.
  8. Pandey, Girdhar K. 2018. A Story of Phosphorylation-Dephosphorylation Switch in  $K^+$  Starvation Conditions in Plants: Signalling Mediated by  $Ca^{2+}$ -CBL-CIPK Module. Department of Botany, Calcutta University, 27 March 2018.
  9. Pandey, Girdhar K. 2018. Understanding ABA signaling mediated by  $Ca^{2+}$ -CBL-CIPK module in Arabidopsis. Department of Botany, Savitribai Phule Pune University, Pune, Maharashtra, 1<sup>st</sup> March 2018.
  10. Pandey, Girdhar K. 2018. Progress toward functional genomics of stress signaling in plants. Teaching and learning skill in plant molecular biology, Department of Botany, Savitribai Phule Pune University, Pune, Maharashtra, 1<sup>st</sup> March 2018.
  11. Pandey, Girdhar K. 2018. A story of ABA, calcium and CBL-CIPK: Stress signaling perspective. UGC-SAP workshop symposium, University of Delhi South Campus, New Delhi, 27<sup>th</sup> Feb 2018.
  12. Pandey, Girdhar K. 2018. From genomic to functional genomics: Stress signaling perspective. Delonix 18, Department of Botany, Deen Dayal Upadhyay College, Delhi University, New Delhi, 21 Feb 2018.
  13. Pandey, Girdhar K. 2017. How phosphorylation-dephosphorylation switch regulates  $K^+$  deprivation stress signalling in plants? Understanding Plant Abiotic Stress: The Omic way, An India-Egypt workshop, 18 December 2017, University of Delhi South Campus, New Delhi-110021.
  14. Pandey, Girdhar K. 2017. OsPUB75, an Armadillo/U-box protein interacts with a GSK3 kinase and function as a negative regulator of abiotic stress conditions. National Conference on Basic Biology is the Core of Biotechnology Department of Bioscience and Biotechnology, Banasthali University, 30-31 October, 2017.
  15. Pandey, Girdhar K. 2017. From genomic to functional genomic of plant protein phosphatases in abiotic stress. International Conference of Plant Genetic and Genomics (AgriGenomic India), Chandigarh, 20 July 2017.
  16. Pandey, Girdhar K. 2017. What we are learning from the functional genomics of abiotic stress? Rice protein phosphatases. Salt-Soil Agricultural Center, Institute of Agricultural Resources and Environment Jiangsu Academy of Agricultural Sciences, Nanjing, Jiangsu, China, 11 July 2017.
  17. Pandey, Girdhar K. 2017. Calcium mediated signaling in plants: Interplay of kinases and phosphatases during  $K^+$  deprivation stress. School of Plant Sciences & Food Security Faculty of Life Sciences, Tel Aviv University, Israel, 25 May 2017.
  18. Pandey, Girdhar K. 2017. Role of calcium mediated CBL-CIPK module in regulation of ABA responses in plants. BioSpark-2017, School of Life Sciences, Jawaharlal Nehru University, New Delhi-110067, March 2017.
  19. Pandey, Girdhar K. 2017. How oxidative stress responses are regulated in Arabidopsis? Story of a  $Ca^{2+}$  modulated kinase and mitochondrial gatekeeper module. International Symposium on Plant Biotechnology for Crop Improvement, IIT-Guwahati, Assam, India 20-21-January 2017.
  20. Pandey, Girdhar K. 2017. How a  $Ca^{2+}$  regulated kinase modulate oxidative stress responses in Arabidopsis? Role of CIPK-VDAC module. Shanghai Center for Plant Stress Biology, Shanghai Institute of Biological Sciences, Shanghai, China, 13 January 2017.
  21. Pandey, Girdhar K. 2017. New insights of oxidative stress responses in Plant: Story of a  $Ca^{2+}$  modulated kinase and mitochondrial gatekeeper module. Jiangsu Academy of Agricultural Sciences, Nanjing, Jiangsu, China, 11 January 2017.
  22. Pandey, Girdhar K. 2017. How calcium mediated signaling regulate ABA responses in Arabidopsis? Role of CBL9-CIPK3-ABR1 module. 85<sup>th</sup> Annual meeting of Society of Biological Chemist of India, 22 November 2016, CSIR-CFTR, Mysuru.
  23. Pandey, Girdhar K. 2016. Regulation of mineral nutrient deficiency and biotic stress responses by non-symbiotic hemoglobins. Molecular Biology of Stress Responses in Photoautotrophs November 14, 2016, Indira Gandhi National Tribal University, Amarkantak, MP.
  24. Pandey, Girdhar K. 2016. What we are learning from Functional Genomics of Stress Signaling in plants?

- 2<sup>nd</sup> Refresher Course in Life Sciences & Biotechnology October 25<sup>th</sup>, 2016 at HRDC, JNU, New Delhi.
25. Pandey, Girdhar K. 2016. K<sup>+</sup> Sensing and Signaling in Plants: Role of Phosphorylation-dephosphorylation Switch. BioEpoch-2016, School of Biotechnology, Jawaharlal Nehru University, New Delhi, India, 15 March 2016.
  26. Pandey, Girdhar K. 2016. Genomics to functional genomics of stress signaling in plants. Hindustan College of Science and Technology, Farha, Mathura, UP, 1 Feb 2016.
  27. Pandey, Girdhar K. 2015. How phosphorylation-dephosphorylation regulate K<sup>+</sup> deprivation stress signaling in plants? Shangjai Center for Plant Stress Biology, Shanghai Institute of Biological Sciences, Shanghai, China, 25 December 2015.
  28. Pandey, Girdhar K. 2015. What we learn from genomics and functional genomics of abiotic stress? A story of protein phosphatases in rice. School of Life Sciences, Nanjing University, Nanjing, China, 23 December 2015.
  29. Pandey, Girdhar K. 2015. A new frontier of calcium signaling in plants: Abiotic stress regulation by CBL-CIPK pathway. Jiangsu Academy of Agricultural Sciences, Nanjing, Jiangsu, China, 21 December 2015.
  30. Pandey, Girdhar K. 2015. Importance of protein phosphorylation and dephosphorylation in plants: Role in abiotic stress. Institute of Agribiotechnology, Jiangsu Academy of Agricultural Sciences, Nanjing, Jiangsu, China, 18 December 2015.
  31. Pandey, Girdhar K. 2015. CBL-interacting protein kinase, CIPK21, regulates osmotic and salt stress responses in Arabidopsis. International Plant Physiology Congress (IPPC), Jawaharlal Nehru University, New Delhi, India, 11-14 December 2015.
  32. Pandey, Girdhar K. 2015. Interplay of kinases and phosphatases during K<sup>+</sup> deprivation stress and signaling in plant. International symposium and annual meeting of Korean Society for Applied Biological Chemistry, Pyeongchang Campus Seoul National University, Pyeongchang, South Korea, 18 August 2015.
  33. Pandey, Girdhar K. 2015. Role of phosphorylation and dephosphorylation in K<sup>+</sup> deprivation and abiotic stress and signaling in plant. Korea Research Institute of Bioscience & Biotechnology, Gwahankro 125, Yuseonggu, Daejeon, 305-806, South Korea, 19 August 2015.
  34. Pandey, Girdhar K. 2015. A journey from genomics to functional genomics: Protein phosphatases in abiotic stress responses in rice. Department of Molecular Breeding, National Academy of Agricultural Science, Jeonju 560-500, South Korea, 20 August 2015.
  35. Pandey, Girdhar K. 2015. Negative and positive regulator of stress signaling: A rice protein phosphatase 2C is key regulator of ABA and abiotic stress responses. National conference on climate change: Impact, adaptation, mitigation and future challenges in India perspective, Conference Center, Delhi University, 02 and 03 March 2015.
  36. Pandey, Girdhar K. 2014. CBL-CIPK mediated phosphorylation-dephosphorylation regulates K<sup>+</sup> deprivation signaling and responses in plant. National Conference of Plant Physiology (NCP-2014) held at the College of Agriculture, Orissa University of Agriculture and Technology, Bhubaneswar, Orissa, India., 23 November 2014.
  37. Pandey, Girdhar K. 2014. Understanding signal transduction pathways: Forefront of calcium signaling. Department of Biotechnology, Sher-e-Kashmir University of Agriculture and Technology, Suhama, Srinagar, Jammu and Kashmir, India. 9 June 2014.
  38. Pandey, Girdhar K. 2014. Negative regulation of ABA signaling and positive regulation of biotic stresses by a rice protein phosphatase 2C. International Symposium on Plant Signaling and Behaviour, 7-10 March, 2014, Department of Botany, Delhi University, New Delhi, India.
  39. Pandey, Girdhar K. 2013. Expression and functional analysis of Calcium transport elements in rice during biotic stress. 11<sup>th</sup> International Symposium on Rice Functional Genomics-Sustaining Food and Nutrition Security, New Delhi, India-Nov 20-23, 2013.
  40. Pandey Girdhar K. 2013 Calcium Signaling in Plants: New Paradigm and Crossroad, Department of Plant and Microbial Biology, University of California, Berkeley, California, USA, 22 March 2013.
  41. Pandey Girdhar K. 2012. Elucidation of molecular basis of potassium signaling in plants: Involvement of calcium mediated CBL-CIPK network. College of Life Sciences, Capital Normal University, Beijing, China, 31<sup>st</sup> October 2012.

42. Pandey, Girdhar K. 2011. Role of calcium signaling in plants: Interplay of CBL-CIPK network. Invited talk presented at the *Institut für Biologie und Biotechnologie der Pflanzen, Schlossgarten 3, Wilhem WestFelisch University, Münster, Germany*, 16 August 2011.
43. Pandey, Girdhar K. 2011. Signal Transduction Mechanisms and Forefronts of Calcium Signaling. Invited talk at the *Current Trends in Life Sciences: The Indian Scenario, The CPDHE-UGC Academic Staff College, Department of Zoology, University of Delhi*, Refresher course in Life Sciences organized by Prof. A. K. Singh, Dr. Sharmila Basu-Modak and Dr. R. Rajagopal, 8 March 2011.
44. Pandey, Girdhar K. 2011. A new facet of calcium signaling in plant: CBL-CIPK network in potassium deficient conditions. Invited talk presented at the University of Delhi South Campus New Delhi-110021 on National Science Day Symposium, 28th February 2011.
45. Pandey, Girdhar K. 2009. Functional analysis of CBL-CIPK signaling network under abiotic and nutrient deficient signaling: In search of alternative mechanistic signaling pathway. Invited talk presented at the *National Academy of Agricultural Science (Invited Talk)*, Seodun-dong Suwon, Republic of Korea, May 8, 2009.
46. Pandey, Girdhar K. 2008. A Novel Calcium Signaling Pathway in Plants: Emergence of CBL-CIPK cascade.  
Invited talk presented at the *UGC-SAP WORKSHOP 2008- Trends in Molecular Biology and Biotechnology*,  
Department of Plant Molecular Biology, University of Delhi South Campus, New Delhi, March 18, 2008.
47. Pandey, Girdhar K. 2005. Functional Dissection of Intricate Network of Calcium Signaling in plants. Invited talk presented at the *Department of Horticulture and Center for Gene Research and Biotechnology*), Oregon State University, Corvallis, Oregon, October 5, 2005.
48. Pandey, Girdhar K. 2005. Role of protein phosphatase and Calcium sensors in abiotic and biotic stress in plants. Invited talk presented at the Department of Biological Sciences, Montana State University, Montana, July 30, 2005.
49. Pandey, Girdhar K. 2005. Genetics of Calcium Signaling in Arabidopsis under Abiotic and Biotic Stress condition. Presentation at the Department of Biochemistry, Cornell University, Ithaca, New York, August 1, 2005.
50. Pandey, Girdhar K. 2003. Abiotic stress and Calcium: Functional analysis of CBL-CIPK gene family in stress signaling cascades. Paper presented at the, School of Life Science, JNU, New Delhi, December 5, 2003.
51. Pandey, Girdhar K. 2003. Calcium signaling in plant: Functional analysis of CBL-CIPK gene family in stress signaling cascades. Invited presented at the *International Center for Genetic Engineering and Biotechnology*, December 10, 2003, New Delhi.
52. Pandey, G K, Veena, R Deswal, V Siva Reddy, A Bhattacharya and S K Sopory. 2000. Development of stress tolerance by manipulating the expression of calcium binding protein in transgenic tobacco. Paper presented at the *TEBIO 1<sup>st</sup> International Exhibition and Congress on Biotechnology*, May 24-26, 2000, Fiera Di Genova, Italy.

#### Professional Societies Memberships

##### **Membership**

Life member of Indian Society of Plant Physiology, India

Life Member, Indian Society of Cell biologist, India

Life Member, Society of Biological Chemist of India

Member, American Society for Plant Biologist (ASPB), USA.

Fellow of Marquis Who's who in Science and engineering 2007- life long, USA.

Fellow of Marquis Who's who in America 2008-2014, USA.

Fellow of Marquis Who's who in World 2008-2014, USA.

#### Projects (Major Grants / Collaborations)

##### Ongoing project

1. **Name of project:** Detail expression analysis of *CIPK9* and identification of upstream regulatory sequences responsive to potassium deficiency in Arabidopsis, **SERB, India.**
2. **Name of project:** Targeted genome editing of calcium signaling components to develop stress tolerant rice, **DBT, India.**
3. **Name of the project:** Functional characterization of AtPUB2 (Plant U-Box/ARMADILLO) under oxidative stress conditions in Arabidopsis thaliana, **CSIR, India.**

##### Completed project

4. **Name of project:** Identification of K<sup>+</sup> sensing machinery in rice: **DBT, India.**
5. **Name of project:** Functional characterization of Arabidopsis CCX 1 and 2 (Ca<sup>2+</sup> Cation exchangers) under abiotic stress conditions: **DBT, India.**
6. **Name of project:** Functional characterization of rice CCX2 (Ca<sup>2+</sup> cation exchangers) under abiotic stress conditions. Funding agency: **DST, India.**
7. **Name of the project:** Functional analysis of rice calcineurin B-like associated kinase, OsCIPK25 in abiotic stress conditions. Funding agency: **CSIR, India.**
8. **Name of the project:** Enhancement of starch accumulation and grain filling by dual specificity protein phosphatase AtDSP4 in Arabidopsis and OsPP42 in rice. Funding agency: **DBT, India.**
9. **Name of the Project:** Investigation of alternate salt and osmotic stress signaling pathway in Arabidopsis mediated by calcineurin B-like associated protein kinase 21. Funding agency: **DST-India.**
10. **Name of Project:** Functional characterization of voltage-dependent anion channel (VDAC) gene family in Arabidopsis under oxidative stress and potassium deprived conditions. Funding agency: **BRNS-DAE-India.**
11. **Name of Project:** Characterizing novel globins across species and deciphering their stress response and interacting partner: An integrated, holistic approach for function elucidation. Funding Agency: **DU/DST-Purse Grant- India.**
12. **Name of Project:** Calcium, Potassium and nitrate Nutrition dependent transcriptomic profiling in rice and its Biotechnological Implication, Funding Agency: **DBT –Rapid grant for young investigator (RGYI)-India.**
13. **Name of Project:** Elucidation of novel AP2-domain line (ERF; ethylene response factor) genes from rice involved in ABA and abiotic stress signaling, Funding Agency: **UGC- India.**
14. **Name of Project:** RNAi mediated down-regulation of CBL-CIPKs and phosphatases in rice in abiotic stress conditions and their biotechnological implication, Funding Agency: **DBT- India.**
15. **Name of Project:** To determine the molecular basis of potassium nutrition/ Signaling and functional analysis of this calcium mediated CBL-CIPK network under potassium deficient condition. Funding Agency: **DBT- India.**
16. **Name of Project:** Identification and functional characterization of targets of CIPKs, a calcineurin B-like associated protein kinase, in Arabidopsis in ABA-mediated abiotic stress signaling, Funding Agency: **DST-India.**



**17. Name of Project:** Identification and expression analysis of abiotic stress and reproductive development regulated phosphatases in rice, Funding Agency: **CSIR-India.**

**Other Details**

***Patents***

1. Pandey, Girdhar K, Kyeng-Nam Kim, Rajeev Gupta and Sheng Luan. 2007. Methods for enhancing a plant stress response (United States Patent 7,250,555, granted in 2007).
2. Pandey, Girdhar K, Vanga Siva Reddy, Renu Deswal, Alok Bhattachaya and Sudhir K Sopory. 2004. Transgenic plants with enhanced chlorophyll content and salt tolerance (United States Patent 6,791,009, granted in 2004).

***Editorial Board***

1. Editorial Board member, Scientific Reports
2. Academic Editor of PLoS One
3. Associate Editor, Plant Molecular Biology Reporter
4. Editorial Board member of Plant Signaling and Behavior
5. Editorial Board member of Current Biotechnology
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7. Editor, Physiology and Molecular Biology of Plant
8. Associate Editor, Dataset in Science
9. Associate Editor, Journal of Biomedical Science and Engineering
10. Editorial Board member, Journal of Molecular Biology and Molecular Imaging

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(Signature & Stamp  
of Head of the Department)