

Curriculum Vitae

Jian-Kang Zhu

Education and Postgraduate Training

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
Beijing Agricultural University	B.S.	1987	Soils & Ag. Chem
University of California, Riverside	M.S.	1990	Botany
Purdue University	PhD.	1993	Plant Physiology
Rockefeller University	Post-Doc	1994	Molecular Biology

Positions

- 2010- Distinguished Professor, Depts. of Biochemistry, and Horticulture and Landscape Architecture, Purdue University
- 2012- Director, Shanghai Center for Plant Stress Biology, Chinese Academy of Sciences
- 2009-2011 Director, Plant Stress Genomics Research Center, KAUST, KSA
- 2007-2010 Jane Johnson Chair Professor, Dept. of Botany and Plant Sciences, University of California, Riverside
- 2004-2006 Director, Institute for Integrative Genome Biology, University of California, Riverside
- 2004-2009 Presidential Chair Professor, Dept. of Botany and Plant Sciences, University of California, Riverside
- 2000-2003 Professor, Dept. of Plant Sciences, University of Arizona
- 1999-2000 Associate Professor, Dept. of Plant Sciences, University of Arizona
- 1996-1998 Assistant Professor, Dept. of Plant Sciences, University of Arizona
- 1995 Assistant Professor, Dept. of Botany & Microbiology, Auburn University

Honors

- 2012 Listed in Top Authors in Biology,
<http://academic.research.microsoft.com/RankList?entitytype=2&topDomainID=4&subDomainID=0&last=0&start=1&end=100>
- 2010 Member of the US National Academy of Sciences
- 2008 Most cited plant scientist in the USA during 1997-2007
as reported by Thomson Reuters at http://sciencewatch.com/dr/sci/08/jun22-08_4/
- 2005 Distinguished Agricultural Alumni Award, Purdue University
- 2004 Fellow of the American Association for the Advancement of Science
- 2003 Charles Albert Shull Award, American Society of Plant Biologists
- 2002 Researcher of the Year, College of Agriculture and Life Sciences, University of Arizona
- 1994 Life Sciences Research Foundation Fellow

Other Experience and Professional Memberships

- 2000-Present Associate Editor, Plant Molecular Biology
- 2012- Advisory Board Member, Molecular Plant
- 2005-2010 Associate Editor, Molecular Genetics and Genomics
- 2004-2005 Associate Editor, Plant Physiology
- 2000-2003 Monitoring Editor, Plant Physiology
- 2008-Present Editorial Board Member, SCIENCE CHINA Life Sciences
- 2003-Present Editor, Chinese Science Bulletin
- 2001-Present Editorial Board Member, Integrative Plant Biology
- 2001-2007 Editorial Advisory Board, The Plant Journal
- 1997-2010 Panel and Study Section Member, NIH (1 yr), NSF (2 yrs), DOE (1 yr), USDA (2 yrs)

2010-Present	Scientific Advisory Board Member, Institute of Plant and Microbial Biology, Academia Sinica, Taiwan
2010-Present	Advisory Board Member, Systems and Synthetic Agro-biotech Center, Gyeongsang National University, Korea
2009	International Review Committee, Chinese Academy of Sciences
2000-2005	Scientific Advisory Board Member, Institute of Bioagricultural Sciences, Academia Sinica, Taiwan
1999-2001	International Committee Member, American Society of Plant Biologists
2004-2008	Chief Scientific Advisor, National 973 Project on Drought Tolerance, Ministry of Science and Technology of China
2002-2008	Co-founder and Scientific Advisor, FuturaGene Inc.
2007-Present	Co-founder and Scientific Advisor, D-Helix Inc.

Publications

1. Zhu X, Zhu JK. 2013. Double repression in jasmonate-mediated plant defense. *Mol Cell* 50:459-460.
2. Xue L, Wang P, Wang L, Renzi E, Radivojac P, Tang H, Arnold R, Zhu JK, Tao WA. 2013. Quantitative measurement of phosphoproteome response to osmotic stress in Arabidopsis based on Library-Assisted eXtracted Ion Chromatogram (LAXIC). *Mol Cell Proteomics* In press.
3. Zhang H, Ma ZY, Zeng L, Tanaka K, Zhang CJ, Ma J, Bai G, Wang P, Zhang SW, Liu ZW, Cai T, Tang K, Liu R, Shi X, He XJ, Zhu JK. 2013. DTF1 is a core component of RNA-directed DNA methylation and may assist in the recruitment of Pol IV. *Proc Natl Acad Sci U S A*. 110:8290-8295.
4. Zhang CJ, Zhou JX, Liu J, Ma ZY, Zhang SW, Dou K, Huang HW, Cai T, Liu R, Zhu JK, He XJ. 2013. The splicing machinery promotes RNA-directed DNA methylation and transcriptional silencing in Arabidopsis. *EMBO J*. 32:1128-1140.
5. Luhua S, Hegie A, Suzuki N, Shulaev E, Luo X, Cenariu D, Ma V, Kao S, Lim J, Gunay MB, Oosumi T, Lee SC, Harper J, Cushman J, Gollery M, Girke T, Bailey-Serres J, Stevenson RA, Zhu JK, Mittler R. 2013. Linking genes of unknown function with abiotic stress responses by high-throughput phenotype screening. *Physiol Plant*. In press.
6. Zhang X, Lii Y, Wu Z, Polishko A, Zhang H, Chinnusamy V, Lonardi S, Zhu JK, Liu R, Jin H. 2013. Mechanisms of Small RNA Generation from Cis-NATs in Response to Environmental and Developmental Cues. *Mol Plant* 6:704-715.
7. Zhu X, Feng Y, Liang G, Liu N, Zhu JK. 2013. Aequorin-based luminescence imaging reveals stimulus-and tissue-specific Ca²⁺ dynamics in Arabidopsis plants. *Mol Plant* 6:444-455.
8. Arisz SA, van Wijk R, Roels W, Zhu JK, Haring MA, Munnik T. 2013. Rapid phosphatidic acid accumulation in response to low temperature stress in Arabidopsis is generated through diacylglycerol kinase. *Front Plant Sci*. 4:1.
9. Li L, Atef A, Piatek A, Ali Z, Piatek M, Aoudia M, Sharakou A, Mahjoub A, Wang G, Khan S, Fedoroff NV, Zhu JK, Mahfouz M. 2013. Characterization and DNA-binding specificities of Ralstonia TAL-like effectors. *Mol Plant* In press.

10. Ben Chaabane S, Liu R, Chinnusamy V, Kwon Y, Park JH, Kim SY, Zhu JK, Yang SW, Lee BH. 2013. STA1, an Arabidopsis pre-mRNA processing factor 6 homolog, is a new player involved in miRNA biogenesis. *Nucleic Acids Res.* 41:1984-1997.
11. Zhang H, Zhu JK. 2012. Active DNA demethylation in plants and animals. *Cold Spring Harb. Symp Quant Biol.* In press.
12. Zhan X, Wang B, Li H, Liu R, Kalia RK, Zhu JK, Chinnusamy V. 2012. Arabidopsis proline-rich protein important for development and abiotic stress tolerance is involved in microRNA biogenesis. *Proc Natl Acad Sci USA* 109:18198-18203.
13. Deng D, Yin P, Yan C, Pan X, Gong X, Qi S, Xie T, Mahfouz M, Zhu JK, Yan N, Shi Y. 2012. Recognition of methylated DNA by TAL effectors. *Cell Res.* 22:1502-1504.
14. Barrera-Figueroa BE, Gao L, Wu Z, Zhou X, Zhu J, Jin H, Liu R, Zhu JK. 2012. High throughput sequencing reveals novel and abiotic stress-regulated microRNAs in the inflorescences of rice. *BMC Plant Biol.* 12:132.
15. Batelli G, Massarelli I, Van Oosten M, Nurcato R, Vannini C, Raimondi G, Leone A, Zhu JK, Maggio A, Grillo S. 2012. Asg1 is a stress-inducible gene which increases stomatal resistance in salt stressed potato. *J Plant Physiol.* 169:1849-1857.
16. Fujii H, Zhu JK. 2012. Osmotic stress signaling via protein kinases. *Cell Mol Life Sci.* 69:3165-3176.
17. Zhang H, Zhu JK. 2012. Seeing the forest for the trees: a wide perspective on RNA-directed DNA methylation. *Genes Dev.* 26:1769-1773.
18. Wu HJ, Zhang Z, Wang JY, Oh DH, Dassanayake M, Liu B, Huang Q, Sun HX, Xia R, Wu Y, Wang YN, Yang Z, Liu Y, Zhang W, Zhang H, Chu J, Yan C, Fang S, Zhang J, Wang Y, Zhang F, Wang G, Lee SY, Cheeseman JM, Yang B, Li B, Min J, Yang L, Wang J, Chu C, Chen SY, Bohnert HJ, Zhu JK, Wang XJ, Xie Q. 2012. Insights into salt tolerance from the genome of *Thellungiella salsuginea*. *Proc Natl Acad Sci USA.* 109:12219-12224.
19. Li X, Qian W, Zhao Y, Wang C, Shen J, Zhu JK, Gong Z. 2012. Antisilencing role of the RNA-directed DNA methylation pathway and a histone acetyltransferase in Arabidopsis. *Proc Natl Acad Sci USA.* 109:11425-11430.
20. Martínez-Macías MI, Qian W, Miki D, Pontes O, Liu Y, Tang K, Liu R, Morales-Ruiz T, Ariza RR, Roldán-Arjona T, Zhu JK. 2012. A DNA 3' phosphatase functions in active DNA demethylation in Arabidopsis. *Mol. Cell* 45:357-370.
21. Qian W, Miki D, Zhang H, Liu Y, Zhang X, Tang K, Kan Y, La H, Li X, Li S, Zhu X, Shi X, Zhang K, Pontes O, Chen X, Liu R, Gong Z, Zhu JK. 2012. A histone acetyltransferase regulates active DNA demethylation in Arabidopsis. *Science* 336:1445-1448.
22. Deng D, Yan C, Pan X, Mahfouz M, Wang J, Zhu JK, Shi Y, Yan N. 2012. Structural basis for sequence-specific recognition of DNA by TAL Effectors. *Science* 335:720-723.
23. Soon FF, Ng LM, Zhou XE, West GM, Kovach A, Tan MH, Suino-Powell KM, He Y, Xu Y, Chalmers MJ, Brunzelle JS, Zhang H, Yang H, Jiang H, Li J, Yong EL, Cutler S, Zhu JK, Griffin PR, Melcher K, Xu HE. 2012. Molecular mimicry regulates ABA signaling by SnRK2 kinases and PP2C phosphatases. *Science* 335:85-88.

24. Zhou XE, Soon FF, Ng LM, Kovach A, Suino-Powell KM, Li J, Yong EL, Zhu JK, Xu HE, Melcher K. 2012. Catalytic mechanism and kinase interactions of ABA-signaling PP2C phosphatases. *Plant Signal Behav.* 7:581-588.
25. Kwon Y, Yu SI, Lee H, Yim JH, Zhu JK, Lee BH. 2012. Arabidopsis serine decarboxylase mutants implicate the roles of ethanolamine in plant growth and development. *Int J Mol Sci.* 13:3176-3188.
26. Zhang H, Deng X, Miki D, Cutler S, La H, Hou YJ, Oh J, Zhu JK. 2012. Sulfamethazine suppresses epigenetic silencing in Arabidopsis by impairing folate synthesis. *Plant Cell* 24:1230-1241.
27. Zhang X, Xia J, Lii YE, Barrera-Figueroa BE, Zhou X, Gao S, Lu L, Niu D, Chen Z, Leung C, Wong T, Zhang H, Guo J, Li Y, Liu R, Liang W, Zhu JK, Zhang W, Jin H. 2012. Genome-wide analysis of plant nat-siRNAs reveals insights into their distribution, biogenesis and function. *Genome Biol.* 13:R20.
28. Li L, Piatek MJ, Atef A, Piatek A, Wibowo A, Fang X, Sabir JS, Zhu JK, Mahfouz MM. 2012. Rapid and highly efficient construction of TALE-based transcriptional regulators and nucleases for genome modification. *Plant Mol Biol.* 78:407-416.
29. Li Z, Li Z, Gao X, Chinnusamy V, Bressan R, Wang ZX, Zhu JK, Wu JW, Liu D. 2012. ROP11 GTPase negatively regulates ABA signaling by protecting ABI1 phosphatase activity from inhibition by the ABA receptor RCAR1/PYL9 in Arabidopsis. *J Integr Plant Biol.* 54:180-188.
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31. Mahfouz MM, Li L, Piatek M, Fang X, Mansour H, Bangarusamy DK, Zhu JK. 2012. Targeted transcriptional repression using a chimeric TALE-SRDX repressor protein. *Plant Mol Biol.* 78:311-321.
32. Khraiwesh B, Zhu JK, Zhu J. 2012. Role of miRNAs and siRNAs in biotic and abiotic stress responses of plants. *Biochim Biophys Acta.* 1819:137-148.
33. Ng LM, Soon FF, Zhou XE, West GM, Kovach A, Suino-Powell KM, Chalmers MJ, Li J, Yong EL, Zhu JK, Griffin PR, Melcher K, Xu HE. 2011. Structural basis for basal activity and autoactivation of abscisic acid (ABA) signaling SnRK2 kinases. *Proc Natl Acad Sci USA.* 108:21259-21264.
34. Liu J, Bai G, Zhang C, Chen W, Zhou J, Zhang S, Chen Q, Deng X, He XJ, Zhu JK. 2011. An atypical component of RNA-directed DNA methylation machinery has both DNA methylation-dependent and -independent roles in locus-specific transcriptional gene silencing. *Cell Res.* 21:1691-1700.
35. Yunta C, Martínez-Ripoll M, Zhu JK, Albert A. 2011. The structure of *Arabidopsis thaliana* OST1 provides insights into the kinase regulation mechanism in response to osmotic stress. *J Mol Biol.* 414:135-144.
36. Barrera-Figueroa BE, Gao L, Diop NN, Wu Z, Ehlers JD, Roberts PA, Close TJ, Zhu JK, Liu R. 2011. Identification and comparative analysis of drought-associated microRNAs in two cowpea genotypes. *BMC Plant Biol.* 11:127.

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38. Dassanayake M, Oh DH, Haas JS, Hernandez A, Hong H, Ali S, Yun DJ, Bressan RA, Zhu JK, Bohnert HJ, Cheeseman JM. 2011. The genome of the extremophile crucifer *Thellungiella parvula*. *Nat Genet*. 43:913-918.
39. Jiang C, Mithani A, Gan X, Belfield EJ, Klingler JP, Zhu JK, Ragoussis J, Mott R, Harberd NP. 2011. Regenerant Arabidopsis lineages display a distinct genome-wide spectrum of mutations conferring variant phenotypes. *Curr Biol*. 21:1385-1390.
40. Wang ZY, Xiong L, Li W, Zhu JK, Zhu J. 2011. The plant cuticle is required for osmotic stress regulation of abscisic acid biosynthesis and osmotic stress tolerance in Arabidopsis. *Plant Cell* 23:1971-1984.
41. Bennetzen JL, Zhu JK. 2011. Epigenetics of the epigenome. *Curr Opin Plant Biol*. 14:113-115.
42. Zhang H, Zhu JK. 2011. RNA-directed DNA methylation. *Curr Opin Plant Biol*. 14:142-147.
43. Zhao M, Ding H, Zhu JK, Zhang F, Li WX. 2011. Involvement of miR169 in the nitrogen-starvation responses in Arabidopsis. *New Phytol*. 190:906-915.
44. He XJ, Chen T, Zhu JK. 2011. Regulation and function of DNA methylation in plants and animals. *Cell Res*. 21:442-465.
45. Mahfouz MM, Li L, Shamimuzzaman M, Wibowo A, Fang X, Zhu JK. 2011. De novo-engineered transcription activator-like effector (TALE) hybrid nuclease with novel DNA binding specificity creates double-strand breaks. *Proc. Natl. Acad. Sci. USA* 108:2623-2628.
46. Quintero FJ, Martinez-Atienza J, Villalta I, Jiang X, Kim WY, Ali Z, Fujii H, Mendoza I, Yun DJ, Zhu JK, Pardo JM. 2011. Activation of the plasma membrane Na/H antiporter Salt-Overly-Sensitive 1 (SOS1) by phosphorylation of an auto-inhibitory C-terminal domain. *Proc. Natl. Acad. Sci. USA* 108:2611-2616.
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48. Oh DH, Dassanayake M, Haas JS, Kropornika A, Wright C, d'Urzo MP, Hong H, Ali S, Hernandez A, Lambert GM, Inan G, Galbraith DW, Bressan RA, Yun DJ, Zhu JK, Cheeseman JM, Bohnert HJ. 2010. Genome structures and halophyte-specific gene expression of the extremophile *Thellungiella parvula* in comparison with *Thellungiella salsuginea* (*Thellungiella halophila*) and Arabidopsis. *Plant Physiol*. 154:1040-1052.
49. Gao Z, Liu HL, Daxinger L, Pontes O, He X, Qian W, Lin H, Xie M, Lorkovic ZJ, Zhang S, Miki D, Zhan X, Pontier D, Lagrange T, Jin H, Matzke AJ, Matzke M, Pikaard CS, Zhu JK. 2010. An RNA polymerase II- and AGO4-associated protein acts in RNA-directed DNA methylation. *Nature* 465:106-109.
50. Ren Z, Zheng Z, Chinnusamy V, Zhu J, Cui X, Iida K, Zhu JK. 2010. RAS1, a quantitative trait locus for salt tolerance and ABA sensitivity in Arabidopsis. *Proc. Natl. Acad. Sci. USA* 107:5669-5674.

51. Melcher K, Ng LM, Zhou XE, Soon FF, Xu Y, Chinnusamy V, Suino-Powell KM, Kovach A, Li J, Yong EL, Zhu JK, Xu HE. 2010. Identification and Mechanism of ABA Receptor Antagonism. *Nat. Struct. Mol. Biol.* 17:1102-1108.
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53. Jin H, Zhu JK. 2010. How many ways are there to generate small RNAs? *Mol. Cell* 38:775-777.
54. Klingler JP, Batelli G, Zhu JK. 2010. ABA receptors: the START of a new paradigm in phytohormone signalling. *J. Exp. Bot.* 61:3199-3210.
55. Ren X, Chen Z, Liu Y, Zhang H, Zhang M, Liu Q, Hong X, Zhu JK, Gong Z. 2010. ABO3, a WRKY transcription factor, mediates plant responses to abscisic acid and drought tolerance in Arabidopsis. *Plant J.* 63:417-429.
56. Jin H, Zhu JK. 2010. A viral suppressor protein inhibits host RNA silencing by hooking up with Argonautes. *Genes Dev.* 24:853-856.
57. Law JA, Ausin I, Johnson LM, Vashisht AA, Zhu JK, Wohlschlegel JA, Jacobsen SE. 2010. A Protein Complex Required for Polymerase V Transcripts and RNA- Directed DNA Methylation in Arabidopsis. *Curr. Biol.* 20:951-956.
58. Zhu J, Ha Lee B, Dellinger M, Cui X, Zhang C, Wu S, Nothnagel EA, Zhu JK. 2010. A cellulose synthase-like protein is required for osmotic stress tolerance in Arabidopsis. *Plant J.* 63:128-140.
59. Chinnusamy V, Zhu JK, Sunkar R. 2010. Gene regulation during cold stress acclimation in plants. *Methods Mol Biol.* 639:39-55.
60. Yao Y, Ni Z, Peng H, Sun F, Xin M, Sunkar R, Zhu JK, Sun Q. 2010. Non-coding small RNAs responsive to abiotic stress in wheat (*Triticum aestivum* L.). *Funct. Integr. Genomics.* 10:187-190.
61. Fedoroff NV, Battisti DS, Beachy RN, Cooper PJ, Fischhoff DA, Hodges CN, Knauf VC, Lobell D, Mazur BJ, Molden D, Reynolds MP, Ronald PC, Rosegrant MW, Sanchez PA, Vonshak A, Zhu JK. 2010. Radically rethinking agriculture for the 21st century. *Science* 327:833-834.
62. Zheng Z, Xing Y, He XJ, Li W, Hu Y, Yadav SK, Oh J, Zhu JK. 2010. An SGS3-like protein functions in RNA-directed DNA methylation and transcriptional gene silencing in Arabidopsis. *Plant J.* 62:92-99.
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- Cutler SR, Zhu JK, Xu HE. 2009. A gate-latch-lock mechanism for hormone signalling by abscisic acid receptors. *Nature* 462:602-608.
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71. Bertorello AM, Zhu JK. 2009. SIK1/SOS2 networks: decoding sodium signals via calcium-responsive protein kinase pathways. *Pflugers Arch.* 458:613-619.
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73. Chinnusamy V, Zhu JK. 2009. Epigenetic regulation of stress responses in plants. *Curr. Opin. Plant Biol.* 12:133-139.
74. Fujii H, Zhu JK. 2009. An autophosphorylation site of the protein kinase SOS2 is important for salt tolerance in Arabidopsis. *Mol. Plant* 2:183-190.
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