

CURRICULUM VITAE

June M. Kwak

1. PERSONAL INFORMATION

a. Appointment and Professional address

Associate Professor & Group Leader 01/2014 – present
Department of New Biology/DGIST, Center for Plant Aging Research/IBS, 333 Techno
Jungang-daero, Daegu 711-873, Republic of Korea
Phone: +82-53-785-1860, Fax: +82-53-785-1809
E-mail: jkwak@dgist.ac.kr; jkwak@umd.edu
URL: <http://www.kwaklab.org/umd>

b. Education

Ph. D.	1997	Department of Life Sciences, POSTECH, Korea
M. S.	1993	Department of Life Sciences, POSTECH, Korea
B. S.	1987	Department of Biochemistry, Yonsei University, Korea

c. Professional Experience

01/2014 – present:	Associate Professor with Tenure Department of New Biology DGIST Republic of Korea
01/2014 – present:	Group Leader Center for Plant Aging Research Institute for Basic Science Republic of Korea
01/2014 – 02/2016:	Adjunct Professor Department of Cell Biology and Molecular Genetics University of Maryland, College Park
08/2010 – 01/2014:	Associate Professor with Tenure Department of Cell Biology and Molecular Genetics University of Maryland, College Park
07/2010 – present:	Affiliate Associate Professor Department of Plant Science and Landscape Architecture University of Maryland, College Park
06/2010 – 05/2013:	Adjunct Associate Professor Department of Plant Molecular Systems Biotechnology Crop Biotech Institute Kyung Hee University Republic of Korea
08/2003 – 07/2010:	Assistant Professor Department of Cell Biology and Molecular Genetics University of Maryland, College Park
07/2002 – 08/2003:	Senior Research Associate Division of Biological Sciences, University of California, San Diego
05/1997 – 06/2002:	Postdoctoral Fellow of Human Frontier Science Program & Korea Research Foundation Division of Biological Sciences, University of California, San Diego
12/1988 – 02/1991:	Research Fellow Center for Pharmaceutical Research, Dae Woong Pharmaceutical Inc., Korea

2. RESEARCH, SCHOLARLY, & CREATIVE ACTIVITIES

a. Publications

[†]Denotes corresponding author.

(6,617 times cited, as of December 2014; avg citations, 114.1 — Google Scholar)

(4,546 times cited, as of March 2015; avg citations, 89.1; h-index, 29 — Web of Sci)

[†]Denotes corresponding author.

*Denotes equal contributor.

1. Y Lee, YJ Kim, M-H Kim, JM Kwak (2016) MAPK cascades in guard cell signal transduction. **Front. Plant Sci.** 7: 80. Doi: 10.3389/fpls.2016.00080
2. D Kong, H-C Hu, E Okuma, Y Lee, HS Lee, S Munemasa, D Cho, L Pedoeim, B Rodriguez, C. Zhu, W Im, Y Murata, Z-M Pei, JM Kwak (2016) L-Met activates *Arabidopsis* GLR Ca^{2+} channels upstream of ROS and regulates stomatal movement. **Cell Reports** In revision.
3. M Zhu, G Monroe, Y Suhail, F Villiers, J Mullen, D Pater, F Hauser, BW Jeon, JS Bader, JM Kwak, JI Schroeder, JK McKay, SM Assmann (2016). Molecular and systems approaches towards drought-tolerant canola crops. **New Phytol.** In press.
4. Y Shang, C Dai, MM Lee, JM Kwak, K-H Nam (2015) BRI1-Associated Receptor Kinase 1 regulates guard cell ABA signaling mediated by Open Stomata 1 in *Arabidopsis*. **Mol. Plant.** 9: 447-460.
5. D Kong, C. Ju, A. Parihar, S Kim, D Cho, JM Kwak (2015) *Arabidopsis* glutamate receptor homolog AtGLR3.5 modulates cytosolic Ca^{2+} level to counteract effect of ABA in germination. **Plant Physiol.** 167: 1630-1642.
6. M Khokon, S Mohammad, F Jammes, W Ye, H Mohammad, M Uraji, Y Nakamura, I Mori, JM Kwak, Y Murata (2015) Two guard cell MAPKs, MPK9 and MPK12, function in methyl jasmonate-induced stomatal closure in *Arabidopsis thaliana*. **Plant Biol.**, 17: 946-952.
7. JH Hwang, DH Seo, BG Kang, JM Kwak and WT Kim (2015) Suppression of *Arabidopsis* AtPUB30 resulted in increased tolerance to salt stress during germination. **Plant Cell Rep.** 34: 277-289.
8. F Villiers, O Bastien and JM Kwak (2014) R. S. WebTool, a web server for random sampling-based significance evaluation of pairwise distances. **Nucleic Acids Res.**, 42 (W1): W198-W204. (n/a)
9. F Jammes, N Leonhardt, A Wasilewska, H Bousserouel, D Tran, A-A Véry, J-P Renou, A Vavasseur, JM Kwak, H Sentenac, F Bouteau and J Leung (2014) Acetylated 1,3-diaminopropane antagonizes abscisic acid-mediated stomatal closing in *Arabidopsis*. **Plant J.**, 79: 322-333. (2)
10. L Zhang, DP Foreman, PA Grant, B Shrestha, SA Moody, F Villiers, JM Kwak and A Vertes (2014) In situ metabolic analysis of single plant cells by capillary microsampling and electrospray ionization mass spectrometry with ion mobility separation. **Analyst** 139: 5079-5085. (n/a)
11. AM Jones, S Lalonde, CH Ho, M Xu, CH You, R Wang, Y Xuan, MI Sardi, S A Parsa, E Smith-Valle, G Pilot, R Pratelli, G Grossmann, BR Acharya, H-C Hu, F Villiers, K Takeda, SM Assmann, J Chen, JM Kwak, JI Schroeder, R Albert, SY Rhee and WB Frommer (2014) Border control – the membrane-based interaction of *Arabidopsis*. **Science** 344: 711-716 (6)
12. C Zhang, Q Xie, R Anderson, G Ng, N Seitz, CR McClung, JM McDowell, D Kong, JM Kwak and H Lu (2013) Crosstalk between the circadian clock and innate immunity in *Arabidopsis*. **PLoS Pathogen**, 9(6): e1003370. doi:10.1371/journal.ppat.1003370 (15).
13. JW Chung, D Shin, JM Kwak and J Seog (2013) Direct force measurement of single DNA:peptide interactions using atomic force microscopy. **J. Mol. Recog.**, 26: 268-275. (1)
14. [†]F. Villiers and JM Kwak (2013) Rapid apoplastic pH measurement of *Arabidopsis* leaves using a fluorescent dye. **Plant Sig. & Behav.** 8: e22587141-143 (n/a).
15. M Salam, F Jammes, M Hossain, W Ye, Y Nakamura, I Mori, JM Kwak and Y Murata (2013)

Two guard cell-preferential MAPKs, MPK9 and MPK12, regulate YEL signaling in Arabidopsis guard cells. *Plant Biol.* 15: 436-442. (9)

16. *D Cho, *F Villiers, L Kroniewicz, S Lee, Y Seo, K Hirschi, N Leonhardt and [†]JM Kwak (2012) Vacuolar CAX1 and CAX3 influence auxin transport in guard cells via regulation of apoplastic pH. *Plant Physiol.* 160: 1293-1302. (12)
17. DH Seo, MY Ryu, F Jammes, JH Hwang, M Turek, JM Kwak and WT Kim (2012) Roles of four Arabidopsis U-box E3 ubiquitin ligases in negative regulation of ABA-mediated drought stress response. *Plant Physiol.* 160: 556-568. (21)
18. M Salam, F Jammes, M Hossain, W Ye, Y Nakamura, I Mori, JM Kwak and Y Murata (2012) MAP Kinases, MPK9 and MPK12, regulate chitosan-induced stomatal closure. *Biosci. Biotech. Biochem.*, 76: 1785-1787. (8)
19. F Villiers and [†]JM Kwak (2012) Comparative genomics and molecular characterization of the maize PIN transporter family. *Front. Plant Sci.*, 3:43. Doi: 10.3389/fpls.2012.00043 (n/a)
20. F Jammes, X Yang, S Xiao and [†]JM Kwak (2011) Two Arabidopsis guard cell-preferential MAPK genes, *MPK9* and *MPK12*, function in biotic stress response. *Plant Sig & Behavior* 6: 1875-1878. (11)
21. F Jammes, H-C Hu, R Bouten, F Villiers and [†]JM Kwak (2011) Plant calcium-permeable channels. *FEBS J.* 278: 4262-4276. (24)
22. SM Huh, EK Noh, K Baem, B Jeon, H-C Hu, JM Kwak and O Park (2010) Arabidopsis annexins AnnAt1 and AnnAt4 interact with each other and function as negative regulators in drought and salt stress responses. *Plant Cell Physiol.* 51: 1499-1514. (29)
23. S Lalonde, A Sero, G Pilot, R Pratelli, MI Sardi, SA Parsa, D-Y Kim, BR Acharya, E Stein, H-C Hu, F Villiers, K Takeda, YS Han, Y Yang, J Chen, W Chiang, N Kato, D Loqué, SM Assmann, JM Kwak, SY Rhee, JI Schroeder and WB Frommer (2010) A membrane protein/ signaling protein interaction network for Arabidopsis version AMPv2. *Front. Physio.*, 1: 24. doi: 10.3389/fphys.2010.00024 (66)
24. F Jammes, CJ Song, D Shin, S Munemasa, K Takeda, D Gu, D Cho, S Lee, R Giordo, S Sritubtim, N Leonhardt, EB Ellis, Y Murata and [†]JM Kwak (2009) Two MAP kinases, *MPK9* and *MPK12*, are preferentially expressed in guard cells and positively regulate ROS-mediated ABA signaling. *Proc. Nat'l. Acad. Sci. USA*, 106: 20520-20525. (116)
25. *C Sirichandra, *D Gu, H-C Hu, M Davanture, S Lee, M Djaoui, B Valot, M Zivy, J Leung S Merlot and [†]JM Kwak (2009) Phosphorylation of the Arabidopsis AtrbohF NADPH oxidase by OST1 protein kinase. *FEBS Lett.* 583: 2982-2986. (195)
26. [†]D Cho, D Shin, B Jeon and [†]JM Kwak (2009) ROS-mediated ABA signaling. *J. Plant Biol.* 52: 102-113. (33)
27. D Cho, SA Kim, Y Murata, S Lee, S-K Jae, HG Nam and [†]JM Kwak (2009). Deregulated expression of a plant glutamate receptor homolog impairs long-term Ca²⁺-programmed stomatal closure. *Plant J.* 58: 437-449. (44)
28. [†]JM Kwak, P Mäser and [†]JI Schroeder, (2008) The Clickable Guard Cell, Version II: Interactive model of guard cell signal transduction mechanisms and pathways. In *The Arabidopsis Book*. Chang, C., Graham, I., Last, R., Leyser, O., McClung, M. and Weinig, C. eds., American Society of Plant Biologists. doi: 10.1199/tab.0111 <http://www.aspb.org/publications/arabidopsis/> (highlighted at *Science Signaling*, http://stke.sciencemag.org/cgi/ul/sigtransUI;CAT_5)
29. SK Cho, MY Ryu, C Song, JM Kwak and WT Kim (2008) Arabidopsis PUB22 and PUB23 are homologous U-Box E3 ubiquitin ligase that play combinatory roles in the response to drought stress. *Plant Cell*, 20: 1899-1914. (85)
30. B Jeon, J-U Hwang, Y Fu, G Li, F Bao, D Cho, JM Kwak, Z Yang and Y Lee (2008). The Arabidopsis small GTP binding protein ROP2 is activated by light in guard cells and inhibits light-induced stomatal opening. *Plant Cell*, 20: 75-87. (28)
31. Y Lee, Y-W Kim, B Jeon, K-Y Park, SJ Suh, J Seo, J., JM Kwak, E Martinoia, I Hwang and Y Lee (2007) Phosphatidylinositol 4,5 bis-phosphate is important for stomatal opening. *Plant J.*

52: 803-816. (70)

32. S Padmanaban, JM Kwak, X Li and H Sze (2007) Participation of an endomembrane cation/H⁺ exchanger AtCHX20 in osmoregulation of guard cells. **Plant Physiol.** 144, 82-93. (51)
33. KH Lee, HL Piao, H-Y Kim, SM Choi, F Jiang, W Hartung, I Hwang, JM Kwak, I-J Lee and I Hwang (2006). Activation of glucosidase via stress-induced polymerization rapidly increases active pools of abscisic acid. **Cell**, 126, 1109-1120. (261)
34. [†]JM Kwak, V Ngyuen and JI Schroeder (2006) The role of reactive oxygen species in hormonal responses. **Plant Physiol.**, 141: 323-329. (205)
35. IC Mori, Y Murata, Y Yang, S Munemasa, Y-F Wang, S Andreoli, H Tiriack, J Alonso, JF Harper, JR Ecker, JM Kwak and JI Schroeder (2006). Calcium-dependent protein kinases function in S-type anion- and Ca²⁺ permeable-channel regulation in Arabidopsis guard cells. **PLoS Biol.**, 4: e327 doi:10.1371/journal.pbio.0040327 (318)
36. D Suhita, AS Raghavendra, JM Kwak and A Vavasseur (2004) Cytoplasmic pH alkalization precedes ROS production during methyl jasmonate- and abscisic acid-induced stomatal closure. **Plant Physiol.**, 134, 1536-1545. (220)
37. *N Leonhardt, *JM Kwak D Waner, G Leonhardt and JI Schroeder (2004) Genomic scale expression analyses of Arabidopsis guard cells and isolation of a recessive ABA hypersensitive PP2C mutant. **Plant Cell**, 16, 596-615. (390)
38. [†]JM Kwak, IC Mori, N Leonhardt, Z-M Pei, M-A Torres, J Dangl, R Bloom, S Bodde, JDG Jones and JI Schroeder (2003) NADPH oxidase *AtrbohD* and *AtrbohF* genes function in ROS-dependent ABA signaling in Arabidopsis. **EMBO J.**, 22, 2623-2633. (1007)
39. JH Jun, CS Kim, D Cho, JM Kwak, CM Ha, YS Park, BH Cho, DA Patton and HG Nam (2002) Random antisense cDNA mutagenesis as an efficient functional genomic approach in higher plants. **Planta**, 214, 668-674. (14)
40. V Hugouvieux, Y Murata, J Young, JM Kwak, D Mackesy and JI Schroeder (2002) Localization, ion channel regulation, and genetic interactions during abscisic acid signaling of the nuclear mRNA cap-binding protein, ABH1. **Plant Physiol.**, 130, 1276-1287. (72)
41. *J-Y Jung, Y-W *Kim, *JM Kwak, J-U Hwang, J Young, JI Schroeder, I Hwang and Y Lee (2002) Phosphatidylinositol 3- and 4-phosphate are required for normal stomatal movements. **Plant Cell**, 14, 2399-2412. (139)
42. JM Kwak, J Moon, Y Murata, K Kuchitsu, N Leonhardt, A DeLong and JI Schroeder (2002) Disruption of a guard cell-expressed protein phosphatase 2A regulatory subunit, *RCN1*, confers abscisic acid insensitivity in Arabidopsis. **Plant Cell**, 14, 2849-2861. (158)
43. V Hugouvieux, JM Kwak and JI Schroeder (2001) An mRNA cap binding protein, ABH1, modulates early abscisic acid signal transduction in Arabidopsis. **Cell**, 106, 477-487. (358)
44. [†]JM Kwak, Y Murata, VM Baizabal-Aguirre, J Merrill, M Wang, A Kemper, SD Hawke G Tallman and JI Schroeder (2001) Dominant negative guard cell K⁺ channel mutants reduce stomatal opening in Arabidopsis. **Plant Physiol.**, 127, 473-485. (125)
45. JI Schroeder, JM Kwak and GJ Allen (2001) Guard cell abscisic acid signaling and engineering drought hardiness in plants. **Nature**, 410: 327-330. (481)
46. JI Schroeder, GJ Allen, V Hugouvieux, JM Kwak and D. Waner (2001) Guard cell signal transduction. **Annu. Rev. Plant Biol.**, 52: 627-658. (811)
47. B Lacombe, D Becker, R Hedrich, R DeSalle, M Hollmann, JM Kwak, JI Schroeder, N Le Novère, HG Nam, EP Spalding, M Tester, FJ Turano, J Chiu and G Coruzzi (2001) The identity of plant glutamate receptors. **Science**, 292, 1486-1487. (142)
48. SA Kim, JM Kwak, S-K Jae, MH Wang and HG Nam (2001) Overexpression of the *AtGluR2* gene encoding an Arabidopsis homolog of mammalian glutamate receptors impairs calcium utilization and sensitivity to ionic stress in transgenic plants. **Plant Cell Physiol.**, 42, 74-84. (147)
49. GJ Allen, JM Kwak, SP Chu, J Lipios, RY Tsien, JF Harper and JI Schroeder (1999) Cameleon calcium indicator reports cytoplasmic calcium dynamics in *Arabidopsis* guard cells. **Plant J.**,

- 19, 735-747. (281)
50. E Kim, JM Kwak, N Uozumi and JI Schroeder (1998) *AtKUP1*: an Arabidopsis gene encoding high-affinity potassium transport activity. **Plant Cell**, 10, 51-62. (249)
 51. YS Kim, K Nosaka, D Downs, JM Kwak, D Park, IK Chung and HG Nam (1998) A Brassica cDNA encoding a bifunctional hydroxymethylpyrimidine phosphate kinase/thiamine phosphate pyrophosphorylase involved in thiamine biosynthesis. **Plant Mol. Biol.**, 37, 955-966. (28)
 52. SW Hong, JH Jeon, JM Kwak and HG Nam (1997) Identification of a receptor-like protein kinase gene rapidly induced by ABA and dehydration and high salt treatment in Arabidopsis *thaliana*. **Plant Physiol.**, 113, 1203-1212. (205)
 53. S Lee, S Suh, S Kim, RC Crain, JM Kwak, HG Nam and Y Lee (1997) Systemic elevation of phosphatidic acid and lysophospholipid levels in wounded plants. **Plant J.**, 12, 547-556. (154)
 54. JM Kwak, SA Kim, SK Lee, S-A Oh, C-H Byoun, JK Han and HG Nam (1997) Insulin-induced maturation of *Xenopus* oocytes is inhibited by microinjection of a *Brassica napus* cDNA clone with high similarity to a mammalian receptor for activated protein kinase C. **Planta**, 201, 245-251. (14)
 55. JM Kwak, SA Kim, SW Hong and HG Nam (1997) Evaluation of 515 expressed sequence tags obtained from guard cells of *Brassica campestris*. **Planta**, 202, 9-17. (48)
 56. PO Lim, JS Ryu, HJ Lee, U Lee, YS Park, JM Kwak, JK Choi and HG Nam (1997) Resistance to tobamoviruses in transgenic plants expressing the coat protein gene of pepper mild mottle virus. **Mol. Cells**, 7, 313-319. (7)
 57. SA Oh, JM Kwak, IC Kwun and HG Nam (1996) Rapid and transient induction of calmodulin-encoding gene(s) of *Brassica napus* by a touch stimulus. **Plant Cell Rep.**, 15, 586-590. (19)
 58. JM Kwak, SW Hong, SA Kim and HG Nam (1996) Identification of *Brassica napus* cDNA clone encoding a peptide highly related to the smallest and common subunit ABC10 β of RNA polymerases of *Saccharomyces cerevisiae*. **Mol. Cells**, 6, 726-730. (0)
 59. JM Kwak, SA Kim, YS Park, MS Soh, YJ Kim, IC Kwun and HG Nam (1996) Characterization of 475 expressed sequence tags generated from root cDNA clones of *Brassica napus* by single-pass sequencing. **Mol. Cells**, 6, 563-570. (4)
 60. YS Park, O Song, SW Hong, JM Kwak, MJ Cho and HG Nam (1995) Frequent in-frame length variations are found in the diverged simple repeat sequences of the protein-coding regions of two putative protein kinase genes of *Brassica napus*. **Plant Mol. Biol.**, 27, 829-833. (8)
 61. YS Park, O Song, JM Kwak, SW Hong, HH Lee and HG Nam (1994) Functional complementation of a yeast vesicular transport mutation *ypt1-1* by a *Brassica napus* cDNA clone encoding a small GTP-binding protein. **Plant Mol. Biol.**, 26, 1725-1735. (28)
 62. JM Kwak and HG Nam (1994) Generation of expressed sequence tags of *Brassica napus* by single-run partial sequencing of random cDNA clones. In *Automated DNA Sequencing and Analysis*. Adams, M. D., Fields, C. and Venter, J. C. eds., Academic Press, London, pp 120-122.
 63. CS Kim, JM Kwak, HG Nam, KC Kim and BH Cho (1994) Isolation and characterization of two cDNA clones that are rapidly induced during the wound response of *Arabidopsis thaliana*. **Plant Cell Rep.**, 13, 340-343. (31)
 64. YS Park, SW Hong, S-A Oh, JM Kwak, HH Lee and Nam, H. G. (1993) Two putative protein kinases from *Arabidopsis thaliana* contain highly acidic domains. **Plant Mol. Biol.**, 22, 614-624. (44)
 65. *YS Park, JM Kwak, OY Kwon, YS Kim, DS Lee, MJ Cho, HH Lee and HG Nam (1993) Generation of expressed sequence tags of random root cDNA clones of *Brassica napus* by single run partial sequencing. **Plant Physiol.**, 103, 359-370. (81)

Manuscripts submitted or in preparation

66. Y Shang, C Dai, M M Lee, J M Kwak and K H Nam (2015) Brassinosteroids and BRI1-Associated Receptor Kinase 1 regulate guard cell ABA signaling mediated by Open

Stomata 1 in Arabidopsis. Plant Physiol. Submitted.

67. *D Kong, *D Cho, H-C Hu, J Li, B W Jeon, S A Sidelnik, S Lee, S. Han, F. Wu, M Lee, M Lazzaro, Y He, HG Nam, [†]JM Kwak and ZM Pei (2014) Arabidopsis glutamate receptor homologs form heteromeric Ca²⁺ leak channels and govern basal cytosolic Ca²⁺ levels. *In preparation*.
68. Y Shang, JM Kwak, KH Nam (2014) BRI1-Associated kinase1 (BAK1) regulates ABA-induced stomatal closure through interaction with RPK1 in the Arabidopsis guard cells. *In preparation*.
69. F Villiers, J Jouhet, M Block, D. Seo, WT Kim, I Hwang, MS Kim and [†]JM Kwak Analysis of dynamic genetic and physiological changes in Arabidopsis undergoing long-term drought. *In preparation*
70. JC Koo, IC Lee, C Dai, K Verma, Y Kim, IH Lee, SH Choi, SJ Park, B-K Phee, [†]JM Kwak and [†]HG Nam Production and endocytosis of superoxide endosomes trigger age-dependent cell death in Arabidopsis. *In preparation*.
71. F. Jammes, M Salam, MA Hossain, M Uraji, Y Nakamura, IC Mori, JM Kwak and Y Murata Two guard cell-preferential MAPKs, MPK9 and MPK12, regulate MeJA signaling in Arabidopsis. *In preparation*.
72. F Jammes, D-X Zhang, D. Gu, H Jacobs, E Quach, I Hwang and [†]JM Kwak Crosstalk between light signaling and control of ABA homeostasis regulates stomatal development in Arabidopsis. *In preparation*

c. Talks, Abstracts, and Other Professional Papers Presented

i. Invited Talks at National and International Meetings

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|---|---------|
| 30. Annual Meeting of Japanese Society of Plant Biologists, Japan | 03/2016 |
| 29. Annual Meeting of Korean Society of Plant Biologists, Korea | 11/2015 |
| 28. International Conference of Korean Society of Molecular and Cellular Biology, Korea | 09/2015 |
| 27. IBS-Royal Society Conference, London, UK | 09/2015 |
| 26. IBS-Royal Society Conference, Seoul, Korea | 10/2014 |
| 25. Annual Meeting, Korean Society of Plant Biology | 10/2012 |
| 24. PGRP Awardee Meeting, Arlington, VA | 09/2012 |
| 23. US-Korea Conference 2012, Los Angeles, CA | 08/2012 |
| 22. Plant Calcium Signaling Symposium, Münster, Germany | 08/2010 |
| 21. 6 th International Conference on Nitric Oxide, Kyoto, Japan | 06/2010 |
| 20. 27 th Annual Meeting on Plant Protein Phosphorylation, MO | 05/2010 |
| 19. Annual Meeting of Japanese Society of Plant Physiologists, Japan | 03/2010 |
| 18. 3 rd Pan American Plant Membrane Biology Workshop, Mexico | 01/2010 |
| 17. 9 th International Plant Molecular Biology Congress, St. Louis, MO | 10/2009 |
| 16. Annual Meeting of American Society of Plant Biologists, HI | 07/2009 |
| 15. USDA Awardee Meeting: Genes to Products, MD. | 05/2009 |
| 14. Keystone Symposium: Plant Hormones and Signaling, CO | 02/2008 |
| 13. Annual Meeting of American Society of Plant Biologists, IL | 07/2007 |
| 12. 14 th International Workshop Plant Membrane Biology, Spain | 06/2007 |
| 11. Pan American Plant Membrane Biology Workshop, TX | 05/2006 |
| 10. 6 th Annual Arabidopsis Minisymposium, College Park, MD | 04/2005 |
| 9. Crop Functional Genomics Meeting, Korea | 04/2004 |
| 8. 21 st Annual Meeting of Mid Atlantic Plant Molecular Biology Society, MD | 08/2004 |
| 7. Annual Meeting of American Society of Plant Biologists, HI | 07/2003 |
| 6. 13 th International Conference on Arabidopsis Research, Spain | 06/2002 |
| 5. 21 st Annual Missouri Symposium: Protein De/Phosphorylation, MI | 05/2003 |
| 4. Workshop on Optimization of Water Use by Plants, Spain | 03/2003 |
| 3. 22 nd Symposium in Plant Biology: Frontiers of Plant Cell Biology, CA | 01/2003 |
| 2. 12 th International Workshop on Plant Membrane Biology, WI | 08/2001 |
| 1. 10 th International Conference on Arabidopsis Research, Australia | 07/1999 |

ii. Invited Seminars

99. China Agricultural University, China	09/2016
98. Shanxi Normal University, China	05/2016
97. Tokyo University of Science, Japan	03/2016
96. Huazhong Normal University, China	03/2015
95. POSTECH	01/2015
94. Northwest A & F University, China	11/2014
93. Korea University, Korea	11/2014
92. Korea Advanced Institute of Science and Technology	10/2014
91. Daegu University, Korea (Department of Biomedicine)	09/2014
90. DGIST, Korea (Department of New Biology)	04/2014
89. DGIST, Korea	03/2014
88. Chung Ang University, Korea	10/2013
87. Ajou University, Korea	10/2013
86. Han Yang University, Korea	10/2013
85. Seoul National University, Korea	10/2013
84. University of Kansas, Lawrence	09/2013
83. Korea Institute for Advanced Studies, Korea	06/2013
82. IBEB, CNRS-CEA, Cadarache, France	03/2013
81. URGV, INRA-CNRS, Evry, France	03/2013
80. University Pierre et Marie Curie (Paris 6)	02/2013
79. INRA, Versailles, France	02/2013
78. ISV, CNRS, Gif-sur-Yvette, France	02/2013
77. Florida International University, FL	12/2012
76. Valdosta State University, GA	11/2012
75. National Academy of Agricultural Science, RDA, Korea	10/2012
74. Seoul National University, Korea	10/2012
73. Kyung Hee University, Korea	10/2012
72. Gyeongsang National University, Korea	10/2012
71. CEA-CNRS, Grenoble, France	07/2012
70. Korea Research Institute of Bioscience and Biotechnology, Korea	06/2012
69. Sogang University, Korea (Department of Biology)	06/2012
68. Kangwon Nat'l University, Korea (Department of Biomedicine)	06/2012
67. Penn State University, PA (Plant Biology Program, Department of Plant Pathology)	11/2011
66. Korea Advanced Institute of Science and Technology, Korea (Department of Biological Sciences)	10/2011
65. Sungkyunkwan University (Department of Life Sciences), Korea	10/2011
64. Seoul National University (School of Agricultural Biotechnology), Korea	10/2011
63. Kangwon National University (Department of Biomedicine), Korea	09/2011
62. Yonsei University (Department of Biochemistry), Korea	09/2011
61. Chonnam National University, Korea (Department of Molecular Biology)	06/2011
60. Gwangju Institute of Science and Technology, Korea (Department of Life Sciences)	06/2011
59. Kunkuk University (Department of Molecular Life Sciences), Korea	06/2011
58. Ewha Women's University (Department of Life Science), Korea	06/2011
57. Proteome Tech, Korea	06/2011
56. University of Geneva, Switzerland (Depts. Cell Biology, Molecular Biology, and Botany and Plant Biology)	05/2011
55. Beltsville Agricultural Research Center, MD	05/2011

54.	Yonsei University (Department of Biology), Korea	09/2010
53.	Seoul National University (School of Agricultural Biotechnology), Korea	09/2010
52.	Pusan National University (Department of Molecular Biology), Korea	09/2010
51.	Kangwon National University (Department of Biochemistry), Korea	09/2010
50.	Pohang University of Sci. & Tech. (Division of Life Sciences), Korea	09/2010
49.	Korea University (School of Life Sciences and Biotechnology), Korea	06/2010
48.	Sookmyung Women's University (Dept. of Biological Sciences), Korea	06/2010
47.	University of Ulsan (Dept. of Biology), Korea	06/2010
46.	Kyung Hee University (Crop Biotechnology Center), Korea	06/2010
45.	Choong Nam National University (Dept. of Biology), Korea	06/2010
44.	National Institutes of Health (NIDDKD), MD	11/2009
43.	Monsanto Inc., MO	01/2008
42.	RIKEN (Plant Science Institute), Japan	06/2007
41.	Tokyo University of Science (Dept. of Applied Biol. Science), Japan	06/2007
40.	Pohang University of Sci. & Tech. (Division of Life Sciences), Korea	06/2007
39.	Kangwon National University (Department of Biochemistry), Korea	06/2007
38.	National Institute of Agricultural Biotechnology, Korea	06/2007
37.	Seoul National University (Department of Biological Sciences), Korea	06/2007
36.	Seoul National University (School of Agricultural Biotechnology), Korea	06/2007
35.	University of Maryland (Dept. of Plant Sci. & Landscape Arch.), MD	11/2006
34.	Howard University (Department of Biology), DC	02/2006
33.	University of North Carolina, Chapel Hill (Department of Biology), NC	10/2005
32.	Duke University (Department of Biology), NC	10/2005
31.	Ceres, Inc., CA	06/2005
30.	University of Delaware (Delaware Biotechnology Institute), DE	09/2005
29.	Virginia Tech (Department of Biochemistry), VA	03/2004
28.	Korea Research Institute of Bioscience and Biotechnology, Korea	04/2004
27.	Kyungbuk National University (Department of Biochemistry), Korea	04/2004
26.	Pohang University of Sci. & Tech. (Division of Life Sciences), Korea	04/2004
25.	Gyeongsang National University (Department of Microbiology), Korea	04/2004
24.	Gyeongsang National University (Department of Biochemistry), Korea	04/2004
23.	Samsung Advanced Institute of Technology, Korea	04/2004
22.	Ewha Women's University (Department of Biology), Korea	04/2004
21.	Sejong University (Department of Biology), Korea	04/2004
20.	Cold Spring Harbor Laboratory, NY	01/2003
19.	University of Texas (School of Biological Sciences), TX	01/2003
18.	University of Maryland (Department of Cell Biol. & Mol. Genet.), MD	02/2003
17.	Ohio State University (Department of Plant Biology), OH	02/2003
16.	University of Nevada (Department of Biochemistry), NV	02/2003
15.	Cornell University (Cornell Genomics Initiative), NY	02/2003
14.	Iowa State University (Department of Biochem. & Mol. Biol.), IA	03/2003
13.	University of Tennessee (Biochem. & Mol. Biol. Department), TN	03/2003
12.	University of Vermont (Department of Botany), VT	03/2003
11.	University of Illinois (Department of Crop Sciences), IL	03/2003
10.	The Salk Institute for Biological Studies, CA	03/2003
9.	University of Maryland (Molecular & Cell Biology Program), MD	09/2003
8.	Seoul National University (Department of Biology), Korea	06/2002
7.	Yonsei University (Biochemistry Department), Korea	06/2002
6.	Korea University (Department of Biology), Korea	06/2002
5.	Pohang University of Sci. & Tech. (Division of Life Sciences), Korea	06/2002
4.	Korea Research Institute of Bioscience and Biotechnology, Korea	06/2002
3.	Kumho Environment and Life Science Laboratory, Korea	06/2002
2.	Texas A&M University (Department of Biology), TX	02/2002
1.	University of Florida (Plant Molecular & Cellular Biology Program), FL	03/2002

d. Patents

1. Kwak, J. M., Cho, D. S., Kong, D. and Pei, Z-M (2012) Method that can improve calcium uptake and treat blossom-end rot symptom. (US patent, pending).
2. Kwak, J. M. and C. Song (2012) Guard cell-preferential protein kinases that regulate drought response. (US patent, pending).
3. Kwak, J. M., Kim, S. A, Schroeder, J. I. and Nam, H. G. (2012) Method for rational induction of drought resistance in plants: Suppression of an NMDA-like receptor. (US patent, pending).
4. Sze, H., Padmanaban, S. and Kwak, J. M. (2011) Guard cell-specific tool for molecular manipulation of drought tolerance/water loss in plants. (US patent, 7,993,926)
5. Schroeder, J. I., Hugouvieux, V. and Kwak, J. M. (2007) Modulations of abscisic acid signal transduction in plants. (US patent 7,199,285 B2).
6. Schroeder, J. I. and Kwak, J. M. (2003) Method to improve drought tolerance in plants. (US patent, 6,635,803 B1).
7. Nam, H. G., Kim, Y. S., Kwak, J. M. and Park, D. H. (2001) Method to isolate thiamine monophosphate pyrophosphorylase gene from rapeseed. (Korea patent, 0289777)

e. Grants and Contract

Current

1. Institute for Basic Science (Grant No: IBS-R013-G2) 01/2014 – present
Unraveling of plant growth and senescence program in response to everlasting environmental changes
\$ 1,400,000/year
Role: PI

Completed

1. USDA (Grant No: 2004-35100-14909) 08/2004 – 08/2008
Genetic dissection of ROS-mediated ABA signaling in guard cells
\$350,000
Role: PI
2. NSF (Grant No: MCB-0614203) 09/2006 – 08/2010
Genetic dissection of calcium oscillation-controlled cellular responses
\$480,000
Role: PI
3. NSF (Grant No: MCB-0618402) 09/2006 – 08/2011
Arabidopsis 2010: Towards a comprehensive Arabidopsis protein interactome map: Systems biology of the membrane proteins and signalosome
\$4,799,857 (\$694,829 to J. Kwak)
Role: co-PI (PI, W. Frommer)
4. USDA (Grant No: 2007-35100-18377) 09/2007 – 08/2011
Cellular mechanisms for rapid adjustment of ABA levels and its application to develop drought-tolerant crops
\$349,999
Role: PI
5. NSF (Grant No: MCB-0821250) 09/2008 – 08/2011
MRI: Acquisition of a Leica confocal microscope to develop a visual imaging center
\$464,846
Role: co-PI (PI, I. Mather)
6. NSF (Grant No: IOS-1025837) 09/2010 – 08/2015
TRMS: Cell-type specific networks in Brassica guard cell responses to drought

Co-PIs: S. M. Assmann, J. Bader, J. McKay, S. Peck, J. I. Schroeder
 \$5,109,278 (\$1,629,356 to J. Kwak)
 Role: PI

7. NSF (Grant No: MCB-1244303) 02/2013 – 01/2016
 Molecular genetic dissection of calcium signaling in plants
 Co-PI: R. Ablert
 \$886,986 (\$805,443 to J. Kwak)
 Role: PI

f. Fellowships and Awards

Most cited paper award, J. Plant Biol.	10/2012
General Research Board, University of Maryland	06/2004
Travel award, 22 nd Symposium in Plant Biology, CA, UC BioSTAR	01/2003
Travel award, 13 th Int'l Congress on Arabidopsis Research, Spain, NSF	06/2002
Travel award, 10 th Int'l Congress on Arabidopsis Research, Australia, NSF	07/1999
Human Frontier Science Program Postdoctoral Fellowship	06/1998 – 05/2000
Korea Research Foundation Postdoctoral Fellowship	06/1997 – 05/1998
Predocotrinal Fellowship, Seoam Scholarship Foundation	09/1995 – 02/1997
Predocotrinal Fellowship, Korea Sanhak Foundation	09/1994 – 08/1995
Predocotrinal Fellowship, Plant Molecular Biology and Biotechnology Center	09/1993 – 08/1994

g. Editorships, Editorial Boards, and Reviewing Activities for Journals

(i) Editorial Board member	J. Plant Biology	09/2007 – present
Editorial Board member	Frontiers in Traffic and Transport	04/2011 – present
Editorial Board member	Current Cellular Biochemistry	12/2011 – present
Editorial Board member	Frontiers in Plant Systems Biology	01/2012 – present
(ii) Ad hoc reviewer		
EMBO Journal	FEBS Letters	Proc. Nat'l. Acad. Sci. USA
Plant Cell	Plant Physiology	Planta
Plant Cell & Environment	Plant Cell Physiology	BMC Plant Biology
Plant Cell Reports	Plant Journal	J. Exp. Botany
PLoS One	New Phytologists	Molecular Cell