

Name: Yoichiro FUKAO

Date of Birth: March 3, 1975 in Kyoto/ Japan

Nationality: Japanese

Gender: Male

Current Appointment and/or Status: Associate Professor

Laboratory

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Research interest

Proteomics of mineral-stress responsive proteins in Arabidopsis.

Education

Ph.D, Department of Basic Biology, The Graduate University for Advanced Studies
(2003) (Supervisor: Prof. Mikio Nishimura)

MS, Department of Bioscience, Fukui Prefectural University (2000)

BA, Department of Bioscience, Fukui Prefectural University (1998)

Employment History

2003 – 2004

Postdoctoral fellow, Core Research for Evolutional Science and Technology (CREST)
@ Kyoto University, Kyoto, Japan (Supervisor: Prof. Ikuko-Hara Nishimura)

2004–2005

Postdoctoral fellow, Japan Society for the Promotion of Science (JSPS) @ Kyoto University, Kyoto, Japan (Supervisor: Prof. Ikuko-Hara Nishimura) & @ Zurich University, Zurich, Switzerland (Supervisor: Prof. Enrico Martinoia)

2006–2010

Assistant Professor, Nara Institute of Science and Technology (NAIST), Nara, Japan

2010–Current

Associate Professor, Nara Institute of Science and Technology (NAIST), Nara, Japan

Publications

- 1) **Fukao, Y.***, and Ferjani, A. (2011) Dysfunction of V-ATPase under excess zinc mediates cell expansion compromise in Arabidopsis. *Plant Signal. Behav.*, In press
- 2) Yamamoto, H. Peng, L., **Fukao Y.**, and Shikanai T. (2011) An Srchomology 3 domain-like fold protein forms a ferredoxin-binding site for the chloroplast NADH dehydrogenase-like complex in Arabidopsis. *Plant Cell*, In press
- 3) **Fukao, Y.***, Ferjani, A., Tomioka, R., Nagasaki, N., Kurata, R., Nishimori Y., Fujiwara, M., and Maeshima, M. (2011) iTRAQ Analysis Reveals Mechanisms of Growth Defects due to Excess Zinc in Arabidopsis. *Plant Physiol.*, 155 (4), 1893-1907
- 4) Peng, L., **Fukao Y.**, Myouga, F., Motohashi, R., Kazuo, S., and Shikanai, T. (2011) A Chaperonin Subunit with Unique Structures Is Essential for Folding of a Specific Substrate. *PLoS Biol.*, 9 (4), e1001040
- 5) Tamura, K., **Fukao Y.**, Iwamoto, M., Haraguchi, T., and Ikuko Hara-Nishimura I. (2010) Comprehensive Identification of Nuclear Pore Complex Components in Arabidopsis thaliana. *Plant Cell*, 22 (12), 4084-4097.
- 6) Igawa, T., Fujiwara, M., Tanaka, I., **Fukao, Y.**, and Yanagawa, Y. (2010) Characterization of bacterial-type phosphoenolpyruvate carboxylase expressed in male gametophyte of higher plants. *BMC Plant Biol.*, 14 (10) 200.
- 7) Okuda, K., Hammani, K., Tanz, S., Peng, L., **Fukao, Y.**, Myouga, F., Motohashi, R., Shinozaki, K., Small I., and Shikanai, T. (2010) The pentatricopeptide repeat protein OTP82 is required for RNA editing of plastid ndhB and ndhG transcripts. *Plant J.*, 61 (2), 339-349.
- 8) **Fukao, Y.***, Ferjani, A., Fujiwara, M., Nishimori, Y., and Ohtsu, I. (2009)

Identification of Zinc-Responsive Proteins in the Roots of *Arabidopsis thaliana* using a Highly Improved Method of Two-Dimensional Electrophoresis., *Plant Cell Physiol.*, 50 (12), 2234-2239.

- 9) Sato, A., Sato, Y., **Fukao, Y.**, Fujiwara, M., Umezawa, T., Shinozaki, K., Hibi, T., Taniguchi, M., Miyake, H., Goto, DB., and Uozumi, N. (2009) Threonine at position 306 of the KAT1 potassium channel is essential for channel activity and is a target site for ABA-activated SnRK2/OST1/SnRK2.6 protein kinase., *Biochem J.*, 424 (3), 439-448.
- 10) Lianwei, P., **Fukao, Y.**, Fujiwara, M., and Shikanai, T. (2009) Efficient operation of NAD(P)H dehydrogenase-dependent cyclic electron flow requires the supercomplex formation with photosystem I via minor LHCI in Arabidopsis. *Plant Cell*, 21 (11), 3623-3640.
- 11) Fujiwara, M., Hamada, S., Hiratsuka, M., **Fukao, Y.**, Kawasaki, T., and Shimamoto, K. (2009) Proteome analysis of detergent-resistant membranes (DRMs) associated with OsRac1-mediated innate immunity in rice. *Plant Cell Physiol.*, 50 (7), 1191-1200.
- 12) Igawa, T., Fujiwara, M., Takahashi, H., Sawasaki, T., Endo, Y., Seki, M., Shinozaki, K., **Fukao, Y.**, and Y. Yanagawa. (2009) Isolation and identification of ubiquitin-related proteins from Arabidopsis seedlings. *J. Exp. Bot.*, 60 (11), 3067-3073.
- 13) Hamada, T., Igarashi, H., Taguchi, R., Fujiwara, M., **Fukao, Y.**, Shimmen, T., Yokota, E., and Sonobe, S. (2009) The Putative RNA-Processing Protein, THO2, is a Microtubule-Associated Protein in Tobacco. *Plant Cell Physiol.*, 50 (4), 801-811.
- 14) Minami, A., Fujiwara, M., Furuto, A., **Fukao, Y.**, Yamashita, T., Kamo, M., Kawamura, Y., and Uemura, M. (2009) Alterations in Detergent-Resistant Plasma Membrane Microdomains in *Arabidopsis thaliana* During Cold Acclimation. *Plant Cell Physiol.*, 50 (2), 341-359.
- 15) Arai, Y., **Fukao, Y.**, Hayashi, M., and Nishimura, M. (2008) Part V "Organelle Proteomics", Chapter 29 Peroxisomes, Ganesh Kumar Agrawal and Randeep Rakwal, *Plant Proteomics: Technologies, Strategies, and Applications*, John Wiley&Sons, 377-389.
- 16) Shimada, TL., Shimada, T., Takahashi, H., **Fukao, Y.**, and Hara-Nishimura, I. (2008) A novel role for oleosins in freezing tolerance of oilseeds in *Arabidopsis*

- thaliana*. *Plant J.*, 55 (5), 798-809.
- 17) Nagano, A.J., **Fukao, Y.**, Fujiwara, M., Nishimura, M., and Hara-Nishimura, I. (2008) Antagonistic Jacalin-Related Lectins Regulate the Size of ER Body-Type β -Glucosidase Complexes in *Arabidopsis thaliana*. *Plant Cell Physiol.*, 49 (6), 969-980.
 - 18) Yamada, K., **Fukao, Y.**, Hayashi, M., Fukazawa, M., Suzuki, I., and Nishimura, M. (2007) Cytosolic HSP90 regulates the heat shock response that is responsible for heat acclimation in *Arabidopsis thaliana*. *J. Biol. Chem.*, 282 (52), 37794-37804.
 - 19) Li, L., Shimada, T., Takahashi, H., Ueda, H., **Fukao, Y.**, Kondo, M., Nishimura, M., and Hara-Nishimura, I. (2006) MAIGO2 is involved in exit of seed storage proteins from the endoplasmic reticulum in *Arabidopsis thaliana*. *Plant Cell*, 18 (12), 3535-3547.
 - 20) Santelia, D., Vincenzetti, V., Azzarello, E., Bovet, L., **Fukao, Y.**, Duchtig, P., Mancuso, S., Martinoia, E., and Geisler, M. (2005) MDR-like ABC transporter AtPGP4 is involved in auxin-mediated lateral root and root hair development. *FEBS Letter*, 579, 5399-5406.
 - 21) Matsushima, R., **Fukao, Y.**, Nishimura, M., and Hara-Nishimura, I. (2004) NAI1 gene encodes a basic-helix-loop-helix-type putative transcription factor that regulates the formation of an endoplasmic reticulum-derived structure, the ER body. *Plant Cell*, 16, 1536-1549.
 - 22) **Fukao, Y.**, Hayashi, M., Hara-Nishimura, I., and Nishimura, M. (2004) Novel glyoxysomal protein kinase, GPK1, identified by proteomic analysis of glyoxysomes in etiolated cotyledons of *Arabidopsis thaliana* (Rapid paper). *Plant Cell Physiol.*, 44, 1002-1012.
 - 23) **Fukao, Y.**, and Nishimura, M. (2003) The metabolic survey of plant peroxisomes from proteomic analysis. *Tanpakushitsu Kakusan Koso*, 48 (15 Suppl), 2176-2183.
 - 24) **Fukao, Y.**, Hayashi, M., Nishimura, M. (2002) Proteomic analysis of leaf peroxisomal proteins in greening cotyledons of *Arabidopsis thaliana* (Rapid paper). *Plant Cell Physiol.*, 43, 689-696.
 - 25) **Fukao, Y.**, Hayashi, Y., Mano, S., Hayashi, M., Nishimura, M. (2001) Developmental analysis of a putative ATP/ADP carrier protein localized on glyoxysomal membranes during the peroxisome transition in pumpkin cotyledons. *Plant Cell Physiol.*, 42, 835-841.

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