Eunkyoo Oh

Department of Plant Biology
Carnegie Institution for Science
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EDUCATION

2003 - 2008 **KAIST**
M.S.-Ph.D. in Biological Science
Thesis: Functional roles of PIL5 in *Arabidopsis* seed germination
(Advisor: Prof. Giltsu Choi)

1999 - 2003 **KAIST**
B.S. in Biological Science

PROFESSIONAL EXPERIENCE

2009 - present **Post-Doctoral Fellow, Carnegie Institution for Science**
Department of Plant Biology (Advisor: Dr. Zhiyong Wang)
Research Experience:

- Revealed a central growth transcription (CGT)-complex integrating various hormonal and environmental signals.
- Identified genome-wide PIF4 and ARF binding sites in *Arabidopsis* by ChIP-Seq analyses.
- Identified PIF/BR/auxin-regulated genes by RNA-Seq analyses.
- Identified new BZR1 interacting transcriptional regulator.

2008 - 2009 **Post-Doctoral Fellow, KAIST**
Department of Biological Sciences (Advisor: Prof. Giltsu Choi)
Research Experience:

- Functionally characterized PIL5 as a key negative regulator in light-promoted seed germination.
- Identified molecular mechanism of PIL5 in phytochrome signaling pathway.
- Identified genome-wide PIL5 binding sites in *Arabidopsis* by ChIP-chip.

2003 - 2008 **Research and Teaching Assistant, KAIST**
Department of Biological Sciences

PUBLICATIONS

17. **Oh, E.**, Zhu, J.Y., and Wang, Z.Y. TOPLESS mediates brassinosteroid-induced transcriptional repression through interaction with BZR1. (submitted)
16. **Oh, E.**, Bai, M.Y., Zhu, J.Y., Arenhart, R., Sun, Y., and Wang, Z.Y. Cell elongation is controlled through a central molecular circuit in Arabidopsis. (submitted)
15. Fan, M, Bai, M.Y, Kim, J., **Oh, E**., Park, C., Kim, S., and Wang, Z.Y. (2014). HBI1 mediates the tradeoff between growth and PAMP-triggered immunity in Arabidopsis. ***The Plant Cell*** (accepted).
14. Bai, M.Y., Fan, M., **Oh, E.**, and Wang, Z.Y. **(2012)**. A triple helix-loop-helix/basic helix-loop-helix cascade controls cell elongation downstream of multiple hormonal and environmental signaling pathways in Arabidopsis. ***The Plant cell*** **24**, 4917-4929.
13. Wang, Z.Y., Bai, M.Y., **Oh, E.,** and Zhu, J.Y. **(2012)**. Brassinosteroid signaling network and regulation of photomorphogenesis. ***Annual review of genetics*** **46**, 701-724.
12. Bai, M.Y., Shang, J.X., **Oh, E.**, Fan, M., Bai, Y., Zentella, R., Sun, T.P., Wang, Z.Y. **(2012)** Brassinosteroid, gibberellin and phytochrome impinge on a common transcription module in *Arabidopsis*. ***Nature cell biology*** **(Articles) 14,** 810-817.
11. **Oh, E.**, Zhu, J.Y., Wang, Z.Y. **(2012)**. Interaction between BZR1 and PIF4 integrates brassinosteroid and environmental responses. ***Nature cell biology*** **(Articles) 14**, 802-809.
10. Hao, Y.*, **Oh, E.***, Choi, G., Liang, Z., and Wang, Z.Y**. (2012)**. Interactions between HLH and bHLH factors modulate light-regulated plant development. ***Molecular plant*** **5,** 688-697. (*equal contribution)
9. Sun, Y., Fan, X.Y., Cao, D.M., Tang, W., He, K., Zhu, J.Y., He, J.X., Bai, M.Y., Zhu, S., **Oh, E.**, Patil, S., Kim, T.W., Ji, H., Wong, W.H., Rhee, S.Y., and Wang, Z.Y. **(2010)**. Integration of brassinosteroid signal transduction with the transcription network for plant growth regulation in Arabidopsis. ***Dev Cell*** **19,** 765-777.
8. Luo, X.M., Lin, W.H., Zhu, S., Zhu, J.Y., Sun, Y., Fan, X.Y., Cheng, M., Hao, Y., **Oh, E.**, Tian, M., Liu, L., Zhang, M., Xie, Q., Chong, K., and Wang, Z.Y. **(2010)** Integration of light- and brassinosteroid-signaling pathways by a GATA transcription factor in Arabidopsis. ***Dev Cell*** **19,** 872-883.

7. Kang, H., **Oh, E.**, Choi, G., and Lee, D. **(2010)** Genome-wide DNA-binding specificity of PIL5, an Arabidopsis basic Helix-Loop-Helix (bHLH) transcription factor. ***International journal of data mining and bioinformatics*** **4,** 588-599.
6. **Oh, E.**, Kang H., Yamaguchi S., Park J., Lee D., Kamiya Y., and Choi, G. **(2009)** Genome-Wide Analysis of Genes Targeted by PHYTOCHROME INTERACTING FACTOR 3–LIKE5 during Seed Germination in Arabidopsis. ***Plant Cell*****. 21,** 403-419
5. Kim, D. Yamaguchi, S. Lim, S., **Oh, E.**, Park, J., Hanada, A., Kamiya, Y., Choi, G. **(2008)** SOMNUS, a CCCH-type Zinc Finger Protein in Arabidopsis, Negatively Regulates Light-Dependent Seed Germination Downstream of PIL5. ***Plant Cell*** **20,** 1260-1277
4. **Oh, E.**, Yamaguchi, S., Hu, J., Yusuke, J., Jung, B., Paik, I., Lee, H.-S., Sun, T.-p, Kamiya, Y., and Choi, G. **(2007)** PIL5, a phytochrome-interacting bHLH protein, regulates gibberellin responsiveness by directly binding to the GAI and RGA promoters in Arabidopsis seeds. ***Plant Cell*****, 19,** 1192-1208
3. **Oh, E.**, Yamaguchi, S., Kamiya, Y., Bae, G., Chung, W.-I., Choi, G. **(2006)** Light activates the degradation of PIL5 protein to promote seed germination through gibberellin in Arabidopsis. ***Plant J*****. 47,** 124-139
2. **Oh, E.**, Kim, J., Park, E., Kim, J-I, Kang, C., and Choi, G. **(2004)** PIL5, a phytochrome interacting basic helic-loop-helix protein, is a key negative regulator of seed germination in Arabidopsis. ***Plant Cell*** **16,** 3045-3058
1. Park, E., Kim, J., Lee, Y., Shin, J., **Oh, E.**, Chung, W.-I., Liu, J.R., and Choi, G. **(2004)** Degradation of phytochrome interacting factor 3 in phytochrome-mediated light signaling. ***Plant Cell Physiol*****. 45,** 968-975

CONFERENCE PAPERS/ABSTRACTS

9. **Oh, E.,** Yamaguchi, S., Hu, J., Yusuke, J., Jung, B., Paik, I., Lee, H.-S., Sun, T.-p, Kamiya, Y., and Choi, G. **(2007)** PIL5, a phytochrome-interacting bHLH protein, regulates gibberellin responsiveness by directly binding to the GAI and RGA promoters in Arabidopsis seeds. ***19th International Plant Growth Substance Association Meeting.***
8. **Oh, E.,** Yamaguchi, S., Hu, J., Yusuke, J., Jung, B., Paik, I., Lee, H.-S., Sun, T.-p, Kamiya, Y., and Choi, G. **(2007)** PIL5, a phytochrome-interacting bHLH protein, regulates gibberellin responsiveness by directly binding to the GAI and RGA promoters in Arabidopsis seeds. ***2007 International Symposium of Botanical Society of Korea.***

7. **Oh, E. (2007)** Light and Germination. ***1st Symposium of KAIST Biological Sciences.***
6. **Oh, E.**, Yamaguchi, S., Kamiya, Y., Bae, G., Chung, W.-I., Choi, G. **(2006)** Light activates the degradation of PIL5 protein to promote seed germination through gibberellin in Arabidopsis. ***Crop Functional Genomics 2006.***
5. **Oh, E.**, Yamaguchi, S., Kamiya, Y., Bae, G., Chung, W.-I., Choi, G. **(2006)** PIL5 regulates seed germination through gibberellins. ***13th Symposium of Korean Society of Photoscience.***
4. **Oh, E.,** and Choi, G. **(2005)** PIL5, a phytochrome-interacting bHLH protein, inhibits seed germination by reducing a level of active gibberellins in Arabidopsis. ***2005 Plant Winter Conference.***
3. **Oh, E.,** and Choi, G. **(2004)** PIL5, a phytochrome interacting basic helic-loop-helix protein, is a key negative regulator of seed germination in Arabidopsis. ***2005 Annual Meeting of American Society of Plant Biologists.***
2. **Oh, E.,** and Choi, G. **(2004)** PIL5, a phytochrome interacting basic helic-loop-helix protein, is a key negative regulator of seed germination in Arabidopsis. ***. 11th Symposium of Korean Society of Photoscience.***
1. **Oh, E.**, Kim, J., and Choi, G. **(2004)** Functional characterization of a new phytochrome associated protein. ***14th International Congress on Photobiology.***

HONORS AND AWARDS

2012 Selected as People Glorifying Korea, BRIC

2009 **Agarwal Award**, KAIST
Department of Biological Science

2009 Selected as People Glorifying Korea, BRIC

2008 **Youngest Ph.D graduate**, KAIST

2007 Selected as People Glorifying Korea, BRIC

2007 National Research Foundation of Korea, Research Fellowship for Ph.D. students

2004 Selected as People Glorifying Korea, BRIC

TECHNICAL EXPERIENCE

High throughput functional genomics assays and data analyses - Affymetrix oligoarrays, ChIP-seq, RNA-seq.

General molecular biology and biochemistry.

Plant genetics and transient gene expression assay, co-IP and ChIP assays using *Arabidopsis* mesophyll protoplast cells.

2D IP-DIGE (protein immunoprecipitation (IP) followed by two-dimensional difference gel electrophoresis)