

Curriculum Vitae

Lihua Wu

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EDUCATION

- 2012-2019 **Ph.D.** in Plant Biology, Huck Institutes of the Life Sciences, Penn State University
Title of thesis: “Self-Incompatibility in *Petunia*: Characterization of S-RNase and S-Locus-F-Box Proteins, and Sequence Analyses of the S-Locus Region Containing Their Genes”; Thesis advisor: Dr. Teh-hui Kao
- 2015-2016 Graduate Certificate in **Applied Bioinformatics** at Penn State University
Selected course projects: Regional Patterns of Gene Expression in Human and Chimpanzee Brains; A toxicological study of the effects of aristolochic acid on rat kidneys; Common Variants at 30 loci Contribute to Polygenic Dyslipidemia
- 2015-2016 Graduate Certificate in **Applied Statistics** at Penn State University
Selected courses: Applied Statistics; Regression Methods; Statistical Analysis System Programming; Statistical Analysis of Genomics Data
- 2009-2012 **M.S.** in Genetics, Institute of Plant Biology, Fudan University, China
Title of thesis: “Cloning of Cold-Responsive Genes *CbCOR15a/CbCOR15b* and Their Promoters from *Capsella bursa-pastoris* and Functional Characterization under Low Temperature”; Thesis advisor: Dr. Juan Lin
- 2004-2009 **B.S.** in Biological Sciences, Beijing Forestry University, Beijing, China

SKILLS

1. Proficient in molecular biology, genetics, cell biology, biochemistry
2. Expertise in Python and R scripting languages
3. Experience in developing bioinformatics workflows
4. Expertise in implementing statistics in genomic data analysis and data visualization
5. Proficiency in working with command line/bash shell in Unix/Linux environments
6. Experience in designing and instructing advanced Biology course

TEACHING

- Teaching Assistant, MICRB 202 (Introductory Microbiology Lab), Penn State University (Spring 2019)
- Course Designer, Plant Biology, Upward Bound Programs, Penn State University (Summer 2019)

- Course Instructor, Plant Biology, Upward Bound Programs, Penn State University (Summer 2016, 2017, 2018, 2019)
- Teaching Assistant, BMB 212 (Elementary Biochemistry Lab), Penn State University (Fall 2016, 2017)
- Teaching Assistant, Biotech 459 (Plant Tissue Culture and Plant Biotechnology), Penn State University (Spring 2014, 2015, 2016)
- Teaching Assistant, Microbiology and Molecular Biology, Fudan University (Fall 2011)

PUBLICATIONS

1. **Wu, L.**, Sun, L., Monshausen, G.B. and Kao, T.-h (2019) Development of a set of organelle markers for image analysis of S₂-SLF1 of *Petunia inflata* involved in pollen specificity of self-incompatibility. *In preparation*.
2. **Wu, L.**, Williams J. S., Sun, L. and Kao, T.-h (2019) Characterizing the S-locus of S₂-haplotype of self-incompatible *Petunia inflata* by sequence analysis of 17 S-locus F-box gene-containing bacterial artificial chromosome (BAC) contigs. *Submitted*.
3. Sun, L., Williams, J. S., Li, S., **Wu, L.**, Khatri, W., Stone, P., Keebaugh M. and Kao, T.-h. (2018) S-locus F-box proteins are solely responsible for S-RNase-based self-incompatibility of *Petunia* pollen. *Plant Cell* 30(12): 2959-2972.
4. **Wu, L.**, Williams, J. S., Wang, N., Khatri, W. A., San Román, D. and Kao, T.-h. (2017) Use of domain-swapping to identify candidate amino acids involved in differential interactions between two allelic variants of type-1 S-locus F-box protein and S₃-RNase in *Petunia inflata*. *Plant Cell Physiol.* 59(2): 234-247.
5. Lin, P., **Wu, L.**, Wei, D., Hu, C., Zhou, M., Yao, X. and Lin, J. (2016) Promoter analysis of cold-responsive (*COR*) gene from *Capsella bursa-pastoris* and expression character in response to low temperature. *Int. J. Agri. Biol.* 18(2).
6. Williams, J. S., **Wu, L.**, Li, S., Sun, P. and Kao, T.-h. (2015) Insight into S-RNase-based self-incompatibility in *Petunia*: recent findings and future directions. *Front. Plant Sci.* 6: 41.
7. Zhou, M., Xu, M., **Wu, L.**, Shen, C., Ma, H. and Lin, J. (2014) CbCBF from *Capsella bursa-pastoris* enhances cold tolerance and restrains growth in *Nicotiana tabacum* by antagonizing with gibberellin and affecting cell cycle signaling. *Plant Mol. Biol.* 85(3): 259-275.
8. Shen, C., Zhou, M., **Wu, L.** and Lin, J. (2014) Construction of cold induction pathway multivalent vector in *Capsella bursa-pastoris* CBF and transformation of tobacco. *J. Shanghai Jiaotong Univ. (Agri. Sci.)* 3:006.
9. **Wu, L.**, Zhou, M., Shen, C., Liang, J. and Lin, J. (2012) Transgenic tobacco plants over expressing cold regulated protein CbCOR15b from *Capsella bursa-pastoris* exhibit enhanced cold tolerance. *J.*

Plant Physiol. 169(14): 1408-1416.

10. Zhou, M., **Wu, L.**, Liang, J., Shen, C. and Lin, J. (2012) Expression analysis and functional characterization of a novel cold-responsive gene *CbCOR15a* from *Capsella bursa-pastoris*. *Mol. Biol. Rep.* 39(5): 5169-5179.
11. **Wu, L.**, Wang, J. and Lin, J. (2010). A survey of the studies on the resources of *Catalpa bungei*. *J. Shanghai Jiaotong Univ. (Agric. Sci.)* 28(1): 91-96.
12. Lin, J., **Wu, L.** and Wang, J. (2010) Effect of different plant growth regulators on callus induction in *Catalpa bungei*. *Afr. J. Agric. Res.* 5(19): 2694-2704.
13. Wang, J., **Wu, L.** and Lin, J. (2011) Inducing and proliferating culture of adventitious buds from *Catalpa bungei*. *For. Sci. Technol.* 36(1):1-4.
14. Zhou, M., Shen, C., **Wu, L.**, Tang, K. and Lin, J. (2011) CBF-dependent signaling pathway: a key responder to low temperature stress in plants. *Crit. Rev. Biotechnol.* 31(2), 186-192.
15. Zhou, M., **Wu, L.**, Shen, C. and Lin, J. (2011) A study on the regulation of the expression of cold-responsive genes in CBF signaling pathway from *Capsella bursa-pastoris* induced by IAA and GA₃. *J. Sichuan Uni. (Nat. Sci. Edition)* 1: 038.
16. Zhou, M., **Wu, L.**, Shen, C. and Lin, J. (2010) Regulation of cold-responsive genes in CBF signaling pathway from *Capsella bursa-pastoris* induced by ABA, Me JA and SA. *J. Agric. Sci. Tech.* 12: 75-80.
17. Zhou, M., **Wu, L.**, Shen, C. and Lin, J. (2010) Cloning and sequence analysis of the *CbCAX51* gene promoter from *Capsella bursa-pastoris*. *J. Shanghai Jiaotong Univ. (Agric. Sci.)* 28(6): 492-498.

PATENT

- Lin, J., Zhou, M., **Wu, L.** The promoter of key gene *CbCBF* in CBF-dependent pathway from *Capsella bursa-pastoris* and its application. Patent number: CN101693891A, Date granted: Apr. 14, 2010.
- Lin, J., Zhou, M., **Wu, L.** The key genes in CBF-dependent pathway from *Capsella bursa-pastoris* and their application in plant breeding for enhancing cold tolerance. Patent number: CN101921773, Date granted: Apr. 14, 2010.
- Lin, J., Zhou, M., Shen, C., **Wu, L.** The application of Cold-induced gene *CbCOR15a* from *Capsella bursa-pastoris* in plant breeding for enhancing cold tolerance. Patent number: CN101979578, Date granted: Feb. 23, 2011.
- Lin, J., **Wu, L.**, Zhou, M., Shen, C. The application of Cold-induced gene *CbCOR15b* from *Capsella bursa-pastoris* in plant breeding for enhancing cold tolerance. Patent number: CN102174517B, Date granted: Oct. 16, 2013.

POSTER PRESENTATIONS

- Development of a set of organelle markers for image analysis of S₂-SLF1 of *Petunia inflata* involved in pollen specificity of self-incompatibility. The 22nd Plant Biology Symposium/Plant Cell Dynamics VIII Meeting at Penn State University, University Park, Pennsylvania, June 18-21, 2019.
- Characterizing the *S*-locus of S₂-haplotype of self-incompatible *Petunia inflata* by sequence analysis of 17 *S*-locus *F*-box gene-containing bacterial artificial chromosome (BAC) contigs. Plant Biology 2018- A joint Meeting of ASPB/CSPB/ISPR, Montreal, Canada. July 14-18, 2018.
- Use of domain-swapping to identify candidate amino acids involved in differential interactions between two allelic variants of type-1 S-locus F-box protein and S₃-RNase in *Petunia inflata*. The Joint Meeting of the Mid-Atlantic Section of the American Society of Plant Biologists and the University of Maryland Spring Plant Biology Symposium, College Park, Maryland, May 22-23, 2018.

ORAL PRESENTATIONS

- Development of a set of organelle markers for image analysis of S₂-SLF1 of *Petunia inflata* involved in pollen specificity of self-incompatibility. Presentation at the 22nd Plant Biology Symposium/Plant Cell Dynamics VIII Meeting at Penn State University, University Park, June 18-21, 2019.
- Use of domain-swapping to identify candidate amino acids involved in differential interactions between two allelic variants of type-1 S-locus F-box protein and S₃-RNase in *Petunia inflata*. Invited presentation at the Joint Meeting of the Mid-Atlantic Section of the American Society of Plant Biologists and the University of Maryland Spring Plant Biology Symposium, College Park, Maryland, May 22-23, 2018.
- Self-incompatibility in *Petunia inflata*: a self/non-self recognition system during pollination involving multiple polymorphic *S*-locus *F*-box genes and a polymorphic *S*-RNase gene. Plant Biology Seminar Series, the Huck Institutes of the Life Sciences, Penn State University, Apr. 23, 2018.

PROFESSIONAL MEMBERSHIPS AND SERVICE

Member American Society of Plant Biologists

AWARDS AND HONORS

2015-2018	Huck Dissertation Research Grant, Penn State University
2012-2014	Graham Endowed Fellowship, Graduate School, Penn State University
2012-2013	Braddock Graduate Scholarship, Eberly College of Sciences, Penn State University
2010-2011	Outstanding Graduate Student Scholarship, Fudan University, Shanghai, China