Curriculum Vitae – Mei-Chun Cheng (Nina)

Department of Biochemical Science and Technology
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Research interests: Plant stress and light biology; stress and light signal; translation mechanisms during stress and light perception, the regulation of stress-responsive genes and their roles in stress resistance.

EDUCATION

06/2015 **Ph.D.** in Plant Biology, National Taiwan University, Taiwan
Dissertation: The Arabidopsis ERF1 regulates abiotic-stress-responsive gene expression by binding to different cis-acting elements under different stress signaling

06/2008 **M.S.** in Plant Biology, National Taiwan University, Taiwan
Thesis: Functional study of a drought-induced transcription factor, At2g20880, in Arabidopsis

06/2006 **B.S.** in Life Science, National Taiwan University, Taiwan

SKILLS

- Advanced laboratory experience in **molecular biology** (plant transformation, gel electrophoresis, primer design, molecular cloning, PCR, RT-PCR, real-time RT-PCR, cDNA, N/S/Western blotting, GUS staining, Yeast one/two-hybrid screening, SDS-PAGE, protoplasts isolation and transfection, florescence microscopy, protein purification, Co-IP, ChIP assay, ubiquitination assay, EMSA, polysome profiling), **genetics** (crossing, mutant screening, map-based cloning) and **genomics** (gene expression profiling, knowledge of bioinformatic tools and statistical methods to integrate microarray data, promoter elements analysis, knock-out mutants characterization).

- Outstanding creativity and problem-solving capacities. Possess a great ability to combine relevant technical expertise and basic biology to challenge existing concepts. Superior time management, work well under pressure and on multiple projects. Supervised others.

- Thoroughly trained in writing and used to peer-review materials for publication. Good presentation skills. Excellent interpersonal and communication skills, very much at ease in international environments. Team player.

- Languages: Chinese (native), English (fluent), German (conversational).

RESEARCH EXPERIENCE

02/20 – present **Assistant Professor** in Department of Biochemical Science and Technology, National Taiwan University.

10/17 – 12/19 **Postdoctoral Fellow** in laboratory of Dr. Enamul Huq, Department of Molecular Biosciences, University of Texas at Austin. Regulation of PCH1/L degradation under dark by COP1 and its function in phyB dark reversion.

06/15 – 09/17 **Postdoctoral Fellow** in laboratory of Dr. Tsan-Piao Lin, Institute of Plant Biology, National Taiwan University. Identification and characterization of ERF1 interacting proteins. Discovered a mechanism that modulates the stability of ERF1 under light/dark cycle and regulates stress response.

08/11 - 06/15 **Ph.D. Student** in laboratory of Dr. Tsan-Piao Lin, Institute of Plant Biology, National Taiwan University. Dissertation: The Arabidopsis ERF1 regulates abiotic stress-responsive gene expression by binding to different cis-acting elements under different stress signaling. Studied the effect of GSH on the translational change.

07/08 - 07/11 **Research assistant** in laboratory of Dr. Tsan-Piao Lin, Institute of Plant Biology, National Taiwan University, Taiwan. Identified RGLG2 as an E3 ligase that mediates the ubiquitination of AtERF53 and negatively regulates abiotic stress response.

08/06 – 06/08 **M.S. Student** in laboratory of Dr. Tsan-Piao Lin, Institute of Plant Biology, National Taiwan University. Thesis: Functional study of a drought-induced transcription factor, At2g20880 (AtERF53), in Arabidopsis

PUBLICATION

1. **Cheng, M.C.**, Kathare, P.K., Paik, I., Huq, E. (2021) Phytochrome signaling network. **Annual Review of Plant Biology** (accepted contribution)

2. **Cheng, M.C.,** Enderle, B., Kathare, P.K., Hiltbrunner, A., Huq, E. (2020) PCH1 and PCHL directly interact with PIF1, promote its degradation and inhibit its transcriptional function during photomorphogenesis. **Molecular Plant** doi: https://doi.org/10.1016/j.molp.2020.02.003.

3. **Cheng, M.C.,** Wang, Y.M., Kuo, W.C., Lin, T.P. (2017) UBC18 mediates ERF1 degradation under light-dark cycles. **New Phytologist** 213: 1156-1167.

4. Chen, H.Y., Hsieh, E.J., **Cheng, M.C.,** Chen, C.Y., Hwang, S.Y., Lin, T.P. (2016) ORA47 (octadecanoid-responsive AP2/ERF-domain transcription factor 47) regulates jasmonic acid and abscisic acid biosynthesis and signaling through binding to a novel cis-element. **New Phytologist** 211: 599-613.

5. **Cheng, M.C.,** Ko, K., Chang, W.L., Kuo, W.C., Chen, G.H., Lin, T.P. (2015). Increased level of glutathione contributes to stress tolerances and global translational change in Arabidopsis. **Plant Journal** 83: 926-939.

6. **Cheng, M.C.,** Liao, P.M., Kuo, W.W., Lin, T.P. (2013) The Arabidopsis ETHYLENE RESPONSE FACTOR1 regulates abiotic stress-responsive gene expression by binding to different cis-acting elements in response to different stress signals. **Plant Physiology** 162: 1566-1582.

7. Hsieh, E.J., **Cheng, M.C.,** Lin, T.P. (2013) Functional characterization of an abiotic stress-inducible transcription factor AtERF53 in Arabidopsis thaliana. **Plant Molecular Biology** 82: 223-237.

8. **Cheng, M.C.,** Hsieh, E.J., Chen, J.H., Chen, H.Y., Tsan-Piao Lin, T.P. (2012). Arabidopsis RGLG2, functioning as a RING E3 ligase, interacts with AtERF53 and negatively regulates the plant drought stress response. **Plant Physiology** 158: 363-375.

AWARDS & HONORS

- MOST Young Scholar Fellowship – Einstein project 2019
- MOST Postdoctoral Research Abroad Program 2016
- Ministry of Education Travel Award 2014

National Taiwan University

- Departmental Scholarship 2013
- Departmental Scholarship 2012
- Dean Award 2008

CONFERENCE ABSTRACT

1. Cheng, M.C., Enderle, B., Kathare, P.K., Islam, R., Hiltbrunner, A., Huq, E. (2019) PCH1 and PCHL regulate light responses by interacting with PIF1 and mediate its degradation in Arabidopsis. American Society of Plant Biology, San Jose

2. **Cheng, M.C.,** Ko, K., Chang, W.L., Kuo, W.C., Chen, G.H., Lin, T.P. (2016). Increased level of glutathione contributes to stress tolerances and global translational change in Arabidopsis. International Conference of Arabidopsis Research, Gyeonju. (Poster talk)
3. **Cheng**, **M.C.,** Hsieh, E.J., Lin, T.P. (2013) Functional study of Arabidopsis ERF1 in response to abiotic stress. Root system biology symposium, Taipei.
4. **Cheng, M.C.,** Hsieh, E.J., Chen, J.H., Chen, H.Y., Lin, T.P. (2012). Arabidopsis RGLG2, functioning as a RING E3 ligase, interacts with AtERF53 and negatively regulates the plant drought stress response. International Congress on Plant Molecular Biology, Jeju.
5. **Cheng, M.C.,** Hsieh, E.J., Chen, J.H., Chen, H.Y., Lin, T.P. (2012). Arabidopsis RGLG2, functioning as a RING E3 ligase, interacts with AtERF53 and negatively regulates the plant drought stress response. 2012 Annual meeting of society of experimental biology, Salzburg
6. **Cheng, M.C.,** Hsieh, E.J., Chen, J.H., Chen, H.Y., Lin, T.P. (2012). Functional study of a drought-induced transcription factor, At2g20880 (AtERF53), in Arabidopsis. International Symposium on the Kanagawa University – National Taiwan University, Kanagawa.

INVITED TALKS

1. Plant biotechnology and green industry symposium. From data to publication: Stories of ERF transcription factors. Jul. 2016
2. National Sun Yat-Sen University. The Regulation of ETHYLENE RESPONSE FACTOR (ERF) in Abiotic Stress Response. Mar. 2016
3. 4th Cross-strait conference of plant biology. The Arabidopsis ETHYLENE RESPONSE FACTOR1 regulates abiotic stress-responsive gene expression by binding to different cis-acting elements in response to different stress signals. Jun. 2013

TEACHING EXPERIENCE

Summer School Invited Lecturer

– IPB summer school on Plant Molecular Biology (NTU) Summer 2014

Teaching Assistant

– NTU: Proteomics Fall 2013

– NTU: Plant hormone analysis (Experiment) Spring 2012

–NTU: Plant stress biology Fall 2007

REFEREES

Prof. Tsan-Piao Lin
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Prof. Shih-Tong Jeng
Institute of Plant Biology, National Taiwan University
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Prof. Enamul Huq
Department of Molecular Biosciences, University of Texas at Austin
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