**YI-HSUAN CHU, Ph.D.**

**CURRICULUM VITAE**

**PRESENT**

Post-Doctoral Research Associate

Prof. Erich Grotewold Lab

Department of Biochemistry and Molecular Biology

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**EDUCATION**

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| 2012-2017 | Ph.D., Horticulture and Crop Science, The Ohio State University, Columbus, OH. |
| 2007-2011 | B.Sc. Agronomy, National Taiwan University (NTU), Taipei, Taiwan. |

**POSTDOCTORAL TRAINING**

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| 2018-present | Post-Doctoral Research Fellow, Michigan State University, East Lansing, MI. |

**PUBLICATIONS**

* **Chu, Y. H.,** Jang, J. C., Huang, Z., & van der Knaap, E. (2019). Tomato locule number and fruit size controlled by natural alleles of lc and fas. Plant direct, 3(7), e00142.
* Xu, C., Liberatore, K.L., MacAlister, C.A., Huang, Z., **Chu, Y.H**., Jiang, K., Brooks, C., Ogawa-Ohnishi, M., Xiong, G., Pauly, M., Van Eck, J., Matsubayashi, Y., van der Knaap, E.,Lippman, Z.B. (2015) A cascade of arabinosyltransferases controls shoot meristem size in tomato. Nat Genet 47, 784-792.
* Van der Knaap, E., Chakrabarti, M., **Chu, Y.H.,** Clevenger, J.P., Illa-Berenguer, E., Huang, Z., Keyhaninej ad, N., Mu, Q., Sun, L., Wang, Y., and Wu, S. (2014) What lies beyond the eye: the molecular mechanisms regulation tomato fruit weight and shape. Frontiers in Plant Science 5, 227.

**QUALIFICATIONS**

* Knowledge of QTL mapping, GWAS, DNA/RNA/protein extraction and purification, CRISPR/Cas9 gene editing, in situ hybridization, DNA/RNA library preparation. RNA-seq/ChIP-seq and DAP-seq experiment, LC-MS.
* 7 years of experience with RNA-seq experiments and data analysis, two years of experience with DAP-seq, ChIP-seq experiment and data analysis.
* Software skills including R and familiar with LINUX environment.

**RESEARCH EXPERIENCE**

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| **Postdoctoral fellow**-Michigan State University, MI, USA-Mentor: Dr. Erich Grotewold | **Project:** Elucidating Maize Gene Regulatory Networks to Accelerate Translational Genomics.1. Perform ChIP-seq for transcription factors involving Maize phenolics pathway.
2. Perform DAP-seq for transcription factors involving maize phenolics pathway and camelina fatty acid biosynthesis.
3. Bioinformatics analysis for ChIP and DAP-seq data.
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| **Ph.D. researcher**- The Ohio State University, Columbus, OH, USA - Mentors: Dr. Esther van der Knaap and Dr. JC Jang | **Dissertation:** The role of LC and FAS in regulating floral meristem and fruit locule number in tomato. 1. Developed the protocol for RNA-seq library preparation
2. Developed the pipeline for RNA-seq data analyses using Linux system and R
3. Performed in situ hybridization experiments
4. Performed the QTL mapping and fine mapping strategy to identify the loci controlling morphological variation in tomato
5. Collaborated with computer scientists from College of Wooster to develop statistical models for cis-regulatory element studies
6. Extensively use genetic markers for genotyping
7. Extensively use statistics in plant phenotype evaluation and data analysis
8. Trained with CRISPR/Cas9 technique for genome editing in tomato
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| Undergraduate research assistant- National Taiwan University (NTU), Taipei, Taiwan- Mentor: Dr. Kai-Yi Chen | **Project:** Tomato quantitative trait loci mapping.1. Identifying a new QTL in tomato
2. Developing a high resolution melting curve (HRM) platform for tomato genotyping
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**TEACHING EXPERIENCE**

• Teaching assistant. Class: Form and Function in Cultivated Plants (HCS 2202, OSU) Spring 2017

• Teaching assistant. Class: Plant Propagation: The Manipulation of Plant Reproduction (HCS 3302, OSU) Spring 2016

**HONORS AND AWARDS**

* Student Travel Award - ASPB mid-west section meeting March 2014 - Regulatory Change in Tomato CLAVATA3 by an Inversion Leads to Fasciated Fruit
* Taiwan Society of Agronomy - Poster competition award July 2012 - Identifying a QTL Regulating Elongated Fruit Shape in Tomato

**ACADEMIC ACTIVITIES**

* Seminar Invitation to National Chung Hsing University (NCHU), Taiwan, Oct 2019
* Postdoc Mentor of an undergraduate student, Michigan State University. Autumn 2019
* Postdoc Mentor ofThe Summer Research Opportunities Program (SROP), Michigan State University, Summer 2019
* Organizing and hosting the Wooster Area Molecular Biology Association (WAMBA) seminar at OARDC in Wooster, Ohio Autumn 2014 - Spring 2015
* Serving as a committee member in the Graduate Research Retreat of the department of Horticulture and Crop Science at OSU August-Oct 2015

**Poster and Oral Presentations**

* **Chu, Y.H.** and Grotewold, E. (2019) Compaing ChIP-seq and DAP-seq binding information using P1 (Pericarp Color 1) genome-wide targets as model, Department of Biochemistry and Molecular biology seminar, Michigan State University, East Lansing, MI. (Oral)
* Gutierrez-Diaz, A., Gomez-Cano, F., **Chu, Y.H.,** Begue, H., Dossef, A. and Grotewold. E. (2019) Cis and trans regulatory variation of P1 gene targets in two maize (*Zea mays*) inbred lines. 2019 ASBMB Special Symposium, Evolution and Core Processes in Gene Expression, Michigan State University, East Lansing, MI. (Poster)
* **Chu, Y.H.** and Grotewold, E. (2019) Comparing ChIP-seq and DAP-seq binding information using P1 (Pericarp Color 1) genome-wide targets as model, Department of Biochemistry and Molecular biology retreat, Michigan State University, East Lansing, MI. (Poster)
* **Chu, Y.H.** and Grotewold, E. (2019) Comparing ChIP-seq and DAP-seq binding information using P1 (Pericarp Color 1) genome-wide targets as model, Maize genetics meeting, St. Louis, Missouri (Poster)
* **Chu, Y.H.,** Jang, J.C., van der Knapp, E. (2017) Large tomato fruits produced by expanded spatial and temp oral expression of WUSCHEL in floral meristems, CAPS seminar, Columbus, Ohio (oral)
* **Chu, Y.H.,** Jang, J.C., van der Knapp, E. (2016) Transcriptional analysis of tomato fruit shape genes., CAP S seminar, Columbus, Ohio (oral)
* **Chu, Y.H.,** Jang, J.C., van der Knapp, E. (2016) From enlarged floral meristems to multilocular fruits: Transcriptional analysis of tomato fruit shape genes. HCS retreat, Wooster, Ohio (oral)
* **Chu, Y.H.,** Huang, Z., van der Knapp, E. (2015) Regulatory Change in CLAVATA3 (CLV3) Leads to Fasciated Tomato Fruit, CAPs seminar, Columbus, Ohio (oral)
* **Chu, Y.H**., Huang, Z., van der Knapp, E. (2015) Regulatory Change in CLAVATA3 (CLV3) Leads to Fasciated Tomato Fruit, HCS retreat, Columbus, Ohio (oral)
* **Chu, Y.H.,** Huang, Z., van der Knapp, E. (2014) Regulatory Change in Tomato CLAVATA3 by an Inversion Leads to Fasciated Fruit. HCS retreat, Columbus, Ohio (oral)
* **Chu, Y.H.,** Huang, Z., van der Knapp, E. (2014) Regulatory Change in Tomato CLAVATA3 by an Inversion Leads to fasciated Fruit. ASPB mid-west section meeting, Columbus, Ohio (poster)
* **Chu, Y.H.,** Huang, Z., van der Knapp, E. (2013) Regulatory Change in Tomato CLAVATA3-like Gene by an Inversion Leads to fasciated Fruit, WAMBA seminar at OARDC, Wooster, Ohio (Oral)
* **Chu, Y.H**., Lee H.R., Chen K.Y. (2012) Identifying a QTL Regulating Elongated Fruit Shape in Tomato, Annual meeting of Agronomy society of Taiwan, Taipei, Taiwan (Poster)

**PROJECT GRANT SUPPORT**

* Main postdoc researcher involved in the NSF-supported project, Award Number: 1733633. Award amount: 3,663,375.00 (2018-2022) Project Title: RESEARCH-PGR: Elucidating Maize Gene Regulatory Networks to Accelerate Translational Genomics.
* Postdoc researcher involved in the Office of Science (DOE SC) supported project.Grant number: [DE-SC0018269](https://pamspublic.science.energy.gov/WebPAMSExternal/Interface/Common/ViewPublicAbstract.aspx?rv=3e23f550-6afc-4901-afbd-ff37799fe37a&rtc=24&PRoleId=10). Award amount: 4,000,000.00 (2017-2022) Project title: A Systems Approach to Increasing Carbon Flux to Seed Oil for Biofuels and Bioproducts Production in Camelina Sativa.

**SUPPLEMENT**

* Peer reviewer of The Plant Journal (1)