Ching-Ho Chang

Fred Hutchinson Cancer Research Center
1100 Fairview Ave N, Seattle, WA 98109
Lab Phone: (206) 667-4512, E-mail: cchang2@fredhutch.org
ORCID: 0000-0001-9361-1190

Education

Postdoctoral Fellow	Fred Hutchinson Cancer Research Center	2020–Present
Advisor: Harmit Malik, PhD		Division of Basic Sciences
Ph.D.	University of Rochester	2014–2020
Advisor: Amanda Larracuente, PhD		Department of Biology
Thesis: Meiotic Drive and Rapid Genome Evolution in *Drosophila*		
MS	National Taiwan University	2009–2011
Advisor: Chau-Ti Ting, PhD		Institute of Ecology and Evolutionary Biology
Thesis: Early-stage evolution of the neo-Y chromosome in *Drosophila albomicans*		
BS	National Taiwan University	2005–2009

Work Experiences

National Taiwan University	Research assistant	2012–2014
Advisors: Chau-Ti Ting, PhD and Hwei-yu Chang, PhD		
Army of Taiwan	Second Lieutenant	2011–2012

Awards and Fellowships

Damon Runyon Postdoctoral Fellowship Award (USD $231,000)	2021–2024
Larry Sandler Memorial Award, Genetics Society of America	2021
Finalist of the Helen Hay Whitney Postdoctoral Research Fellowship	2020
DeLill Nasser Award, Genetics Society of America	2020
Finalist of the Walter M. Fitch Award, Society for Molecular Biology and Evolution	2019
The Messersmith Fellowship, U of Rochester (USD $24000)	2019
SMBE registration award	2018
Government Scholarship to Study Abroad, Ministry of Education, Taiwan (USD $32000)	2018–2020
GSA Travel Grant, AS&E Graduate Student Association, U of Rochester	2017
Department Travel Funds, U of Rochester	2017, 2018
Travel Award, Meeting of Evolutionary Genomics of Sex	2016
Ernst Caspari Fellowship, U of Rochester (USD $6000)	2014–2017
Dean's Award, College of Life Science, National Taiwan University	2011
Outstanding Students Conference Travel Grant, Taiwan	2011
Travel Grant for International Conference, National Science Council, Taiwan	2011

Publication

Google Scholar Link * Corresponding author, # Equal contribution

Research Papers:

1. Herbette, M., Wei, X., **Chang, C.-H.**, Larracuente, A. M., Loppin, B., & Dubruille, R*. (2021). Distinct spermiogenic phenotypes underlie sperm elimination in the Segregation Distorter meiotic drive system. bioRxiv, 2021.01.08.425928. doi:10.1101/2021.01.08.425928

2. Chakraborty, M.#, **Chang, C.-H.**#, Khost, D., Vedanayagam, J., Adrion, J. R., Liao, Y., Montooth, K. L., Meiklejohn, C. D., Larracuente, A. M.*, and Emerson, J. J.* (2021). Evolution of genome structure in the Drosophila simulans species complex. *Genome Research*, *31*, 380-396.

3. Chang, C.-H.#, Chavan, A.#, Palladino, J.#, Wei, X., Martins, N. M. C., Santinello, B., Chen, C. C., Erceg, J., Beliveau, B. J., Wu, C. T., Larracuente, A. M.*, and Mellone, B. G.* (2019). Islands of retroelements are major components of Drosophila centromeres. *PLoS Biology, 17*(5), e3000241. (F1000 recommended)

4. Chang, C.-H.*, and Larracuente, A. M.* (2019). Heterochromatin-Enriched Assemblies Reveal the Sequence and Organization of the Drosophila melanogaster Y Chromosome. *Genetics, 211*(1), 333-348. (Highlight article, F1000 recommended)

5. Lo, C.-W., Kryvalap, Y., Sheu, T.-j., **Chang, C.-H.**, and Czyzyk, J.* (2019). Cellular proliferation in mouse and human pancreatic islets is regulated by serpin B13 inhibition and downstream targeting of E-cadherin by cathepsin L. *Diabetologia, 62*(5), 822-834.

6. Fallon, T. R.#, Lower, S. E.#, **Chang, C.-H.**, Bessho-Uehara, M., Martin, G. J., Bewick, A. J., Behringer, M., Debat, H. J., Wong, I., Day, J. C., Suvorov, A., Silva, C. J., Stanger-Hall, K. F., Hall, D. W., Schmitz, R.

J., Nelson, D. R., Lewis, S. M., Shigenobu, S., Bybee, S. M., Larracuente, A. M., Oba, Y., and Weng, J. K.* (2018). Firefly genomes illuminate parallel origins of bioluminescence in beetles. *Elife, 7*, e36495.
7. Chang, C.-H.*, and Larracuente, A. M. (2017). Genomic changes following the reversal of a Y chromosome to an autosome in Drosophila pseudoobscura. *Evolution, 71*(5), 1285-1296.
8. Martinson, E. O.#, Mrinalini#*, Kelkar, Y. D., **Chang, C.-H.**, and Werren, J. H.* (2017). The Evolution of Venom by Co-option of Single-Copy Genes. *Current Biology, 27*(13), 2007-2013 e2008.
9. Chang, C. C.#, Ting, C. T.#, **Chang, C.-H.**, Fang, S.*, and Chang, H.* (2014). The persistence of facultative parthenogenesis in Drosophila albomicans. *PLoS One, 9*(11), e113275.
10. Cheng, C.-H.#, **Chang, C.-H.**#, and Chang, H.-y.* (2011). Early-stage evolution of the neo-Y chromosome in Drosophila albomicans. *Zoological Studies, 50*, 338-349.

Other Papers:
1. Chang, C.-H. and Malik, H. S*. Putting the brakes on centromere-drive in *Mimulus*. *PLoS Genet 17(4)*: e1009494 (Perspective)
2. Courret, C.*, **Chang, C.-H.**, Wei, K. H., Montchamp-Moreau, C., and Larracuente, A. M. (2019). Meiotic drive mechanisms: lessons from Drosophila. *Proc Biol Sci, 286*(1913), 20191430. (Review)

In preparation:
1. Chang, C.-H.*, Gregory, L., Meiklejohn, C. D. and Larracuente, A. M.* Specific mutation patterns shape evolution of Y chromosomes in the *Drosophila simulans* clade.
2. Chang, C.-H.*, Pascua, D., Mouton, T. and Larracuente, A. M*. The arms race between *Segregation Distorter* gene complex and its suppressor in American populations of *Drosophila melanogaster*
3. Chang, C.-H. and Malik, H. S*. Centromeres: evolutionary transitions and 'missing links.' (Review in preparation for *Annual Reviews Genetics*)

Conference Presentations:
¶ Poster presentation, § Oral presentation
Chang, C.-H. Why are chromosomes so different: genetic conflicts and genome evolution. Larry Sandler Award Lecture. Annual Drosophila conference§, 2021 (https://www.youtube.com/watch?v=6_i65wcfXdo)
Chang, C.-H., C. D. Meiklejohn, Gregory, L. and Larracuente A. M. Specific mutation patterns shape Y chromosome evolution in the Drosophila simulans clade. Annual Drosophila conference§, 2021
Chang, C.-H., C. D. Meiklejohn, Gregory, L. and Larracuente A. M. WhY chromosomes are so different (in Drosophila)? The Chromosome Pairing Meeting§, 2019
Chang, C.-H., Pascua D., Mouton T. and Larracuente A. M. Balanced under the arms race: selfish Segregation Distorter chromosomes and their suppressors in Drosophila. Annual Drosophila conference ¶ and SMBE §, 2019.
Chang, C.-H., Meiklejohn C. D., Mouton T. and Larracuente A. M. Comparative genomics reveals rampant gene duplication and reorganization of the Drosophila melanogaster and the simulans clade Y chromosomes, SMBE §, 2018
Chang, C.-H., Meiklejohn C. D. and Larracuente A. M. Subfunctionalization of *SRPK*—a new Y-linked gene family in the *Drosophila simulans* clade. SMBE ¶, 2017 and Annual Drosophila conference ¶, 2018.
Chang, C.-H. and Larracuente A. M. Genomic changes following the reversal of a Y chromosome to an autosome in *Drosophila pseudoobscura*. The Allied Genetics
Conference ¶ and Meeting of Evolutionary Genomics of Sex §, 2016
Chang, C.-H., Fang S., Ting C.-T. and Chang H. Degeneration of the neo-Y chromosome in *Drosophila albomicans*. SMBE ¶, 2013

Professional Activities

Mentor for undergraduate mentorship awardee, SMBE	2021
Annual Drosophila research conference trainee co-chair, GSA	2021
Proceedings B Preprint Editorial Team member, Proc Biol Sci	2019–Present
GENETICS Peer Review Training Program, GSA	2017–2019
GSA Travel Grants Reviewer, U of Rochester	2017
Paper reviewer: G3, Genetics, MBE	

Teaching Experience & Selected Extracurricular Activities

President, U of Rochester Taiwanese Student Association	2017–2018
Teaching Assistant, Upper bound workshop, U of Rochester	2016, 2018
Teaching Assistant, General Biology Laboratory, U of Rochester	2015, 2016

Teaching Assistant, General Botany Laboratory, National Taiwan University 2009

Mentored Trainees (*Underrepresented minorities, #Advanced degree):

Lauren Gregory[#] (University of Rochester, Rotation student) 2019

Taylar Mouton[*#] (University of Rochester, Undergraduate) 2018–2019

- Honor in research, U of Rochester
- Victoria Finnerty Travel Award, GSA

Danielle Pascua[*] (University of Rochester, Undergraduate) 2017–2018

Linhe Xu[#] (University of Rochester, Undergraduate) 2015–2016

Chia-Hao Cheng[#] (National Taipei University of Education, Undergraduate) 2009–2010