

Keun Chae

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Texas A&M University
Department of Entomology

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Education

2007	Ph.D. in Cell, Molecular, and Developmental Biology Interdisciplinary Program University of California, Riverside, CA
1999	M.S. in the Department of Agricultural Chemistry Seoul National University, South Korea
1996	B.S. in the Department of Agricultural Chemistry Daegu University, South Korea

Professional Positions

Jul 2018 – Present	Assistant Research Scientist Department of Entomology, Texas A&M University, College Station, TX Supervisor: Zach N. Adelman, Ph.D.
Jul 2015 – Jun 2018	Postdoctoral Research Associate Department of Biology, Texas A&M University, College Station, TX Supervisor: Timothy C. Hall, Ph.D.
Jul 2013 – Nov 2014	Postdoctoral Research Associate Department of Horticulture, University of Georgia, Tifton, GA Supervisor: Peggy Ozias-Akins, Ph.D.
Oct 2009 – Jun 2013	Postdoctoral Research Associate Department of Biology, University of North Carolina, Chapel Hill, NC Supervisor: Jason W. Reed, Ph.D.
Jan 2008 – Sep 2009	Postdoctoral Research Associate Department of Botany & Plant Sciences, University of California, Riverside, CA Supervisor: Elizabeth M. Lord, Ph.D.
Aug 2001 – Jul 2002	Visiting Scientist School of Medicine, University of Washington, Seattle, WA Supervisor: David J. Rawlings, M.D.
Sep 1999 – Jul 2001	Visiting Research Associate School of Medicine, University of California, Los Angeles, CA Supervisor: David J. Rawlings, M.D.

Publications

<https://scholar.google.com/citations?user=X43PFMwAAAAJ&hl=en>

1. **Keun Chae**, Bryan Contreras, Chanell Dawson, Collin Valentin, Hitoshi Tsujimoto, Kevin M. Myles, and Zach N. Adelman. Biological roles of core non-homologous end joining factors in *Aedes aegypti*. [In preparation]
2. **Keun Chae**, Bryan Contreras, Chanell Dawson, Kevin M. Myles, and Zach N. Adelman. Self-eliminating dynamics of single-strand annealing-featured transgenes in *Aedes aegypti*. [In preparation]
3. **Keun Chae**, Justin Overcash, Chanell Dawson, Collin Valentin, Kevin M. Myles, and Zach N. Adelman. Knockout of non-homologous end joining factors biases DNA repair pathway choice toward single-strand annealing in *Aedes aegypti*. [Under peer-review, *Current Research in Biotechnology*]
4. Bryan Contreras, Zach N. Adelman, and **Keun Chae***. Measuring the mating competency of genetically modified male mosquitoes in laboratory conditions. *Frontiers in Tropical Diseases* 2023, Accepted. [*, Correspondence]
5. Punita Nagpal, Paul H. Reeves, Jeh Haur Wong, Laia Armengot, **Keun Chae**, Nathaniel B. Rieveschl, Brendan Trinidad, Vala Davidsdottir, Prateek Jain, William M. Gray, Yvon Jaillais, Jason W. Reed. SAUR63 stimulates cell growth at the plasma membrane. *PLOS Genetics* 2022, 18(9): e1010375.
6. **Keun Chae**, Chanell Dawson, Collin Valentin, Bryan Contreras, Josef Zapletal, Kevin M. Myles, and Zach N. Adelman. Engineering a self-eliminating transgene in the yellow fever mosquito, *Aedes aegypti*. *PNAS Nexus* 2022 1(2): pgac037. [highlighted in 13 news outlets, <https://oxfordjournals.altmetric.com/details/127471481/news>]

7. **Keun Chae**, Collin Valentin, Emma Jakes, Kevin M. Myles, and Zach N. Adelman. Novel synthetic 3'-untranslated regions for controlling transgene expression in transgenic *Aedes aegypti* mosquitoes. *RNA Biology* 2021, 18(1): 223-231.
8. **Keun Chae**, Collin Valentin, Chanell Dawson, Emma Jakes, Kevin M. Myles, and Zach N. Adelman. A knockout screen of genes expressed specifically in *Ae. aegypti* pupae reveals a critical role for *stretchin* in mosquito flight. *Insect Biochemistry Molecular Biology* 2021, 132: 103565.
9. Joann A. Conner, Muruganantham Mookkan, Heqiang Huo, **Keun Chae**, and Peggy Ozias-Akins. A parthenogenesis gene of apomict origin elicits embryo formation from unfertilized eggs in a sexual plant. *Proceedings of the National Academy of Sciences* 2015, 112:11205-10.
10. **Keun Chae**, Cameron G. Issacs, Paul H. Reeves, Greg S. Maloney, Gloria K. Muday, Punita Nagpal, and Jason W. Reed. *Arabidopsis* Small Auxin Up RNA63 promotes hypocotyl and stamen filament elongation. *Plant Journal* 2012, 71:684-97.
11. **Keun Chae** and Elizabeth M. Lord. Pollen tube growth and guidance: roles of small, secreted proteins. *Annals of Botany* 2011, 108:627-36.
12. **Keun Chae**, Benedict J. Gonong, Seung-Chul Kim, Chris A. Kieslich, Dimitrios Morikis, Shruthi Balasubramanian, and Elizabeth M. Lord. A multifaceted study of stigma/style cysteine-rich adhesin (SCA)-like *Arabidopsis* lipid transfer proteins (LTPs) suggests diversified roles for these LTPs in plant growth and reproduction. *Journal of Experimental Botany* 2010, 61: 4277-90.
13. **Keun Chae**, Chris A. Kieslich, Dimitrios Morikis, Seung-Chul Kim, and Elizabeth M. Lord. A gain-of-function mutation of *Arabidopsis* lipid transfer protein 5 disturbs pollen tube tip growth and fertilization. *Plant Cell* 2009, 21: 3902-14.
14. **Keun Chae**, Kangling Zhang, Li Zhang, Dimitrios Morikis, Sun Tae Kim, Jean-Claude Mollet, Noelle de la Rosa, Kimberly Tan, and Elizabeth M. Lord. Two SCA (Stigma/style Cysteine-rich Adhesin) isoforms show structural differences that correlate with their levels of *in vitro* pollen tube adhesion activity. *Journal of Biological Chemistry* 2007, 282: 33845-58.
15. Phyllis W. Yu, Ruby S. Tabuch, Roberta M. Kato, Alexander Astrakhan, Stephanie Humblet-Baron, Kevin Kipp, **Keun Chae**, Wilfried Ellmeier, Owen N. Witte, and David J. Rawlings. Sustained correction of B-cell development and function in a murine model of X-linked agammaglobulinemia (XLA) using retroviral-mediated gene transfer. *Blood* 2004, 104:1281-90.
16. Thomas T. Su, Beichu Guo, Yuko Kawakami, Karen Sommer, **Keun Chae**, Lisa A. Humphries, Roberta M. Kato, Shin Kang, Lisa Patrone, Randolph Wall, Michael Teitell, Michael Leitges, Toshiaki Kawakami, and David J. Rawlings. PKC-beta controls I kappa B kinase lipid raft recruitment and activation in response to BCR signaling. *Nature Immunology* 2002, 3:780-6.

Educational Activities

Teaching

- Guest Lecturer *Arthropod Genomes and Gene Expression (ENTO 628)*
Texas A&M University, Fall 2021 and 2022
- Graduate Teaching Assistant *Introductory Biology Lab for non-science majors (BIOL 03L)*
University of California, Riverside, Winter 2006
- Graduate Teaching Assistant *Cell and Molecular Biology Lab (BIOL 05LA)*
University of California, Riverside, Fall 2005

Mentoring

- Supervised students and research staff for their research, helped most of them to be co-authors in peer-reviewed journals for their contributions, and supported them in their career paths by writing recommendation letters.

Journal Referee (Direct Invitation)

- *Frontiers in Tropical Diseases* 2022
- *The Plant Journal* 2013
- *Plant Cell Reports* 2012
- *Journal of Experimental Botany* 2010