DREW T. WAGNER

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EDUCATION

- **Doctor of Philosophy, Biochemistry • Fall 2017**
  University of Texas at Austin
  Advisor: Adrian Keatinge-Clay
- **Elements of Computing Program • Fall 2017**
  University of Texas at Austin
- **Bachelor of Science, Biochemistry and Molecular Biology with Honors • Spring 2010**
  University of California Santa Cruz

EXPERIENCE

- ***Graduate Student • Keatinge-Clay Lab • August 2012 - Present***
  Department of Molecular Biosciences, University of Texas at Austin
  - Active researcher on several completed and ongoing projects focusing on the structural and mechanistic characterization of polyketide synthase domains.
  - Developed enzyme assays and mutagenesis screens to characterize substrate tolerance and mechanism of action of biosynthetic enzymes.
  - Employed recombinant DNA technology and X-ray crystallography to design and construct custom fusion proteins for synthetic biology applications.

- ***Research Technician • June 2011 - August 2012***
  Molecular Sciences Institute – Berkeley, CA
  - Constructed and maintained recombinant *S. cerevisiae* strain collection.
  - Performed metabolic engineering experiments on *S. cerevisiae* strains using flow cytometry and fluorescent microscopy leading to development of yeast strains for production of commercially relevant chemicals.

- ***Research Assistant • Ottemann Lab • June 2010 – June 2011***
  Department of Microbiology and Environmental Toxicology – Santa Cruz, CA
  - Assisted with design and execution of *in vitro* experiments on chemotaxis proteins of the bacterial pathogen *H. pylori*.

TEACHING

- **Spring 2017** – BCH369 – Fundamentals of Biochemistry
- **Fall 2016, Spring 2015, Fall 2014, Fall 2013** – BCH339F – Foundations of Biochemistry
- **Spring 2016** – BIO361 – Human Infectious Diseases
- **Fall 2015** – BIO326M – Intro to Medical Microbiology and Immunology
- **Spring 2014** – BCH369L – Biochemistry Laboratory
- **Spring 2011 (UCSC)** – BIOC100C – Integrative Biochemistry of Metabolic Pathways

COMPUTATIONAL SKILLS

- **Programming** • Python, R, Bash, git/github
- **Database** • MySQL, MongoDB
- **Data Visualization** • PyMol, R studio, ggplot, Tableau
- **Web** • HTML, CSS, Javascript, Node.js, jQuery

PUBLICATIONS

1. **Wagner DT***, Zeng J*, Bailey CB*, Gay DC, Yuan F, Manion HR, Keatinge-Clay AT. Structural and Functional Trends in Dehydrating Bimodules from *trans*-Acyltransferase Polyketide Synthases. Structure [submitted/in review]

2. Zeng J, **Wagner DT**, Zhang Z, Moretto L, Addison JD, Keatinge-Clay AT. Portability and Structure of the Four-Helix Bundle Docking Domains of trans-Acyltransferase Modular Polyketide Synthases. ACS Chem Biol. 2016 Sep.

3. **Wagner DT***, Stevens DC*, Mehaffey MR, Manion HR, Taylor RE, Brodbelt JS, Keatinge-Clay AT. α-Methylation follows condensation in the gephyronic acid modular polyketide synthase. Chem Commun (Camb). 2016 Jul.

4. Stevens DC*, **Wagner DT***, Manion HR, Alexander BK, Keatinge-Clay AT. Methyltransferases excised from trans-AT polyketide synthases operate on N-acetylcysteamine-bound substrates. J Antibiot (Tokyo). 2016 Jul.

5. Gay DC*, **Wagner DT***, Meinke JL, Zogzas CE, Gay GR, Keatinge-Clay AT. The LINKS motif zippers trans-acyltransferase polyketide synthase assembly lines into a biosynthetic megacomplex. J Struct Biol. 2016 Mar.

6. Fage CD, Isiorho EA, Liu Y, **Wagner DT**, Liu HW, Keatinge-Clay AT. The structure of SpnF, a standalone enzyme that catalyzes [4 + 2] cycloaddition. Nat Chem Biol. 2015 Apr.

7. Gay G, **Wagner DT**, Keatinge-Clay AT, Gay DC. Rapid modification of the pET-28 expression vector for ligation independent cloning using homologous recombination in Saccharomyces cerevisiae. Plasmid. 2014 Nov.

8. Hughes AJ, Tibby MR, **Wagner DT**, Brantley JN, Keatinge-Clay AT. Investigating the reactivities of a polyketide synthase module through fluorescent click chemistry. Chem Commun (Camb). 2014 May.

9. Zdraljevic S, **Wagner D**, Cheng K, Ruohonen L, Jäntti J, Penttilä M, Resnekov O, Pesce CG. Single-cell measurements of enzyme levels as a predictive tool for cellular fates during organic acid production. Appl Environ Microbiol. 2013 Dec.