

# DREW T. WAGNER

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## EDUCATION

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

## EXPERIENCE

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- **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.
  - Statistical analysis of *S. cerevisiae* gene expression data.
- **Research Assistant • Ottemann Lab • June 2010 – June 2011**  
Department of Microbiology and Environmental Toxicology – University of California Santa Cruz
  - Assisted with design and execution of *in vitro* experiments on chemotaxis proteins of the bacterial pathogen *H. pylori*.

## TEACHING

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- **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

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

## PUBLICATIONS

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1. **Wagner DT**, Zhang Z, Meodod R, Piel P, Keatinge-Clay AT. Structure and Function of a Pyran Synthase Domain from a trans-Acyltransferase Polyketide Synthase. [In Preparation]
2. **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. 2017 Jun.

3. 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.
4. **Wagner DT\***, Stevens DC\*, Mehaffey MR, Manion HR, Taylor RE, Brodbelt JS, Keatinge-Clay AT.  $\alpha$ -Methylation follows condensation in the gephyronic acid modular polyketide synthase. *Chem Commun (Camb)*. 2016 Jul.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. 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.

\* = denotes shared first authorship