DREW T. WAGNER

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EDUCATION

Doctor of Philosophy, Biochemistry • Fall 2017
University of Texas at Austin
Advisor: Adrian Keatinge-Cl*ay*

Elements of Computing Program: Data Science Track • Fall 2017
University of Texas at Austin
Relevant Computer Science Coursework: Data Visualization, Data Analytics, Databases, Software Design, Software Engineering, Bioinformatics, Computational Biology, Biostatistics

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 focused on the structural and mechanistic characterization of polyketide synthase enzyme domains.
- Developed enzyme assays and mutagenesis screens to characterize substrate tolerance and mechanism of action of biosynthetic enzymes from recently sequenced prokaryotic organisms.
- 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

- **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**, 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. α-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