

Annamarie E. Bustion

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EDUCATION

Ph.D. Student
Pharmaceutical Sciences and Pharmacogenomics
University of California, San Francisco, CA

Bachelor of Science in Biology, 2014
Minor in Political Science, 2014
Indiana University, Bloomington, IN

PUBLICATIONS

The Genetic Basis for the Cooperative Bioactivation of Plant Lignans by a Human Gut Bacterial Consortium. Bess, E.N., Bisanz, J.E., Spanogiannopoulos P., Ang, Q.Y., Bustion, A. E., et al. bioRxiv 357640; doi: <https://doi.org/10.1101/357640>, (preprint).

Isolation and Preliminary Characterization of Amino Acid Substitution Mutations That Increase the Activity of the Osmoregulated ProP Protein of *Salmonella Enterica* Serovar Typhimurium. Gasper, B.J., Banschbach, K., Bustion, A. E., et al. *Journal of DNA and Cell Biology*. June 2012, Vol.31, No.6: 956-967.

PRESENTATIONS

Bustion, A. E., Bess, E. N. “Bioactivation of lignans by gut bacteria.” PSPG Student Research Seminar, UCSF, May 2018.

Bustion, A. E. Nose-to-brain transport of oxytocin following intranasal delivery with Precision Olfactory Delivery (POD) technology. Society for Neuroscience meeting, San Diego, CA, 2016.

Bustion, A. E., Chiu, A. Preclinical intranasal delivery technology. 17th Annual NIH SBIR/STTR Conference, Seattle, WA, October 2015.

Bustion, A. E., Kowal, J., Smith, A. Assessment of mutations in ProP that minimize the glycine betaine antagonism of proline uptake in *Salmonella typhimurium*. Micro-CASPiE poster session, West Lafayette, IN, May 2010.

EXPERIENCE

University of California, San Francisco

PhD Student, September 2017–Present

June 2018–Present, member of the Pollard lab at UCSF/Gladstone Institutes.

Spring Rotation with Dr. Peter Turnbaugh
Bioactivation of phytoestrogens via gut bacteria.

Winter Rotation with Drs. Lani Wu and Steve Altschuler
Characterization of a 2D intestinal model as an *in vitro* predictor of ADME.

Fall Rotation with Dr. Katie Pollard
Machine learning analysis of human microbiome metagenomic data.

Impel NeuroPharma, Inc., Seattle, WA

Research Associate, August 2014–May 2017

Designed a preclinical program for a Major Depressive Disorder (MDD) therapeutic.

Designed/conducted a biodistribution study of intranasally delivered oxytocin, and presented a poster of results at the 2016 Society for Neuroscience Conference.

Wrote a semi-automated image analysis plugin (for ImageJ) that quantifies the percent surface area covered by an intranasal dose in three regions of interest, and presented a poster of method/results at the 2015 NIH SBIR/STTR Conference.

General project support.

- Transferred and developed High Performance Liquid Chromatography (HPLC) assays for drug stability, device deposition, and spray content uniformity tests.
- Designed/conducted preclinical pharmacokinetic (PK) and pharmacodynamic (PD) studies.
- Assayed drug diffusion across human tracheal/bronchial epithelial cells.
- Determined aerodynamic particle size distribution of drug formulations using Andersen Cascade Impactor technology.

Purdue University & Indiana University, IN

Undergraduate Biology Student

2010–2012, with Drs. Stephanie Gardner and Brittany Gasper

Isolated mutations of a proline auxotroph that increases ProP protein activity at low osmolarity and determined the effects of different point mutations on cell growth rate at both high and low osmolarity; data published in the *Journal of DNA and Cell Biology*.

Summer 2010, with Drs. Stephanie Gardner and Edward Bartlett

Conducted preliminary experiments for an undergraduate course that teaches laboratory fundamentals by engaging students in novel research.

INSTITUTIONAL SERVICE/OUTREACH

Foundations Pharmacy Course (Teaching Assistant), UCSF, 2018
Science & Health Education Partnership (Volunteer Teacher), UCSF, 2018–Present
Student Services Fee Advisory Committee (Member), UCSF, 2017–Present

MEMBERSHIPS, HONORS, AWARDS

American Association of Pharmaceutical Scientists Student Member, 2017–Present
Society for Neuroscience Member, 2016
Hutton Honors College Scholar, Indiana University, 2011–2014
Purdue Quantitative Physiology Scholarship, 2010
National Merit Commended Scholar, 2009
Indiana University Honors Program Diploma (Language Immersion Program in Brest, France), 2008

PROGRAMMING & SOFTWARE SKILLS

Python, R, Bash, JavaScript, HTML
Agilent ChemStation 1200
Berkeley Madonna
GraphPad Prism
ImageJ