

Allie C. Obermeyer

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EDUCATION

University of California, Berkeley 2008 - 2013

Ph.D. in Chemistry, Chemical Biology Graduate Program, GPA: 4.00

Thesis: Development and Application of Oxidative Coupling Bioconjugation Reactions with ortho-Amino-phenols

Advisor: Prof. Matthew Francis

Rice University 2005 - 2008

B.S. in Chemistry, GPA: 4.00, magna cum laude

RESEARCH APPOINTMENTS

Assistant Professor of Chemical Engineering 2017 - present
Columbia University

Arnold O. Beckman Postdoctoral Fellow with Prof. Bradley Olsen 2014 - 2016
Massachusetts Institute of Technology

NSF GRFP Graduate Researcher with Prof. Matthew Francis 2008 - 2013
University of California, Berkeley

Undergraduate Researcher with Prof. Seiichi Matsuda 2006 - 2008
Rice University

AWARDS

Arnold O. Beckman Postdoctoral Fellowship 2015 - 2016

Outstanding Graduate Student Instructor, University of California, Berkeley 2011

National Science Foundation Graduate Research Fellowship 2010 - 2013

Andrew D. Morsey Memorial Award for Teaching Excellence, University of California, Berkeley 2010

Zevi & Bertha Salsburg Award for Excellence in Chemistry, Rice University 2008

Phi Beta Kappa 2008

Trustee Distinguished Scholarship, Rice University 2005 - 2008

PUBLICATIONS

* Publication from independent research career

* 16. Cummings, C.S.; Obermeyer, A.C.* Phase separation behavior of supercharged proteins and polyelectrolytes. *Biochemistry*, **2018**, *57*, 314-323.

15. Dong, X.; Obermeyer, A.C.; Olsen, B.D. Three-dimensional ordered antibody arrays through self-assembly of antibody-polymer conjugates. *Angew. Chem., Int. Ed.*, **2017**, *56*, 1273-1277.

14. Mills, C.E.; Obermeyer, A.C.; Dong, X.; Kizilay, E.; Walker, J.; Olsen, B.D. Complex coacervate core micelles for the dispersion and stabilization of organophosphate hydrolyase in organic solvents. *Langmuir*, **2016**, *32*, 13367-13376.

13. Sangsuwan, R.; Obermeyer, A.C.; Tachachartvanich, P.; Palaniappan, K.K.; Francis, M.B. Direct detection of nitrotyrosine-containing proteins using an aniline-based oxidative coupling strategy. *Chem. Commun.*, **2016**, 52, 10036-10039.
12. Obermeyer, A.C.; Mills, C.E.; Dong, X.; Flores, R. J.; Olsen, B.D. Complex coacervation of supercharged proteins with polyelectrolytes. *Soft Matter*, **2016**, 12, 3570-3581.
11. Obermeyer, A.C.; Olsen, B.D. Synthesis and application of protein-containing block copolymers. *ACS Macro Letters*, **2015**, 4, 101-110.
10. Capehart, S. L.; ElSohly, A. M.; Obermeyer, A.C.; Francis, M.B. Bioconjugation of Gold Nanoparticles through the Oxidative Coupling of ortho-Aminophenols and Anilines. *Bioconjugate Chem*, 2014, 1888-1892.
9. El Muslemany, K.M.; Twite, A.A.; ElSohly, A.M.; Obermeyer, A.C.; Mathies, R.A.; Francis, M.B. Photoactivated bioconjugation between ortho-azidophenols and anilines: A facile approach to biomolecular photopatterning. *J. Am. Chem. Soc.*, **2014**, 136, 12600-12606.
8. Obermeyer, A.C.; Capehart, S.L.; Jarman, J.B.; Francis, M.B. Multivalent Viral Capsids with Internal Cargo for Fibrin Imaging. *PLoS One*, **2014**, 9, e100678.
7. Obermeyer, A.C.; Jarman, J.B.; Francis, M.B. N-terminal modification of proteins with o-aminophenols. *J. Am. Chem. Soc.*, **2014**, 136, 9572-9579.
6. Obermeyer, A.C.; Jarman, J.B.; Netirojjanakul, C.; El Muslemany, K.; Francis, M.B. Mild Bioconjugation Through the Oxidative Coupling of ortho-Aminophenols and Anilines with Ferricyanide. *Angew. Chem. Int. Ed.*, **2013**, 53, 1057-1061.
5. Seim, K.L.; Obermeyer, A.C.; Francis, M.B. Oxidative Modifications of Native Protein Residues Using Cerium(IV) Ammonium Nitrate. *J. Am. Chem. Soc.*, **2011**, 133, 16970-16976.
4. Behrens, C.R.; Hooker, J.; Obermeyer, A.C.; Romanini, D.T.; Francis, M.B. Rapid Chemoselective Bioconjugation Through the Oxidative Coupling of Anilines and Aminophenols. *J. Am. Chem. Soc.*, **2011**, 133, 16398-16401.
3. Beaudette, T.T.; Bachelder, E.M.; Cohen, J.A.; Obermeyer, A.C.; Broaders, K.E.; Fréchet, J.M.J.; Kang, E-S.; Mende, I.; Tseng, W.W.; Davidson, M.G.; Engleman, E.G. In Vivo Studies on the Effect of Co-Encapsulation of CpG DNA and Antigen in Acid-Degradable Microparticle Vaccines. *Mol. Pharmaceutics*, **2009**, 6, 1160-1169.
2. Kolesnikova, M.D.; Wilson, W.K.; Lynch, D.A.; Obermeyer, A.C.; Matsuda, S.P.T. Arabidopsis camelliol C synthase evolved from enzymes that form pentacycles. *Org. Lett.* **2007**, 9, 5223-5226.
1. Kolesnikova, M.D.; Obermeyer, A.C.; Lynch, D.A.; Xiong, Q.; Wilson, W.K.; Matsuda, S.P.T. The stereochemistry of water addition in triterpene synthesis: the structure of arabidiol. *Org. Lett.*, **2007**, 9, 2183-2186.

PATENTS

1. Olsen, B.D.; Mills, C.E.; Dong, X.; Obermeyer, A.C. Block copolymer complex coacervate core micelles for enzymatic catalysis in organic solvent. Filed 2015, U.S. Patent Application No.: 14/855,828.

INVITED PRESENTATIONS

Cummings, C.S.; Kapelner, R.A.; Yeong, V.; Obermeyer, A.C.* "Engineering phase separation of globular proteins." Department of Chemistry, St. John's University, New York, NY, March 2018.

Cummings, C.S.; Kapelner, R.A.; Yeong, V.; Obermeyer, A.C.* "Engineering complex coacervation of globular proteins." 8th Northeast Complex Fluids and Soft Matter Workshop, Columbia University, New York, NY, January 2018.

Cummings, C.S.; Kapelner, R.A.; Yeong, V.; Obermeyer, A.C.* "Insights into the liquid-liquid de-mixing of globular proteins." Department of Chemistry and Chemical Biology, Rutgers University, New Brunswick, NJ, October 2017.

Cummings, C.S.; Kapelner, R.A.; Yeong, V.; Obermeyer, A.C.* "Globular protein based complex coacervates." 254th American Chemical Society National Meeting, Washington, D.C. August 2017.

Obermeyer, A.C.*; Jarman, J.B.; Francis, M.B. "Synthetic modifications of proteins to make new biomaterials." 251st American Chemical Society National Meeting, San Diego, CA, March 2016.

Obermeyer, A.C.; Mills, C.E.; Dong, X.; Olsen, B.D. "Block copolymer coacervate core micelles for organophosphate decontamination." Chemical and Biological Defence Program Review, Falls Church, VA, September 2014.

TEACHING EXPERIENCE

Columbia University

- Instructor, Biochemical Engineering (CHEN E4660) Spring 2017, Fall 2018
- Instructor, Chemical Engineering Thermodynamics (CHEN E3210) Spring 2018

Massachusetts Institute of Technology

- Guest Lecturer, Department of Chemical Engineering, Synthesis of Polymers Spring 2015

University of California, Berkeley

- Graduate Student Instructor, Graduate Chemistry Fundamentals/Reaction Mechanisms Fall 2010
- Head Graduate Student Instructor, Undergraduate Organic Chemistry Spring 2010
- Graduate Student Instructor, Undergraduate Organic Chemistry Fall 2008

Rice University

- Undergraduate Teaching Assistant, Organic Chemistry Lab Spring 2008
- Head Discussion Section Leader, Introductory Organic Chemistry Fall 2007, Spring 2008
- Discussion Section Leader, Introductory Organic Chemistry Fall 2006, Spring 2007

MENTORING

Graduate Research Supervisor (Columbia) 2017- present

- Justin Horn, expected graduation Spring 2021
- Rachel Kapelner, expected graduation Spring 2021
- Vivian Yeong, expected graduation Spring 2022
- Nicholas Zervoudis, expected graduation Spring 2022

Postdoctoral Scholar Supervisor (Columbia) 2017- 2018

- Chad Cummings, 2017-2018, current: Research Scientist at Modern Meadow

Undergraduate Research Supervisor (Berkeley, MIT, Columbia) 2011 - present

- Bryce Jarman, Cheli Arussy, Noelle Colant, Romeo Flores, Sevahn Vorperian (advisor), Trevon Gordon, Paulina Babiak, Hanan Lane, Marisa Ngbemeneh

LEADERSHIP & SERVICE

Mentor

Summer 2017

Engineering the Next Generation (E.N.G.)

- Hosted two under-represented high school students from local partner schools for six week research experience

Volunteer

2014 - 2016

Cambridge Science Festival Nano Observatory

- Taught general public about optical microscopy as part of a broader demonstration on visualizing samples with techniques ranging from scanning electron microscopy to standard light microscopy

Team Leader

2009 - 2013

Bay Area Scientists in Schools (BASIS), Community Resources for Science

- Created hands-on lesson plans to get elementary school students excited about science

Student Organizer

2013

Science Leadership and Management (SLAM)

- Co-developed course on leading and managing a scientific research group
- Recruited speakers and organized campus-wide advertising

Service

- Reviewer for Department of Defense National Defense Science and Engineering Graduate (ND-SEG) Fellowships, *J. Am Chem. Soc.*, *ACS Macro Letters*, *Journal of Physical Chemistry*, *Advances in Colloid and Interface Science*, *Biochemical Engineering Journal*, *Analytical Biochemistry*, *Soft Matter*, *ACS Applied Materials & Interfaces*
- Session chair/co-chair at the AIChE annual meeting (2017) and the ACS annual meetings (2015-2017)