

Michelle A. O'Malley

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PRINCIPLE RESEARCH INTERESTS:

My research develops new technologies to genetically engineer non-model microbes and anaerobic consortia for sustainable chemical production, remediation, and natural product discovery. Our approach combines classical microbiology with cutting-edge tools (genome sequencing, RNA-Seq) to engineer the processes that underlie protein production. Current efforts include discovery of novel enzymes from anaerobic gut fungi, metabolic engineering for enhanced anaerobic cooperation, engineering of synthetic cellulose-degrading complexes (cellulosomes) for consolidated bioprocessing, and deciphering the structure-function relationship of membrane proteins within microbes.

EDUCATION AND TRAINING

- 2009-2012 USDA-NIFA Postdoctoral Fellowship** MIT (Dept. of Biology)/Broad Institute
Advisor: Chris A. Kaiser
- 2009 Ph.D. Chemical Engineering** University of Delaware
Advisor: Anne Skaja Robinson
Thesis Project: *Expression, Purification, and Biophysical Characterization of G-Protein Coupled Receptors Expressed from Saccharomyces cerevisiae*
- 2004 B.S. Chemical Engineering** Carnegie Mellon University
B.S. Biomedical Engineering
University Honors, College of Engineering Research Honors

PROFESSIONAL EXPERIENCE

- 2017 – Present** Academic Research Member, Engineering Biology Research Consortium (EBRC)
- 2016 – Present** Visiting Professor, Harper Adams University (UK)
- 2015 – Present** Faculty Affiliate, Interdepartmental Graduate Program in Marine Sciences (IGPMS), University of California, Santa Barbara
- 2014 – Present** Faculty Affiliate, Center for Bioengineering, University of California, Santa Barbara
- 2014 – Present** Faculty Affiliate, California NanoSystems Institute (CNSI)
- 2012 – Present** Assistant Professor, UC-Santa Barbara, Dept. of Chemical Engineering
- 2009 – 2012** USDA-NIFA Postdoctoral Fellow, MIT Dept. of Biology/Broad Institute
- 2004 – 2009** Graduate Fellow, University of Delaware Dept. of Chemical Engineering
- 2002 – 2004** Undergraduate Researcher, Carnegie Mellon, Dept. of Chemical Engineering
- 2003** REU Fellow, Case Western Reserve, Dept. of Macro. Science and Engineering
- 2001 – 2002** LERCIP Intern, NASA Glenn Research Center Polymers Division

SELECTED HONORS AND AWARDS

- 2017** ACS Women Chemist Committee (WCC) Rising Star Award
- 2017** Camille Dreyfus Teacher-Scholar Award
- 2017** ACS Division of Polymeric Materials: Science and Engineering (PMSE) Young Investigator
- 2016** Visiting Professor, Harper Adams University, UK
- 2016** National Academy of Engineering, US Frontiers of Engineering Symposium Invited Attendee
- 2016** Presidential Early Career Award for Scientists and Engineers (PECASE)
- 2016** Alan P. Colburn Memorial Lecturer, University of Delaware Dept. of Chemical Engineering
- 2015** National Science Foundation (NSF) CAREER Award
- 2015** Cottage Health – UCSB Special Research Award
- 2015** MIT Technology Review Top 35 Innovators Under 35 (TR35)
- 2014** Hellman Faculty Fellowship
- 2014** TechConnect Innovation Award
- 2013** U.S. Department of Energy (DOE) Early Career Award
- 2011 – 2013** U.S. Department of Agriculture (USDA) ARS-NIFA Postdoctoral Fellowship
- 2011** Marion and Jasper Whiting Foundation Fellowship

2010	Company of Biologists Traveling Fellowship for International Research Training
2006 – 2009	NASA-Harriet G. Jenkins Predoctoral Fellowship (20 awarded nationally)
2009, 2007	American Institute of Chemical Engineers Women's Initiatives Committee Travel Award
2008	Biophysical Society Student Travel Grant
2007	Merck Award for Best Overall Poster, Biochemical Engineering Meeting XV
2007	American Chemical Society Leadership Development Award
2007	University of Delaware Department of Chemical Engineering Teaching Fellowship
2004 – 2006	Integrative Graduate Education Research Traineeship (IGERT) NSF Fellowship
2000 – 2004	University Athletic Association (UAA) Academic Honors
2000 – 2004	Presidential Scholarship, Carnegie Mellon University

PUBLICATIONS

1. J. K. Henske, S. P. Gilmore, F. J. Cunningham, J. Sexton, C. E. Smallwood, V. Shutthanandan, J. E. Evans, M. K. Theodorou, **M. A. O'Malley**, "Transcriptomic characterization of *Caecomyces churrovis*: a novel, non-rhizoid forming lignocellulolytic anaerobic fungus," **Biotechnology for Biofuels**. (*In press*)
2. J. K. Henske[‡], S. D. Springer[‡], **M. A. O'Malley**, A. Butler, "Substrate based differential expression analysis reveals control of biomass degrading enzymes in *Pycnoporus cinnabarinus*," **Biochemical Engineering Journal**. (*In press*) [‡] equal author contributions
3. S. Seppala[‡], S. E. Wilken[‡], D. Knop, K. V. Solomon, **M. A. O'Malley**, "The importance of sourcing enzymes from non-conventional fungi for metabolic engineering & biomass breakdown," **Metabolic Engineering**, 44: 45-59 (2017). [‡] equal author contributions
<http://dx.doi.org/10.1016/j.ymben.2017.09.008> (Invited Submission)
4. J. E. Edwards, R. J. Forster, T. M. Callaghan, V. Dollhofer, S. S. Dagar, Y. Cheng, J. Chang, S. Kittelmann, K. Fliegerova, A. K. Puniya, J. K. Henske, S. P. Gilmore, **M. A. O'Malley**, G. W. Griffith, H. Smidt, "PCR and 'omics based techniques to study the diversity, ecology and biology of anaerobic fungi: insights, challenges and opportunities," **Frontiers in Microbiology**, 8:1657 (2017).
<http://dx.doi.org/10.3389/fmicb.2017.01657>
5. S. P. Gilmore, J. K. Henske, J. A. Sexton, K. V. Solomon, S. Seppala, J. I. Yoo, L. M. Huyett, A. Pressman, Z. Cogan, V. Kivenson, X. Peng, Y. Tan, D. L. Valentine, **M. A. O'Malley**, "Genomic analysis of methanogenic archaea reveals a shift towards energy conservation," **BMC Genomics**, 18:639 (2017).
<http://dx.doi.org/10.1186/s12864-017-4036-4>
6. X. Peng, C. L. Swift, M. K. Theodorou, **M. A. O'Malley**, "Methods for genomic characterization & maintenance of anaerobic fungi," **Methods in Molecular Biology, Fungal Genomics, Springer Protocols Series**. *In press*. (Invited Submission)
7. C. H. Haitjema[‡], S. P. Gilmore[‡], J. K. Henske, K. V. Solomon, R. deGroot, A. Kuo, S. Mondo, A. Kuo, S. J. Mondo, A. A. Salamov, K. LaButti, Z. Zhao, J. Chiniquy, K. Barry, H. M. Brewer, S. O. Purvine, A. T. Wright, M. Hainaut, B. Boxma, T. van Alen, J. H. P. Hackstein, B. Henrissat, S. E. Baker, I. V. Grigoriev, **M. A. O'Malley**, "A parts list for fungal cellulosomes revealed by comparative genomics," **Nature Microbiology**, 2(8): 17087 (2017). [‡] equal author contributions
<http://dx.doi.org/10.1038/nmicrobiol.2017.87>
8. S. J. Mondo, R. O. Dannebaum, R. Kuo, K. LaButti, S. Haridas, A. Kuo, A. Salamov, S. R. Ahrendt, A. Lipzen, W. Sullivan, W. Andreopolous, A. Clum, E. Lindquist, C. Daum, G. Ramamoorthy, A. Gryganskyi, D. Dulle, J. Magnuson, T. Y. James, **M. A. O'Malley**, J. E. Stajich, J. W. Spatafora, A. Visel, I. V. Grigoriev, "Widespread adenine N6-methylation of active genes in fungi", **Nature Genetics**, 49: 964-968 (2017). <http://dx.doi.org/10.1038/ng.3859>
9. J. Niu, D. J. Lunn, A. Pusuluri, J. I. Yoo, **M. A. O'Malley**, S. Mitragotri, H. T. Soh, C. J. Hawker, "Engineering live cell surfaces with functional polymers via cytocompatible controlled radical polymerization," **Nature Chemistry**, 9: 537-545 (2017). <http://dx.doi.org/10.1038/nchem.2713>
10. S. Seppala, K. V. Solomon, S. P. Gilmore, J. K. Henske, **M. A. O'Malley**, "Mapping the membrane proteome of anaerobic fungi identifies a wealth of carbohydrate binding proteins and transporters", **Microbial Cell Factories**, 15(1): 2012 (2016). <http://dx.doi.org/10.1186/s12934-016-0611-7>

11. X. Peng, S. P. Gilmore, **M. A. O'Malley**, "Microbial communities for bioprocessing: lessons learned from nature," **Current Opinion in Chemical Engineering**, 14: 103-109 (2016). (*Invited Article*) <http://dx.doi.org/10.1016/j.coche.2016.09.003>
12. J. L. Guerrero, P. S. Daugherty, **M. A. O'Malley**, "Emerging technologies for protease engineering: new tools to clear out disease," **Biotechnology & Bioengineering**, 114(1): 33-38 (2017). (*Invited Article*) <http://dx.doi.org/10.1002/bit.26066>
13. N. S. Schonenbach, M. D. Rieth, S. Han, **M. A. O'Malley**, "Adenosine A2a receptors form distinct oligomers in protein detergent complexes," **FEBS Letters**, 590: 3295-3306 (2016). <http://dx.doi.org/10.1002/1873-3468.12367>
14. G. J. Li, et al (+134 additional authors including K. V. Solomon, J. K. Henske, C. H. Haitjema, S. P. Gilmore, M. K. Theodorou, and **M. A. O'Malley**), "Fungal diversity notes 253-366: taxonomic and phylogenetic contributions to fungal taxa," **Fungal Diversity**, 78(1): 1-237 (2016). <http://dx.doi.org/10.1007/s13225-016-0366-9>
15. K. V. Solomon, E. Ovadia, F. Yu, W. Mizunashi, **M. A. O'Malley**, "Mitochondrial targeting increases specific activity of a heterologous valine assimilation pathway in *Saccharomyces cerevisiae*," **Metabolic Engineering Communications**, 3: 68-75 (2016). (*Most Accessed Article*) <http://dx.doi.org/10.1016/j.meteno.2016.03.004>
16. K. V. Solomon, C. H. Haitjema, J. K. Henske, S. P. Gilmore, D. Borges-Rivera, A. Lipzen, H. M. Brewer, S. O. Purvine, A. T. Wright, M. K. Theodorou, I. Grigoriev, A. Regev, D. A. Thompson, **M. A. O'Malley**, "Early-branching gut fungi possess a large, comprehensive array of biomass-degrading enzymes," **Science**, 351: 1192-1195 (2016). <http://dx.doi.org/10.1126/science.aad1431>
- Highlighted ahead of print as a First Release; featured in BBC News, Newsweek, CNBC News, Forbes, and radio interview on the BBC Newshour. Featured in Trends in Biochemical Sciences in a commentary by N. Louise Glass.**
17. J. L. Guerrero, **M. A. O'Malley**, P. S. Daugherty, "Intracellular FRET-based screen for redesigning the specificity of secreted proteases," **ACS-Chemical Biology**, 11(4): 961-970 (2016). <http://dx.doi.org/10.1021/acschembio.5b01051>
18. K. V. Solomon[‡], J. K. Henske[‡], M. K. Theodorou, **M. A. O'Malley**, "Robust and effective methodologies for cryopreservation and DNA extraction from anaerobic gut fungi," **Anaerobe**, 38: 39-46 (2016). [‡] equal author contributions (*Most Accessed Article*) <http://dx.doi.org/10.1016/j.anaerobe.2015.11.008>
19. S. P. Gilmore, J. K. Henske, **M. A. O'Malley**, "Driving biomass breakdown through engineered cellulosomes," **Bioengineered**, 6:4, 204-208 (2015). (*Invited Article, Most Accessed Article*) <http://dx.doi.org/10.1080/21655979.2015.1060379>
20. N. S. Schonenbach, S. Hussain, **M. A. O'Malley**, "Structure and function of G-protein coupled receptor oligomers: implications for drug discovery," **WIREs: Nanomedicine and Nanobiotechnology**, 7: 408-427 (2015). (*Invited Article*) <http://dx.doi.org/10.1002/wnan.1319>
21. C. Haitjema, K. V. Solomon, J. K. Henske, M. K. Theodorou, **M. A. O'Malley**, "Anaerobic gut fungi: advances in isolation, culture, and cellulolytic enzyme discovery for biofuel production," **Biotechnology & Bioengineering**, 111(8): 1471-1482 (2014). (*Invited Article*) <http://dx.doi.org/10.1002/bit.25264>
22. K. V. Solomon, C. H. Haitjema, D. A. Thompson, **M. A. O'Malley**, "Extracting data from the muck: deriving biological insight from complex microbial communities and non-model organisms with next-generation sequencing," **Current Opinion in Biotechnology**, 28: 103-110 (2014). (*Invited Article*) <http://dx.doi.org/10.1016/j.copbio.2014.01.007>
23. **M. A. O'Malley**, M. K. Theodorou, C. A. Kaiser, "Evaluating expression and catalytic activity of anaerobic fungal fibrolytic enzymes native to *Piromyces* sp E2 in *Saccharomyces cerevisiae*," **Environmental Progress and Sustainable Energy**, 31(1): 37-46 (2012). (*Most Accessed Article*) <http://dx.doi.org/10.1002/ep.10614>

24. **M. A. O'Malley**, "Neuromethods, Vol. 60: Methods for the Discovery and Characterization of G Protein-Coupled Receptors, edited by Craig W. Stevens", **ChemBioChem**, 13(6): 905-906 (2012). (Book Review) <http://dx.doi.org/10.1002/cbic.201100751>
25. **M. A. O'Malley**, M. E. Helgeson, N. J. Wagner, A. S. Robinson, "Toward rational design of protein detergent complexes: determinants of mixed micelles that are critical for the *in vitro* stabilization of a G-protein coupled receptor," **Biophysical Journal**, 101(8): 1938-1948 (2011). <http://dx.doi.org/10.1016/j.bpj.2011.09.018>
26. **M. A. O'Malley**, M. E. Helgeson, N. J. Wagner, A. S. Robinson, "The morphology and composition of cholesterol-rich micellar nanostructures determine transmembrane protein (GPCR) activity," **Biophysical Journal**, 100(2):L11-L13 (2011). (*Featured Article, Most Accessed Article*) <http://dx.doi.org/10.1016/j.bpj.2010.12.3698>
27. **M. A. O'Malley**, A. N. Naranjo, T. Lazarova, A. S. Robinson, "Analysis of adenosine A_{2a} receptor stability: effects of ligands and disulfide bonds," **Biochemistry**, 49: 9181-9189 (2010). <http://dx.doi.org/10.1021/bi101155r>
28. **M. A. O'Malley**, J. D. Mancini, C. L. Young, E. C. McCusker, D. Raden, A. S. Robinson, "Progress towards heterologous expression of active G-protein coupled receptors in *Saccharomyces cerevisiae*: linking cellular stress responses with translocation and trafficking," **Protein Science**, 18(11):2356-2370 (2009). <http://dx.doi.org/10.1002/pro.246>
29. **M. A. O'Malley**, T. Lazarova, Z. T. Britton, A. S. Robinson, "High-level expression in *Saccharomyces cerevisiae* enables isolation and spectroscopic characterization of functional human adenosine A_{2a} receptor," **Journal of Structural Biology**, 159:166-178 (2007). (*Invited Article*) <http://dx.doi.org/10.1016/j.jsb.2007.05.001>
30. E. C. McCusker, S. E. Bane, **M. A. O'Malley**, A. S. Robinson, "Heterologous GPCR expression: a bottleneck to obtaining crystal structures," **Biotechnology Progress**, 23(3):540-547 (2007). (*Invited Article*) <http://dx.doi.org/10.1021/bp060349b>
31. A. Wedekind, **M. A. O'Malley**, R. T. Niebauer, A. S. Robinson, "Optimization of the human adenosine A_{2a} receptor yields in *Saccharomyces cerevisiae*," **Biotechnology Progress**, 22(5):1249-1255 (2006). <http://dx.doi.org/10.1021/bp050431r>

INTELLECTUAL PROPERTY

Invention Disclosure and Provisional Patent Application – Inventors: Jennifer Guerrero, Michelle A. O'Malley, Patrick S. Daugherty. "Methods and compositions for redesigning secreted proteases for therapeutic use," Assignee: The Regents of the University of California; UC CASE NUMBER: UCSB 2016-011

Invention Disclosure and Provisional Patent – Inventors: Michelle A. O'Malley, Kevin V. Solomon. "Bioproduction of Methyl Methacrylate," Assignee: The Regents of the University of California; UC CASE NUMBER: UCSB 2015-334-1; ATTORNEY DOCKET NUMBER: UCSB015P.

Invention Disclosure and Provisional Patent – Inventors: Michelle A. O'Malley, Kevin V. Solomon, and Charles H. Haitjema. "Production of Biofuels from Novel Fungal Strains and Enzymes Derived Therefrom," Assignee: The Regents of the University of California; UC CASE NUMBER: UCSB 2014-075; ATTORNEY DOCKET NUMBER: UCSB007P.

Invention Disclosure and Provisional Patent – Inventors: Michelle A. O'Malley, Kevin V. Solomon, John K. Henske, and Charles H. Haitjema. "Novel Polyketide Synthase Domains from Fungal Organisms," Assignee: The Regents of the University of California; UC CASE NUMBER: UCSB 2014-075; ATTORNEY DOCKET NUMBER: UCSB008P.

SELECTED PUBLICITY, QUOTES, AND FEATURED ARTICLES

How Fungal Enzymes Break Down Cell Walls, **DOE Office of Science**: November 14, 2017
<https://science.energy.gov/ber/highlights/2017/ber-2017-11-d/>

Driving Better Biofuels, **Academic Minute** (NPR Radio Interview): November 2, 2017.
<https://academicminute.org/2017/11/michelle-omalley-university-of-california-santa-barbara-biofuels/>

Fungal Enzymes Team Up to More Efficiently Break Down Cellulose, **DOE JGI**: May 26, 2017.
<http://jgi.doe.gov/fungal-enzymes-team-up-efficiently-break-down-cellulose/>

Yes, you can have a life outside the lab, **Science**: May 24, 2017.
<http://www.sciencemag.org/careers/2017/05/yes-you-can-have-life-outside-lab>

Getting the Most Out of Your Postdoc, **Science**: September 19, 2016.
<http://www.sciencemag.org/careers/2016/09/getting-most-out-your-postdoc>

Female Researchers Highlighted as Biofuel Innovators, **Laboratory Equipment**: August, 2016.
<http://science.energy.gov/news/featured-articles/2016/05-11-16/>

What Biofuel Production Can Learn from the Zoo, **Department of Energy**: May 11, 2016.
<http://science.energy.gov/news/featured-articles/2016/05-11-16/>

Can Goat Poop Overpower Fossil Fuels, **Forbes**: February 26, 2016.
<http://www.forbes.com/sites/jamesconca/2016/02/26/can-goat-poop-overpower-fossil-fuels/#a76c71d7c76f>

Gut Feeling: How Animals Can Transform Renewables, **CNBC**: February 23, 2016.
<http://www.cnbc.com/2016/02/23/gut-feeling-how-animals-can-transform-renewables.html>

Fungi from goats' guts could lead to better biofuels, **BBC News (Accompanying radio interview on BBC Newshour)**: February 19, 2016.
<http://www.bbc.com/news/science-environment-35612554>

Biofuel from Fungi: barnyard poop has potential to be broken down and turned into energy, **Newsweek**: February 19, 2016.
<http://www.newsweek.com/biofuel-fungi-farm-animal-poop-energy-428623>

Biofuel Tech Straight from the Farm, **PNNL**: February 18, 2016.
<https://www.pnnl.gov/science/highlights/highlight.asp?id=4203>

35 Innovators Under 35, 2015, **MIT Technology Review**: August 18, 2015
<http://www.technologyreview.com/lists/innovators-under-35/2015/pioneer/michelle-omalley/>

Engineering a new chemical communication system into bacteria, **Chemical & Engineering (C&E) News**: August 10, 2015.
<http://cen.acs.org/articles/93/web/2015/08/Engineering-New-Chemical-Communication-System.html>

Why the Biofuels Industry Needs New Technology, **MIT Technology Review**: June 29, 2015.
<http://www.technologyreview.com/news/538876/at-a-crossroads-biofuels-seek-a-new-path-forward/>

It Takes Teamwork, Environmental Molecular Science Laboratory (EMSL) **Molecular Bond**: August 1, 2014.
http://www.emsl.pnnl.gov/emslweb/sites/default/files/TMB_August_2014_WEB.pdf

Just Horsing Around, **Institution of Chemical Engineering Blog**: September 24, 2014.
<http://ichemeblog.org/2014/09/24/just-horsing-around-day-120/comment-page-1/>

Brewing Biofuel, **The Why Files**: January 31, 2014.
<http://whyfiles.org/2014/brewing-biofuel/>

Enzymes from horse feces could hold secret to streamlining biofuel production, **American Chemical Society (ACS)**: April 11, 2013.
http://portal.acs.org/portal/acs/corg/content?nfpb=true&pageLabel=PP_ARTICLEMAIN&node_id=222&content_id=CNBP_032591&use_sec=true&sec_url_var=region1&uuid=52def8c3-abc4-4a47-b22a-1de81f3c8aa8

Biofuel: What's new to make you go vroom!, **Huffingtonpost**: April 30, 2013.
http://www.huffingtonpost.ca/jason-tetro/biofuel_b_3127654.html

The secret to biofuels might be hidden in poop, **Smithsonian.com**: April 16, 2013.
<http://blogs.smithsonianmag.com/smartnews/2013/04/the-secret-to-biofuels-might-be-hidden-in-poop/>

Horse poop fungi hold secret to cheaper biofuels, **Discovery News**: April 11, 2013.

<http://news.discovery.com/tech/alternative-power-sources/horse-poop-fungi-biofuel-130411.htm>

Horse manure yields secret to ethanol fuel, **Los Angeles Times**: April 11, 2013.

<http://articles.latimes.com/2013/apr/11/science/la-sci-sn-horse-manure-fuel-20130409>

INVITED SEMINARS

“Unlocking the Potential of Early-Branching Fungi for Biomass Breakdown & Conversion” **Lawrence Berkeley National Laboratory**, Division of Life Sciences, Berkeley, CA, March 2017.

“Unlocking the Potential of Early-Branching Fungi for Biomass Breakdown & Conversion” **Carnegie Mellon University**, Department of Chemical Engineering, Pittsburgh, PA, March 2017.

“Unlocking the Potential of Early-Branching Fungi for Biomass Breakdown & Conversion” **U.S. Department of Energy**, Division of Biological and Environmental Research, Arlington, VA, February 2017.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemistry,” Department of Chemical and Biomolecular Engineering, **Cornell University**, Ithaca, NY, December 2016.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemistry,” Department of Chemical Engineering, **Stanford University**, Palo Alto, CA, October 2016.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemistry,” **SLAC National Accelerator Laboratory**, Palo Alto, CA, August 2016.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemistry,” **Argonne National Laboratory**, Chicago, IL, July 2016.

“What Gut Microbes Can Teach us about Sustainability,” **UCSB GRIT Talks**, Santa Barbara, CA, June 2016.

“Microbial Allies to Promote Coastal Health”, University of California Global Health Institute (UCGHI) Silicon Valley Venture Partners, **UC San Francisco**, CA, May 2016.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemistry,” Department of Chemical and Biomolecular Engineering **Alan P. Colburn Memorial Lecture, University of Delaware**, Newark, DE, May 2016.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemistry,” Department of Chemical Engineering, **MIT**, Cambridge, MA, April 2016.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemistry,” Department of Botany, **University of British Columbia**, Vancouver, Canada, February 2016.

“Engineering Anaerobes for Value-added Bioproduction,” **US Army Research Laboratory (ARL)**, Adelphi, MD, February 2016.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemistry,” **DuPont Experimental Station**, Wilmington, DE, February 2016.

“Engineering Membrane Proteins: The Gatekeepers of the Cell”, UCSB Department of Psychology and Brain Sciences, **UC-Santa Barbara**, CA, December 2015.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemistry,” **DuPont Industrial Biosciences Division**, Palo Alto, CA, November 2015.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemistry,” **Joint BioEnergy Institute (JBEI)**, Emeryville, CA, October 2015.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemistry,” Department of Chemical and Biomolecular Engineering, **Tulane University**, New Orleans, LA, October 2015.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemistry,” Department of Chemical and Biomolecular Engineering, **Georgia Tech**, Atlanta, GA, August 2015.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemistry,” MIT Microbial Systems Seminar, **MIT**, June 2015.

“New Enzymes from Old Microbes: Exploiting Anaerobic Gut Fungi for Biomass Breakdown,” **UC-Riverside**, Department of Chemical and Environmental Engineering, Riverside, CA, May 2015.

“New Enzymes from Old Microbes: Exploiting Anaerobic Gut Fungi for Biomass Breakdown,” **National Renewable Energy Laboratory (NREL)**, Golden, CO, March 2015.

“New Enzymes from Old Microbes: Exploiting Anaerobic Gut Fungi for Biomass Breakdown,” **U.S. Department of Energy**, Division of Biological and Environmental Research, Arlington, VA, February 2015.

“Transcriptomic and Proteomic Characterization of Anaerobic Gut Fungi,” **Environmental Molecular Sciences Laboratory (EMSL)**, PNNL, Richland, WA, September 2014.

“Fueling Sustainability: Engineering Anaerobic Gut Fungi for Biomass Breakdown,” **UC-Irvine**, Department of Chemical Engineering, Irvine, CA, May 2014.

“Fueling Sustainability: Engineering Microbial Systems for Lignocellulose Breakdown,” Department of Chemical and Biomolecular Engineering, **UCLA**, Los Angeles, CA, October 2013.

“Fueling Sustainability: Engineering Microbial Systems for Lignocellulose Breakdown,” UCSB Biomolecular Science and Engineering (BMSE) Program, **UC-Santa Barbara**, CA, November 2012.

“Transcriptomic Analysis Reveals Novel Enzymes from Anaerobic Fungi,” **U.S. Department of Agriculture** National Institute of Food and Agriculture (NIFA), Washington, DC, August 2012.

“Engineering the Yeast *Saccharomyces cerevisiae* for Drug Discovery and Bioenergy Applications”, **UC-Santa Barbara**, Dept. of Chemical Engineering, Santa Barbara, CA, April 2011.

“Engineering the Yeast *Saccharomyces cerevisiae* for Drug Discovery and Bioenergy Applications”, **Case Western Reserve University**, Department of Chemical Engineering, Cleveland, OH, March 2011.

“Engineering the Yeast *Saccharomyces cerevisiae* for Drug Discovery and Bioenergy Applications”, **University of Notre Dame**, Dept. of Chemical and Biomolecular Engineering, South Bend, IN, March 2011.

“Engineering the Yeast *Saccharomyces cerevisiae* for Drug Discovery and Bioenergy Applications”, **University of Maryland**, Fischell Department of Bioengineering, College Park, MD, March 2011.

“Engineering the Yeast *Saccharomyces cerevisiae* for Drug Discovery and Bioenergy Applications”, **UC-Riverside**, Dept. of Chemical and Environmental Engineering, Riverside, CA, March 2011.

“Engineering the Yeast *Saccharomyces cerevisiae* for Drug Discovery and Bioenergy Applications”, **University of Texas at Austin**, Department of Chemical Engineering, Austin, TX, March 2011.

“Towards Rational Drug Design: Engineering Yeast for the Over-expression and Characterization of Membrane Proteins”, **Cornell**, Dept. of Chemical and Biomolecular Engineering, Ithaca, NY, March 2010.

“Surfactant Effects on Activity and Structure of the Human Adenosine A_{2a} G-Protein Coupled Receptor”, **NIST** Center for Neutron Research, Gaithersburg, MD, June 2008.

INVITED CONFERENCE PRESENTATIONS

“Deciphering the Role of Fungal Secondary Metabolites within Anaerobic Microbial Communities,” Microbial and Plant Systems Modulated by Secondary Metabolites Meeting, Walnut Creek, CA, July 2017.

“A Parts List for Fungal Cellulosomes Revealed by Comparative Genomics,” Gordon Research Conference on Cellulases, Cellulosomes, and Other Carbohydrate Modifying Enzymes (**Keynote Presentation**), Andover, NH, July 2017.

“Selective Enrichment of Syntrophic Anaerobic Communities Enables Rapid Conversion of Biomass,” Society for Industrial Microbiology (SIMB) Annual Meeting, Denver, CO, July 2017.

“Exploiting Anaerobes for Biomass Breakdown & Sustainable Chemistry,” Novo Nordisk Copenhagen Bioscience Conference: Data-driven Biotechnology – Bench, Bioreactor, & Bedside, Copenhagen, Denmark, May 2017.

“Engineering Early-Branching Anaerobic Gut Fungi for Lignocellulose Breakdown and Bioproduction,” **American Chemical Society Presidential Symposium**, San Francisco, CA, April 2017.

“Novel Carbohydrate Active Enzymes from Anaerobic Fungi and Anaerobic Communities,” **American Chemical Society PMSE Young Investigator Award**, San Francisco, CA, April 2017.

“Building Synthetic Anaerobic Consortia from the Bottom-Up,” U.S. Army Workshop on Microbial Consortia & Biofilms, Santa Barbara, CA, March 2017.

“Unlocking the Secondary Metabolites of Early-Branching Anaerobic Fungi”, Joint Genome Institute (JGI) User Meeting: Metabolomics Workshop, Walnut Creek, CA, March 2017.

“Unlocking the Potential of Neocallimastigomycota for Biomass Breakdown”, Joint Genome Institute (JGI) User Meeting: Fungal Genomics Workshop, Walnut Creek, CA, March 2017.

“Bottom-up Construction of Microbial Consortia Inspired by Nature,” International Conference on Biomolecular Engineering (ICBE), San Diego, CA, January 2017.

“Young Faculty Forum: How to Start a Research Group,” American Institute of Chemical Engineers Annual Meeting, San Francisco, CA, November 2016.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemistry,” DOE-BER Workshop on Molecular to Mesoscale Technologies, Rockville, MD, September 2016.

“Engineering Early-Branching Anaerobic Gut Fungi for Lignocellulose Breakdown and Bioproduction,” Society for Industrial Microbiology (SIMB), New Orleans, LA, July 2016.

“Novel Carbohydrate Active Enzymes from Anaerobic Fungi and Anaerobic Communities,” FASEB Conference on Microbial Glycobiology, West Palm Beach, FL, June 2016.

“Deciphering the Biomass-degrading Abilities of Anaerobic Gut Fungi (Neocallimastigales),” 13th European Congress on Fungal Genetics, Paris, France, April 2016.

“Deciphering the Biomass-degrading Abilities of Anaerobic Gut Fungi,” Joint Genome Institute (JGI) User Meeting: Genomics of Energy & Environment, Walnut Creek, CA, March 2016.

“Exploiting Anaerobes for Biomass Breakdown and Bioproduction,” Materials Research Outreach Program (MROP), Santa Barbara, CA, February 2016.

“Understanding Microbes Can Advance Biofuels,” MIT Emerging Technology (EmTech) Conference, Cambridge, MA, November 2015.

“New Enzymes from Old Microbes: Exploiting Anaerobic Gut Fungi for Biomass Breakdown,” Gordon Research Conference on Cellulases, Cellulosomes, and Other Carbohydrate Modifying Enzymes, Andover, NH, August 2015.

“Designing Synthetic Anaerobic Communities Based on Syntrophy,” Biochemical & Molecular Engineering XIX, Puerto Vallarta, Mexico, July 2015.

“Reconstructing Anaerobic Microbiomes from the Bottom-up: New Techniques to Decipher Interwoven Metabolism,” Synthetic, Evolution, Engineering & Design (SEED) Conference, Boston, MA, June 2015.

“Engineering Synthetic Cellulose-degrading Complexes Inspired by Gut Fungi,” ICB-Army Systems & Synthetic Biology Meeting, Pasadena, CA, April 2015.

“Exploiting Anaerobes for Biomass Breakdown and Sustainable Chemical Production,” Engineering Strategies for a Sustainable Food Supply Chain AIChE Workshop, Princeton, NJ, March 2015.

“Lignocellulose Breakdown by Anaerobic Microbial Communities,” UCSB Center for Sustainable Use of Renewable Feedstocks (CenSURF), Santa Barbara, CA, August 2014.

“Identification and Regulation of Novel Cellulases within Anaerobic Gut Fungi,” American Chemical Society Fall Meeting, San Francisco, CA, August 2014.

“Fueling Sustainability: Engineering Anaerobic Microbes for Biomass Breakdown and Biofuel Production,” Chalmers-UCSB Workshop on Advanced Materials, Gothenburg, Sweden, June 2014.

“Fueling Sustainability: Turning Marine Pests into Commodity Chemicals,” University of California Systemwide Bioengineering Meeting, Irvine, CA, June 2014.

“Engineering Anaerobic Gut Fungi for Lignocellulose Breakdown,” U.S. Department of Energy, Division of Biological and Environmental Research (BER), Arlington, VA, February 2014.

“Fueling Sustainability: Engineering Anaerobic Gut Fungi for Lignocellulose Breakdown,” Southern California Systems Biology Conference, Irvine, CA, January 2014.

SELECTED CONTRIBUTED CONFERENCE PRESENTATIONS

S. P. Gilmore, X. Peng, J. K. Henske, K. V. Solomon, M. K. Theodorou, D. L. Valentine, **M. A. O’Malley**, “Bottom-up Construction of Microbial Consortia Inspired by Nature,” American Institute of Chemical Engineering Annual Meeting, San Francisco, CA, November 2016.

S. Seppala, K. V. Solomon, J. K. Henske, S. P. Gilmore, M. D. Reith, **M. A. O’Malley**, “Novel Gut Fungal Sugar Transporters for Improved Bioprocess Efficiency,” American Chemical Society Annual Meeting, San Diego, CA, March 2016.

K. V. Solomon, S. Seppala, **M. A. O’Malley**, “Novel Gut Fungal Sugar Transporters for Improved Bioprocess Efficiency,” American Institute of Chemical Engineering Annual Meeting, Salt Lake City, UT November 2015.

S. P. Gilmore, J. A. Sexton, J. K. Henske, M. K. Theodorou, D. L. Valentine, **M. A. O’Malley**, “Reconstructing Anaerobic Microbiomes from the ‘Bottom-up’: New Techniques to Decipher Interwoven Metabolism,” American Institute of Chemical Engineering Annual Meeting, Salt Lake City, UT November 2015.

J. A. Sexton, K. V. Solomon, J. K. Henske, D. Valentine, M. K. Theodorou, **M. A. O’Malley**, “Reconstructing Anaerobic Microbiomes from the ‘Bottom-up’: New Techniques to Decipher Interwoven Metabolism,” American Chemical Society Spring Meeting, Denver, CO, March 2015.

K. V. Solomon, J. K. Henske, C. Haitjema, D. Borges-Rivera, D. A. Thompson, A. Regev, **M. A. O’Malley**, “Deciphering transcriptional regulation patterns for novel enzyme discovery,” International Conference on Biological Engineering (ICBE), Austin, TX, January 2015.

N. S. Schonenbach, S. Han, **M. A. O’Malley**, “Investigating Changes in Structural Conformation for Human Adenosine A2a Receptor Complexes Upon Ligand Binding,” American Institute of Chemical Engineering Annual Meeting, Atlanta, GA, November 2014.

K. V. Solomon, J. K. Henske, C. Haitjema, D. Borges-Rivera, D. A. Thompson, A. Regev, **M. A. O’Malley**, “Deciphering Dynamic Regulation Patterns of Cellulose-degrading Enzymes in Anaerobic Fungi,” Synthetic Evolution, Engineering & Design (SEED), Manhattan Beach, CA, July 2014.

K. V. Solomon, J. K. Henske, C. Haitjema, D. Borges-Rivera, D. A. Thompson, A. Regev, **M. A. O’Malley**, “Deciphering Dynamic Regulation Patterns of Cellulose-degrading Enzymes in Anaerobic Fungi,” Metabolic Engineering X, Vancouver, CA, July 2014.

M. A. O'Malley^{*}, J. K. Henske, K. V. Solomon, C. H. Haitjema, "Engineering Anaerobic Gut Fungi for the Production of Fuels and Bioactive Compounds," American Chemical Society Spring Meeting, Dallas, TX, March 2014.

C. H. Haitjema, K. V. Solomon, J. K. Henske, M. K. Theodorou, **M. A. O'Malley**^{*}, "Correlating Biomass Degradation with the Dynamic Composition of Fungal Cellulosomes," American Institute of Chemical Engineering National Meeting, San Francisco, CA, November 2013.

K. V. Solomon, C. Haitjema, D. Borges-Rivera, D. Thompson, A. Regev, **M. A. O'Malley**^{*}, "Transcriptomic Analysis Reveals Novel Lignocellulolytic Enzymes from Anaerobic Gut Fungi," American Chemical Society Spring Meeting, New Orleans, LA, April 2013. (highlighted by national ACS press release)

K. V. Solomon, C. Haitjema, D. Borges-Rivera, D. Thompson, A. Regev, **M. A. O'Malley**^{*}, "Engineering Anaerobic Gut Fungi for Lignocellulose Breakdown", International Conference on Biological Engineering (ICBE), Fort Lauderdale, FL, January 2013.

M. A. O'Malley^{*}, D. Borges-Rivera, D. Thompson, M. K. Theodorou, C. A. Kaiser, A. Regev, "Transcriptomic Analysis Reveals Global Regulation of Lignocellulolytic Enzymes in Anaerobic Fungi", American Institute of Chemical Engineering National Meeting, Pittsburgh, PA, November 2012.

M. A. O'Malley^{*}, M. E. Helgeson, N. J. Wagner, A. S. Robinson, "Rational Design of Protein Detergent Complexes for the Biophysical Characterization of G-Protein Coupled Receptors", FASEB Summer Research Conference on Molecular Biophysics of Cellular Membranes, Snowmass Village, CO, June 2012.

M. A. O'Malley^{*}, M. K. Theodorou, C. A. Kaiser, "Engineering Anaerobic Gut Fungi for Lignocellulose Hydrolysis and Biofuel Production", American Institute of Chemical Engineers National Meeting, Minneapolis, MN, October 2011.

M. A. O'Malley^{*}, M. K. Theodorou, A. Regev, C. A. Kaiser, "Genetic Identification and Characterization of Novel Cellulases and Cellulolytic Complexes from Anaerobic Fungi", Biochemical and Molecular Engineering XVII: Emerging Frontiers, Seattle, WA, June 2011. (Poster)

M. A. O'Malley^{*}, C. A. Kaiser, "Towards Consolidated Bio-Processing: Engineering *Saccharomyces cerevisiae* for the Expression and Evaluation of Novel Anaerobic Fungal Cellulases", American Institute of Chemical Engineers National Meeting, Salt Lake City, UT, November 2010.

M. A. O'Malley^{*}, A. N. Naranjo, T. Lazarova, A. S. Robinson, "Exploring Conformational Changes and Folding for a Model G-Protein Coupled Receptor Using Biophysical Techniques", American Institute of Chemical Engineers National Meeting, Salt Lake City, UT, November 2010.

M. A. O'Malley^{*}, Ö. Can, A. S. Robinson, "Understanding Translocation Bottlenecks for Mammalian G-protein Coupled Receptors Heterologously Expressed in *Saccharomyces cerevisiae*", American Institute of Chemical Engineers National Meeting, Nashville, TN, November 2009.

M. A. O'Malley^{*}, M. E. Helgeson, P. Butler, N. J. Wagner, A. S. Robinson, "Characterization of Maltoside-based Mixed Micelles for the Reconstitution of a Model G-protein Coupled Receptor", American Institute of Chemical Engineers National Meeting, Nashville, TN, November 2009.

M. A. O'Malley^{*}, A. N. Naranjo, T. Lazarova, A. S. Robinson, "Exploring Conformational Changes and Folding for a Model GPCR Using Biophysical Techniques", American Institute of Chemical Engineers National Meeting, Nashville, TN, November 2009. (Poster)

M. A. O'Malley^{*}, J. D. Mancini, O. Can, C. L. Young, D. Raden, A. S. Robinson, "Heterologous Expression of G-Protein Coupled Receptors in *S. cerevisiae*: Linking Translocation with Folding and Localization", Biochemical Engineering XVI, Burlington, VT, July 2009 (Poster).

M. A. O'Malley^{*}, J. D. Mancini, C. L. Young, D. Raden, A. S. Robinson, "Engineering *Saccharomyces cerevisiae* for the Heterologous Expression of Mammalian G-protein Coupled Receptors", American Institute of Chemical Engineers National Meeting, Philadelphia, PA, November 2008.

M. A. O'Malley*, J. D. Mancini, C. L. Young, D. Raden, A. S. Robinson, "Engineering *Saccharomyces cerevisiae* for the Heterologous Expression of Mammalian G-protein Coupled Receptors", Annual Meeting of the American Chemical Society, Philadelphia, PA, August 2008.

M. A. O'Malley*, J. D. Mancini, C. L. Young, D. Raden, A. S. Robinson, "Engineering *Saccharomyces cerevisiae* for the Expression and Biophysical Characterization of G-Protein Coupled Receptors", FASEB Summer Research Conference on Molecular Biophysics of Cellular Membranes, Saxtons River, VT, July 2008. (Poster)

M. A. O'Malley*, T. Lazarova, A. S. Robinson, "Biophysical Characterization of the Human Adenosine A_{2a} Receptor", Joint Meeting of the Biophysical Society and the International Biophysics Congress, Long Beach, CA, February 2008. (Selected for Platform talk)

M. A. O'Malley*, T. Lazarova, A. S. Robinson, "Biophysical Characterization of the Human Adenosine A_{2a} G-Protein Coupled Receptor Expressed from *Saccharomyces cerevisiae*", American Institute of Chemical Engineers National Meeting, Salt Lake City, UT, November 2007.

A. S. Robinson, **M. A. O'Malley***, E. C. McCusker, "Engineering Approaches to Membrane Protein Expression in Yeast", Biochemical Engineering XV, Québec City, Canada, July 2007.

M. A. O'Malley*, E. C. McCusker, D. Mancini, A. S. Robinson "Engineering *Saccharomyces cerevisiae* for the Expression, Purification, and Characterization of G-Protein Coupled Receptors", Biochemical Engineering Meeting XV, Québec City, Canada, July 2007. (Poster)

M. A. O'Malley*, A. S. Robinson, "Surfactant Effects on Activity and Structure of the Human Adenosine A_{2a} G-protein Coupled Receptor", American Chemical Society Colloids Division Meeting, Newark, DE, June 2007.

M. A. O'Malley*, A. S. Robinson, "High-Level Expression and Purification of the Human Adenosine A_{2a} G-Protein Coupled Receptor", Annual Meeting of the American Chemical Society, San Francisco, CA, October 2006. (Poster)

UNIVERSITY SERVICE

2016 – present	Member, College Lectureship Advisory Committee, College of Engineering
2015 – present	Faculty Advisor, Biological Nanostructures Laboratory (BNL), CNSI
2015 – present	Task Order Leader, Systems & Synthetic Biology, Institute for Collaborative Biotechnologies (ICB)
2014 – present	Chair, Undergraduate Bioengineering Committee

Establishing a New Undergraduate Bioengineering Major: Leading a team of faculty to design curricula and refine a campus proposal that will establish an undergraduate B.S. Bioengineering degree through the College of Engineering (CoE) on the UCSB campus.

Increasing Genomics Capabilities on the UCSB Campus: As faculty advisor to the Biological Nanostructures Laboratory (BNL) at the CNSI, led successful grant writing efforts to secure Illumina NextSeq & MiSeq instruments (with supporting instrumentation) that were installed in the BNL facility for common core use.

DEPARTMENTAL SERVICE

2015 – present	Chair, Graduate Admissions Committee
2014 – 2015	Member, Graduate Admissions Committee
2014 – present	Member, Diversity Committee
2012 – 2015	Member, Graduate Affairs Committee
2012 – present	Member, Undergraduate Laboratory Committee
2012 – 2014	Advisor, AIChE Student Chapter

Curriculum Development for Undergraduate Laboratories: Designing new biological laboratory experiments, rehabilitating existing experiments, and modifying course materials and teaching/grading

methodology to enhance the student experience in the 180A and 180B undergraduate Chemical Engineering laboratories.

Active Participant in K-12 and Graduate Outreach: Santa Barbara Zoo Summer Camp, ARC Summer Scholar Program, UCSB Summer Institute in Math and Science (SIMS) Program, INSET Program, Materials Research Laboratory Future Faculty Program, AIChE Women's Initiatives Committee Future Faculty Panelist, UCSB Research Experience for Teachers (RET) Program, UCSB SABRE Program, UCSB ICB-URAP Program, Invited Speaker at STEM Night (Bishop Diego Garcia High School), STEM Speaker (Magnificat High School)

Broadening Participation of Women: Founded a new Diversity Committee within the Department of Chemical Engineering at UCSB, aimed at increasing the enrollment and retention of women and minorities at the graduate and post-graduate levels. To date, Prof. O'Malley has trained 25+ undergraduate students in her laboratory, including 13 women. Served as a keynote speaker for the 2016 Society of Women Engineering (SWE) Industrial Networking Evening, and donated time to speaking at high schools to encourage participation in STEM (Bishop Diego Garcia High School, Magnificat High School).

SERVICE TO THE COMMUNITY & PROFESSIONAL MEMBERSHIPS

Reviewer: *Nature Scientific Reports, ACS-Nano, ACS-Synthetic Biology, Biotechnology for Biofuels, Microbial Cell Factories, Biotechnology & Bioengineering, PloS One, Biotechnology & Applied Biochemistry, Nucleic Acids Research, FEMS Microbiology Letters, Biotechnology Journal, BBA-Biomembranes, Biotechnology Advances, Biochemical Engineering Journal, Environmental Progress and Sustainable Energy, RSC-Advances, Hormone and Metabolic Research, ChemBioChem*

Review Panelist: NSF-CBET Biochemical Bioengineering Unsolicited Proposals Panels (2012, 2013, 2014); NSF-MCB Systems & Synthetic Biology Panels (2016); NSF-CBET Biomass and Biofuels Panel (2014); DOE BES Panel (2015); DOE Biological and Environmental Research Panel (2014); EMSL Proposal Panels (2013, 2014, 2015, 2016); Oak Ridge National Lab Fellowship Program (2014); DOE-JGI Community Science Program (2014, 2015, 2016); DOE-BER Bioenergy Planning Workshop (2014); DOE-JGI-EMSL Collaborative Proposals (2015); USDA NIFA (2015); NASA Synthetic Biology (2015); Errett Fisher Discovery Fellowship (2016); Genome Canada (2016); Christian Doppler Research Association (2016); Austrian Science Fund (2016); Department of Energy, Experimental Program to Stimulate Competitive Research (EPSCoR) (2016)

Advisory Boards: EMSL Quiet Wing Advisory Board, PNNL; Department of Energy Joint Genome Institute (JGI) Fungal User Committee Advisory Board; DOE-BER Biological Systems Science Advisory Committee; JGI User Meeting External Advisory Board; Genome Canada Research Oversight Committee (ROC); Society of Biological Engineering Young Professionals Advisory Group

Professional Outreach: AIChE Future Faculty Forum (2016); CNSI Academic Advisory Panel for Students & Postdocs (2015); AIChE Women's Initiatives Committee Assistant Professor Panel (2013, 2016); AIChE Women's Initiative's Committee Communication Committee (2012-2013); AIChE Women's Initiative's Committee (WIC) K-12 Outreach (2011-2012); AIChE WIC Executive Committee (2012-2013), Santa Barbara Zoo Conservation Program and Research Discovery Activities for children and families (*Species Feces Night, At the Watering Hole* Lecture Series, etc.) (2013-present), SWE Industrial Networking Evening (keynote speaker) (2016); Featured STEM Speaker at High Schools (Bishop Diego Garcia High School, Magnificat High School) (2015-2016)

Professional Memberships:

- American Institute of Chemical Engineers (AIChE)
- Society of Biological Engineering (SBE)
- American Chemical Society (ACS)
- International Metabolic Engineering Society (IMES)
- Biophysical Society
- American Heart Association (AHA)
- Society for Industrial Microbiology (SIMB)

American Association for the Advancement of Science (AAAS)

Conference Programming:

Programming Chair, ACS-BIOT Division, ACS National Meeting, 2016-2017

Academic co-chair in charge of technical program for 10,000+ BIOT members.

Organizing Committee, International Conference on Biomolecular Engineering, 2017

Convener, Society for Industrial Microbiology Meeting, 2016

Area Coordinator, Biofuels and Biobased Chemicals, ACS, 2016

Session Chair, Gene Regulation Engineering, AIChE, 2015

Session Chair, Emerging Frontiers in Systems and Synthetic Biology, AIChE, 2015

Session Chair, Protein Engineering, Biochemical and Molecular Engineering, 2015

Session Chair, Biomass Pretreatment and Hydrolysis, ACS-BIOT, 2015

Session Chair, Metabolic Engineering of Photosynthetic and Non-model Organisms, AIChE, 2014

Session Chair, Protein Expression and Post-translational Modification, AIChE, 2014

Area Coordinator, Upstream Processes, ACS-BIOT Division, 2013-2014

Session Chair, Protein Structure, Function, and Stability, AIChE, 2013

Session Chair, Bionanotechnology, ACS-Biotechnology Division, ACS, 2013

Session Chair, Protein Structure, Function, and Stability, AIChE, 2012

Session Chair, Protein Expression and Post-translational Modification, AIChE, 2012

FUNDING AND SUPPORT (\$7.7 million in active & completed support at UCSB)

Active Support

- 2018 – 2022** Department of Energy, Bioenergy Research Centers, “Joint BioEnergy Institute (JBEI), J. Keasling (PI), ~40+ coPIs including M.A. O’Malley (O’Malley portion \$1,400,000)
- 2017 – 2019** EMSL Community Science User Program, “Comprehensive Characterization of the Cellulosomes from Anaerobic Gut Fungi” M. A. O’Malley (PI); allocation of spectroscopy, NMR, & microscopy resources (estimated \$124,960 value)
- 2017 – 2018** California Nanosystems Institute, “Identifying & Characterizing Novel Uncultivable Microbial Species Using Single Cell Genomics” S. Dey (PI), M.A. O’Malley (coPI) (\$50,000)
- 2017 – 2022** Camille & Henry Dreyfus Foundation, “Deconstructing Microbial Consortia for Sustainable Chemistry,” M.A. O’Malley (PI), (\$75,000)
- 2017 – 2019** California Nanosystems Institute, “Bio-Building Blocks for Advanced Materials” R. Segalman (PI), M. Doherty (coPI), G. Fredrickson (coPI), C. Hawker (coPI), M.A. O’Malley (coPI) (\$150,000)
- 2016 – 2017** Gordon and Betty Moore Foundation, “Better Together: Revolutionizing Biomanufacturing with Microbial Consortia” M.A. O’Malley (PI) (\$25,000)
- 2015 – 2018** US Army, Institute for Collaborative Biotechnologies, “Engineering Stable Anaerobic Consortia for Bioproduction” M. A. O’Malley (PI), Kris L.J. Prather (coPI) (\$675,000)
- 2016 – 2021** National Science Foundation (NSF), “CAREER: Designing Synthetic Anaerobic Consortia for Bioproduction” M. A. O’Malley (PI) (\$801,701)
- 2015 – 2018** EMSL Community Science User Program, “Characterizing the Cellular Envelope and Secreted Compounds of Anaerobic Gut Fungi” M. A. O’Malley (PI); allocation of spectroscopy and microscopy resources (estimated \$108,221 value)
- 2015 – 2018** National Institutes of Health (R01), “Role of Lipid Membrane and Hydration on the Oligomerization and Function of Proteorhodopsin and A_{2a}R” S. Han (PI), M. A. O’Malley (coPI), M. Sherwin (coPI) (\$1,333,472)
- 2013 – 2018** Department of Energy (DOE) Early Career Program “Engineering Anaerobic Gut Fungi for Lignocellulose Breakdown” M. A. O’Malley (PI) (\$750,000)
- 2012 – 2019** US Army, Institute for Collaborative Biotechnologies (ICB) “Engineering Synthetic Cellulose-degrading Complexes from Gut Fungi in *S. cerevisiae*” M. A. O’Malley (PI) (\$848,007)

Completed Support

- 2017** US Army, Instrumentation Grant (Illumina MiSeq & Biomek 4000 Liquid Handling Robot) M.A. O’Malley (PI), I. Chen (coPI), G. Bazan (coPI) (\$228,000)

- 2017 US Army, "Microbial Consortia & Biofilm Workshop" M.A. O'Malley (PI) (\$30,000)
- 2015 – 2016 Cottage Hospital, "Identification of Novel Bioactive Compounds from Anaerobic Gut Fungi" M. A. O'Malley (PI) (\$25,000)
- 2014 – 2016 University of California Faculty Research Grant, "Isolating Biomass-degrading Fungi from Wild Herbivores" M. A. O'Malley (PI) (\$10,000)
- 2014 – 2016 California Nanosystems Institute, "Engineering Anaerobic Consortia for Sustainable Chemical Production" M. A. O'Malley (PI), T. M. Squires (co-PI), D. Valentine (co-PI), M. K. Theodorou (co-PI) (\$150,000)
- 2014 – 2016 University of California Cancer Research Coordinating Committee (CRCC), "A Novel Microbial System to Screen GPCR Crosstalk During Cancer Proliferation" M. A. O'Malley (PI) (\$50,000)
- 2014 – 2015 Hellman Faculty Fellowship, "A Yeast Microbial Sensor to Detect Aerosolized Bioweapons" M. A. O'Malley (PI) (\$44,100)
- 2012 – 2015 Mitsubishi-Rayon, "Bio-based Production of Methacrylic Acid (MAA) and Methyl Methacrylate (MMA)" M. A. O'Malley (PI) (\$270,000)
- 2013 – 2015 American Heart Association, "Mechanistic Insight into the Oligomerization of Human Adenosine Receptors" M. A. O'Malley (PI) (\$140,000)
- 2013 – 2014 DOE-JGI/EMSL Community Science User Program, "Identification and Regulation of Novel Cellulases within Anaerobic Gut Fungi" M. A. O'Malley (PI); allocation for three novel gut fungal genomes/transcriptomes/secretomes (estimated \$180,000 value)
- 2014 Amgen Sponsored Undergraduate Fellowship for Dept. Chemical Engineering (\$4,250)
- 2013 Amgen Sponsored Undergraduate Fellowship for Dept. Chemical Engineering (\$4,000)
- 2011 – 2013 U. S. Department of Agriculture (USDA) ARS-NIFA, "Genetic Identification and Characterization of Cellulases and Cellulolytic Complexes from Fungi" M. A. O'Malley (PI) (\$120,000)
- 2011 Marion and Jasper Whiting Foundation Fellowship, "Towards Sustainable Energy: Developing Biofuels from Plants" M. A. O'Malley (PI) (\$6,000)
- 2010 Company of Biologists-JCS Fellowship for International Study, "Isolation and Culture of Anaerobic Gut Fungi" M. A. O'Malley (PI), written with M. K. Theodorou (\$2,500)
- 2009 – 2011 MIT Energy Initiative Seed Grant Program, "Genetic Identification and Expression of Efficient Cellulose Degrading Complexes from Fungi" C. A. Kaiser (PI), (\$150,000)
- 2006 – 2009 NASA-Harriet G. Jenkins Predoctoral Fellowship, "Expression, Purification, and Characterization of Human GPCRs in Yeast" for M. A. O'Malley (\$93,000)

TEACHING

- Spring 2017 **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 173/273 – Omics-enabled Biotechnology (Undergraduate/Graduate)
- Winter 2017 **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 120B – Heat Transfer (Undergraduate)
- Fall 2016 **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 170 - Molecular and Cellular Biology for Engineers (Undergraduate)
- Spring 2016 **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 171 – Biochemical Engineering
- Winter 2016 **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 180B – Senior Undergraduate Chemical Engineering Laboratory
Co-Instructor: Mike Gordon
- Fall 2015 **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 170 - Molecular and Cellular Biology for Engineers (Undergraduate)
- Spring 2015 **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 272 – 'Omics'-Enabled Biotechnology (Graduate)
- Winter 2015 **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 180B – Senior Undergraduate Chemical Engineering Laboratory
Co-Instructor: Songji Han
- Fall 2014 **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 170 - Molecular and Cellular Biology for Engineers (Undergraduate)

- Spring 2014** **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 180A – Junior Undergraduate Chemical Engineering Laboratory
Co-Instructors: Mike Gordon and Matt Helgeson
- Winter 2014** **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 180B – Senior Undergraduate Chemical Engineering Laboratory
Co-Instructors: Songi Han
- Fall 2013** **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 170 - Molecular and Cellular Biology for Engineers (Undergraduate)
- Spring 2013** **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 171 - Biochemical Engineering (Undergraduate)
- Fall 2012** **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 170 - Molecular and Cellular Biology for Engineers (Undergraduate)
- Spring 2012** **Instructor, UCSB, Dept. of Chemical Engineering**
Course: ChE 180A - Junior Undergraduate Chemical Engineering Laboratory
Co-Instructors: Samir Mitragotri and Jacob Israelachvili
- Spring 2011** **Instructor, Massachusetts Institute of Technology, Dept. of Biology**
Course: Fueling Sustainability: Engineering Microbial Systems for Biofuel Production
Published and Available on MIT's Open Course Ware (<http://ocw.mit.edu/index.htm>)
- Spring 2007** **Teaching Fellow and Co-Instructor, University of Delaware, Dept. of Chemical Engineering**
Course: Fundamentals of Mass and Heat Transfer (Undergraduate)
Co-Instructors: T. W. Fraser Russell and Chris Roberts
- Fall 2006** **Teaching Assistant, University of Delaware, Dept. of Chemical Engineering**
Course: Biochemical Engineering (Undergraduate/Graduate)
Instructors: Anne Robinson and Millicent Sullivan
- Spring 2004** **Supplemental Instructor, Carnegie Mellon University, Dept. of Biology**
Course: Biochemistry (Undergraduate)
- Fall 2003** **Supplemental Instructor, Carnegie Mellon University, Dept. of Chemistry**
Course: Modern Chemistry I (Undergraduate)
- 2001 – 2004** **Peer Tutor, Carnegie Mellon University, Academic Development Office**

STUDENTS AND MENTORSHIP (UCSB)

Postdoctoral Scholars (past)

- Kevin V. Solomon, 2012-2015; currently Assistant Professor, Purdue University
- Jessica Sexton, 2014-2015; currently Microbiology Scientist, Apeel Sciences
- Charles Haitjema, 2012-2016; currently Research Scientist, Zymergen
- Monica Rieth, 2014-2016; currently Assistant Professor, Southern Illinois University (Edwardsville)

Graduate Students (past)

- Jennifer L. Guerrero (NSF Graduate Research Fellow), 2010-2016 (w/ Patrick Daugherty), Amgen 2016-present
- Nicole S. Schonenbach (NSF Graduate Research Fellow), 2011-2017 (w/ Songi Han)
- John K. Henske (Mellichamp Sustainability Fellow), 2012-2017, Finch Therapeutics 2017-present

Postdoctoral Scholars (current)

- Susanna Seppala, 2014-present
- Nick Peng (Simons Foundation Fellow), 2015-present
- Doriv Knop (Ellings Fellow), 2016-present

Graduate students (current)

- Sean Gilmore (NSF Graduate Research Fellow), 2013-present
- Justin Yoo (NSF Graduate Research Fellow, Philip and Aida Siff Educational Foundation Fellow), 2014-present
- Candice Swift (NSF Graduate Research Fellow), 2015-present
- Igor Podolsky, 2015-present

- St. Elmo Wilken, 2015-present (w/ Linda Petzold)
- Jennifer Brown, 2016-present
- Michael Vigers, 2016-present (w/ Songi Han)
- Khan (Kendrick) Nguyen, 2016-present (w/ Songi Han)

Undergraduate students (current)

- Samantha Lee, 2015-present
- Julia Bryne, 2016-present
- Mohan Saxena, 2017-present

Undergraduate students and external visitors (past)

- Zach Cogan, 2015-2017
- Winston Hsu, 2016-2017
- Jessica Hauk, 2015-2017, currently Chemetry
- Randall DeGroot, 2015-2017, currently Zymergen
- Francis Cunningham, RISE fellow, 2016-2017, currently PhD Student Chemical & Biomolecular Engineering, UC-Berkeley
- Charlotte Abrahamson, Amgen Fellow, 2014-2016, currently PhD Student, Chemical and Biomolecular Engineering, Northwestern University
- Herman Ching, 2015-2016, currently PhD Student, Chemical Engineering, UC-Irvine
- Ricardo Andres Parra, ICB SABRE, 2014-2016, currently PhD Student, Bioengineering, Stanford University
- Daniel Yur, ICB URAP, 2014-2016; currently PhD Student, Chemical and Biomolecular Engineering, University of Delaware
- Sarah Maxel, 2013-2015, currently PhD Student, Chemical Engineering, UC-Irvine
- Natalie Banakis, 2012-2015, currently Meissner
- Wen-Kang Chou, ICB URAP, 2014-2015, currently PhD Student, Chemical and Biological Engineering Princeton University
- Erich Brodbeck, Amgen Fellow, ICB URAP, 2013-2014, currently MS Student Materials UCSB
- Chris Euchus (UC-Irvine), INSET Fellow, summer 2014
- Marla Nyamdorj, 2013-2014
- David Chau, 2013-2014, currently Advantar Labs
- Josie Tressel, 2012-2013, currently Boehringer Ingelheim
- Brian Owens, 2012-2013, currently TriSep Corporation
- Brianne Kiliman, McNair Scholar, 2012-2013, currently Intel
- Elisa Ovidia, 2012-2013, currently PhD Student Chemical & Biomolecular Engineering University of Delaware
- Meredith Green, 2012-2013, currently Merck
- Jessica O'Day, 2012-2013, currently Baxalta
- Kane Nania (UCLA), summer 2013, currently PhD Student Chemical Engineering UCLA
- Jiehao (CJ) Chen (UC-Berkeley), INSET Fellow, summer 2013, Currently Genentech
- Megan Cottage (middle school faculty), summer 2013, currently La Colina Jr. High

Thesis Committees (completed)

- Sunyia Hussain (Han), currently postdoctoral scholar NIH
- Peter St. John (Doyle), currently postdoctoral scholar NREL
- Kelsey Dean (Doyle), currently PhD Student Systems Biology, Harvard Medical School
- John Abel (Doyle/Petzold), currently PhD Student Systems Biology, Harvard Medical School
- Zachary Oberholzer, currently Regeneron Pharmaceuticals
- Alex Thomas (Bazan), currently Senior Product Engineer, Apeel Sciences
- Kathryn Camacho (Mitragotri), currently Bristol Meyers Squib
- Michael Zakrewsky (Mitragotri), currently Scientist, Gilead Sciences
- Joon Bok Lee (Doyle), currently Analytics Algorithms Engineer, Insulet Corporation
- Lauren Huyett (Doyle), currently Clinical Affairs Specialist, Agilent Technologies
- Max Nowak (Helgeson/Mitragotri), currently PhD Student Systems Biology, Harvard Medical School

Thesis Committees (current)

- Abe Pressman (Soh/Mitragotri)
- Joel Bozekowski (Daugherty)

- Michael Paul (Daugherty)
- Anusha Pusuluri (Mitragotri/Soh)
- Mengwen Zhang (Helgeson/Mitragotri)

- Apoorva Sarode (Mitragotri)
- Veronika Kivenson (Valentine)
- Chung-Ta Han (Han)