

Jonathan L. Robinson

Division of Systems and Synthetic Biology
Department of Biology and Biological Engineering
Chalmers University of Technology
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EDUCATION

Princeton University (Princeton, NJ, USA) Ph.D. Chemical and Biological Engineering M.A. Chemical and Biological Engineering	<i>Jan. 2016</i>
Colorado State University (Fort Collins, CO, USA) B.S. Chemical and Biological Engineering B.S. Chemistry	<i>May 2010</i>

HONORS AND AWARDS

Ruth L. Kirschstein National Research Service Award (NRSA) Postdoctoral Fellowship	<i>2018 – Present</i>
Princeton Emerging Alumni Scholars Award	<i>2015</i>
National Science Foundation (NSF) Graduate Research Fellowship	<i>2011 – 2014</i>
Colorado State University Employee of the Year	<i>2010</i>
Department of Chemistry ACS Undergraduate Analytical Chemistry Award	<i>2010</i>
Department of Chemical & Biological Engineering Research Excellence Award	<i>2010</i>
Department of Chemical & Biological Engineering Academic Excellence Award	<i>2009</i>
Vincent Murphy Chemical Engineering Scholarship	<i>2009</i>
Chemical Engineering Alumni/Faculty Scholarship	<i>2008</i>

RESEARCH EXPERIENCE

Postdoctoral Researcher CHALMERS UNIVERSITY OF TECHNOLOGY Division of Systems and Synthetic Biology Department of Biology and Biological Engineering Gothenburg, Sweden <i>Supervisor:</i> Dr. Jens Nielsen	<i>Feb. 2016 – Present</i>
Graduate Research Assistant PRINCETON UNIVERSITY Department of Chemical and Biological Engineering Princeton, NJ, USA <i>Thesis title:</i> Exploration of Bacterial Nitric Oxide Stress Responses as a Source of Antivirulence Targets <i>Advisor:</i> Dr. Mark Brynildsen <i>Thesis committee:</i> Dr. Ned Wingreen, Dr. Celeste Nelson, and Dr. Stanislav Shvartsman	<i>Jan. 2011 – Jan. 2016</i>
Undergraduate Research Assistant COLORADO STATE UNIVERSITY Department of Chemical and Biological Engineering Fort Collins, CO, USA <i>Advisors:</i> Dr. Arthur Mayeno and Dr. Brad Reisfeld	<i>Dec. 2007 – Aug. 2010</i>

FUNDING SECURED

Ruth L. Kirschstein National Research Service Award [~160k USD / 3 years] U.S. National Institute of Health (NIH)	<i>Feb. 2018 – Present</i>
Big Data SEED project [640k SEK / 8 months] Chalmers University Information & Communication Technology Area of Advance <i>Co-applicants:</i> Jens Nielsen	<i>Mar. 2017 – Oct. 2017</i>
Graduate Research Fellowship Program fellowship [~95k USD / 3 years] U.S. National Science Foundation (NSF)	<i>Jun. 2011 – May. 2014</i>

TEACHING AND MENTORING EXPERIENCE

Graduate Teaching Assistant

PRINCETON UNIVERSITY

- Fundamentals of Biofuels
- Introduction to Chemical Engineering Principles

Feb. 2015 – May 2015

Sep. 2014 – Jan. 2015

Mentor/Supervisor of Undergraduate and Graduate Students

CHALMERS UNIVERSITY OF TECHNOLOGY

- 1 Master's student Co-supervisor
- 2 Ph.D. students Co-supervisor
- 1 visiting Ph.D. student 8-month visiting researcher

Mar. 2018 – Present

Sep. 2017 – Present

Nov. 2017 – June 2018

PRINCETON UNIVERSITY

- 1 Undergraduate 8-week summer research project
- 2 M.D.-Ph.D. students 8-week rotation
- 1 Ph.D. student 3-month rotation
- 11 Undergraduates 1-year senior thesis and/or junior independent work

Jul. 2015 – Aug. 2015

May. 2015 – Jul. 2015

Mar. 2014 – May 2014

Feb. 2013 – Dec. 2015

PUBLICATIONS

14. Azimi A, Caramuta S, Seashore-Ludlow B, Boström J, **Robinson JL**, Edfors F, Tuominen R, Kemper K, Krijgsman O, Peeper DS, Nielsen J, Hansson J, Brage SE, Altun M, Uhlén M, and Maddalo G. Targeting CDK2 overcomes melanoma resistance against BRAF and Hsp90 inhibitors. *Mol Syst Biol* **2018**, *14*, e7858.
13. **Robinson JL** and Nielsen J. Anticancer drug discovery through genome-scale metabolic modeling. *Curr Opin Syst Biol* **2017**, *4*, 1-8.
12. **Robinson JL**, Jaslove J, Murawski A, Fazén CH, and Brynildsen MP. An integrated network analysis reveals that nitric oxide reductase prevents metabolic cycling of nitric oxide by *Pseudomonas aeruginosa*. *Metab Eng* **2017**, *41*, 67-81.
11. **Robinson JL** and Nielsen J. Integrative analysis of human omics data using biomolecular networks. *Mol BioSyst* **2016**, *12*, 2953–2964. *Featured on journal cover.
10. Gowers GOF, **Robinson JL**, and Brynildsen MP. Starved *Escherichia coli* preserve reducing power under nitric oxide stress. *Biochem Biophys Res Commun* **2016**, *476*, 29–34.
9. **Robinson JL** and Brynildsen MP. Construction and Experimental Validation of a Quantitative Kinetic Model of Nitric Oxide Stress in Enterohemorrhagic *Escherichia coli* O157:H7. *Bioengineering* **2016**, *3*, 9.
8. **Robinson JL** and Brynildsen MP. Discovery and dissection of metabolic oscillations in the microaerobic nitric oxide response network of *Escherichia coli*. *Proc Natl Acad Sci U S A* **2016**, *113*, E1757–E1766.
7. **Robinson JL** and Brynildsen MP (2016) Ensemble Modeling Enables Quantitative Exploration of Bacterial Nitric Oxide Stress Networks, in *Stress and Environmental Regulation of Gene Expression and Adaptation in Bacteria* (ed FJ de Bruijn), John Wiley & Sons, Inc., Hoboken, NJ, USA.
6. **Robinson JL** and Brynildsen MP. An ensemble-guided approach identifies ClpP as a major regulator of transcript levels in nitric oxide-stressed *Escherichia coli*. *Metab Eng* **2015**, *31*, 22–34.
5. **Robinson JL**, Miller RV, and Brynildsen MP. Model-Driven Identification of Dosing Regimens that Maximize the Antimicrobial Activity of Nitric Oxide. *Metab Eng Commun* **2014**, *1*, 12–18.
4. **Robinson JL**, Adolfsen KJ, and Brynildsen MP. Deciphering nitric oxide stress in bacteria with quantitative modeling. *Curr Opin Microbiol* **2014**, *19*, 16–24.
3. **Robinson JL** and Brynildsen MP. A Kinetic Platform to Determine the Fate of Nitric Oxide in *Escherichia coli*. *PLoS Comput Biol* **2013**, *9*, e1003049.
2. Mayeno AN, **Robinson JL**, and Reisfeld B. Rapid Estimation of Activation Enthalpies for Cytochrome-P450-Mediated Hydroxylations. *J Comput Chem* **2011**, *32*, 639–657.
1. Mayeno AN, **Robinson JL**, Yang RSH, and Reisfeld B. Predicting Activation Enthalpies of Cytochrome-P450-Mediated Hydrogen Abstractions. 2. Comparison of Semiempirical PM3, SAM1, and AM1 with a Density Functional Theory Method. *J Chem Inf Model* **2009**, *49*, 1692–1703.

PRESENTATIONS

ORAL PRESENTATIONS

12. **Robinson JL** and Nielsen J. The Metabolic Atlas. 2017 Human Protein Atlas Annual Meeting (Dec. **2017**). Stockholm, Sweden.
11. **Robinson JL** and Nielsen J. Integrative omics analysis of cancer protein secretion. 2017 American Institute of Chemical Engineers Annual Meeting (Nov. **2017**). Minneapolis, MN.
10. **Robinson JL** and Nielsen J. Extracting cancer biomarkers from human -omics data. Chalmers Initiative Seminar: Digitalisation – Opportunities and Challenges (Mar. **2017**). Gothenburg, Sweden.
9. **Robinson JL** and Brynildsen MP. Discovery and Dissection of Metabolic Oscillations in the Nitric Oxide Response of *Escherichia coli* under Microaerobiosis. 2015 American Institute of Chemical Engineers Annual Meeting (Nov. **2015**). Salt Lake City, UT.
8. **Robinson JL** and Brynildsen MP. Exploration of Bacterial Nitric Oxide Stress Responses as a Source of Antivirulence Targets. Emerging Alumni Scholars Award Lecture (May **2015**). Princeton, NJ.
7. **Robinson JL** and Brynildsen MP. Emergent Properties of the *E. coli* Nitric Oxide Response Network. 2014 American Institute of Chemical Engineers Annual Meeting (Nov. **2014**). Atlanta, GA.
6. **Robinson JL** and Brynildsen MP. Model-Driven Identification of Antivirulence Targets in the Nitric Oxide Response Network of *E. coli*. Princeton Bioengineering Colloquium (Mar. **2014**). Princeton, NJ.
5. **Robinson JL** and Brynildsen MP. Model-Driven Identification of Antivirulence Targets in the Nitric Oxide Response Network of Bacteria. Princeton Graduate Student Symposium (Oct. **2013**). Princeton, NJ.
4. **Robinson JL** and Brynildsen MP. Model-Driven Identification of Clp Protease Activity as an Emergent Property of the Nitric Oxide Response Network in *Escherichia coli*. Molecular Genetics of Bacteria and Phages Meeting (Aug. **2013**). Madison, WI.
3. **Robinson JL** and Brynildsen MP. A Kinetic Platform to Determine the Fate of Nitric Oxide in *Escherichia coli*. Princeton Prokaryotes Meeting (May **2013**). Princeton, NJ.
2. **Robinson JL** and Brynildsen MP. A Kinetic Platform to Determine the Fate of Nitric Oxide in Bacteria. American Institute of Chemical Engineers Annual Meeting (Oct. **2012**). Pittsburgh, PA.
1. **Robinson JL** and Brynildsen MP. Investigation of *E. coli* Biofilm Production using Elementary Mode Analysis. Princeton Biofilm Consortium (Oct. **2011**). Princeton, NJ.

POSTER PRESENTATIONS

5. **Robinson JL** and Brynildsen MP. Identification of Antivirulence Targets in Bacterial Nitric Oxide Defense Networks. Princeton Bioengineering Day (Oct. **2015**). Princeton, NJ.
4. **Robinson JL** and Brynildsen MP. A Kinetic Platform to Determine the Fate of Nitric Oxide in *E. coli*. Princeton Graduate Student Symposium (Oct. **2012**). Princeton, NJ.
3. Adolfsen KJ, **Robinson JL**, Pan J, Link AJ, and Brynildsen MP. Novel Strategies to Prevent Biofouling: Connecting Physiology to Biofilm Material Properties. Princeton Center for Complex Materials NSF Site Visit (Sep. **2012**). Princeton, NJ.
2. **Robinson JL**, Reisfeld B, and Mayeno AN. Predicting Activation Enthalpies of Cytochrome-P450-Mediated Hydrogen Abstractions: Comparison of Semi-Empirical PM3, SAM1, and AM1 with a Density Functional Theory Method. 49th Annual Meeting of the Society of Toxicology (Mar. **2010**). Salt Lake City, UT.
1. **Robinson JL**, Reisfeld B, and Mayeno AN. An Updated Methodology to Predict Rates of Cytochrome P450 Mediated Hydroxylation of Aliphatic Substrates (Apr. **2008**). Colorado State University Celebrate Undergraduate Research and Creativity Showcase. Fort Collins, CO. *Award: Honors in the College of Engineering