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SUMMARY

Synthetic biologist with diverse research experience ranging from chlorophyll biosynthesis to bacteriophage genome design and construction. Passionate and proficient teacher experienced with diverse students. Proven track record in scientific publications, mentoring and leadership.

EDUCATION

Postdoctorate in Bioengineering 2010 - 2015

Stanford University, USA

Mentor: Drew Endy

Topic: *Exploring functional genome sequence space using synthetic refactored bacteriophage genomes*

Ph.D. in Microbiology 2010

University of British Columbia, Canada

Supervisor: JT Beatty

Dissertation: *Discovery and characterization of a new zinc chlorophyll biosynthetic pathway and photosystem in a magnesium-chelatase mutant*

B.Sc. First-Class Honours Biochemistry 2003

University of Alberta, Canada

Supervisor: Marek Michalak

Honors Thesis: *The role of calreticulin in cardiomyocyte differentiation*

PROFESSIONAL EXPERIENCE

Lecturer (Synthetic Biology) - Chemistry & Biomolecular Sciences, Macquarie University 2015-Present

Scientist in Residence – Autodesk Research, San Francisco, USA 2015

Postdoctoral Research Fellow – Dept. Bioengineering, Stanford University 2010-2015

Graduate Student Instructor – Dept. of Microbiology, The University of British Columbia 2005-2008

Graduate Research Student – Dept. of Microbiology, The University of British Columbia 2004-2010

Research Technician – Dept. Chemistry, University of Queensland 2004

AHFMR Undergraduate Research Assistant – Dept. Biochemistry, University of Alberta 2002-2003

PEER-REVIEWED PUBLICATIONS

Hecht A#, Glasgow J#, **Jaschke PR**#, Bawazer L, Munson MS, Cochran J, Endy D, Salit M. (2017). Measurements of translation initiation from all 64 codons in *E. coli*. Published: 21 Feb 2017. DOI: 10.1093/nar/gkx070

#Authors contributed equally to the paper as first authors.

• Designated '**Breakthrough Article**' by journal reviewers and editors, given to **less than 1%** of articles
Impact Factor: 9.202

Bates M, Berliner A, Lachoff J, **Jaschke PR**, Groban E (2016). Wet Lab Accelerator: A Web-Based Application Democratizing Laboratory Automation for Synthetic Biology. *ACS Synthetic Biology*. 6 (1): 167–171. DOI: 10.1021/acssynbio.6b00108

Impact Factor: 6.076

Jaschke PR, Lieberman EK, Rodriguez J, Sierra A, Endy D. (2012). A fully decompressed synthetic bacteriophage ϕ X174 genome assembled and archived in yeast. *Virology*. 434(2):278-84.

- Selected for journal cover
- Featured in Scitable by Nature Education blog Bio 2.0

Impact Factor: 3.278

Neupane B, **Jaschke P**, Saer R, Beatty JT, Reppert M, Jankowiak R. (2012). Electron transfer in *Rhodobacter sphaeroides* reaction centers containing Zn-bacteriochlorophylls: a hole-burning study. *Journal of Physical Chemistry B*. 116(10):3457-66.

Impact Factor: 3.377

Jaschke PR, Hardjasa A, Digby EL, Hunter CN, Beatty JT. (2011). A *bchD* (Mg-chelatase) mutant of *Rhodobacter sphaeroides* synthesizes zinc bacteriochlorophyll through a novel zinc-containing pathway. *Journal of Biological Chemistry*. 286(23):20313-22.

Impact Factor: 4.600

Jaschke PR, Drake I, Beatty JT. (2009). Modification of a French pressure cell to improve microbial cell disruption. *Photosynthesis Research*. 102(1): 95-7.

Impact Factor: 2.785

Lin S, **Jaschke PR**, Wang H, Paddock M, Tufts A, Allen JP, Rosell FI, Mauk GA, Woodbury NW, Beatty JT. (2009). Electron transfer in the *Rhodobacter sphaeroides* reaction center assembled with zinc bacteriochlorophyll. *Proceedings of the National Academy of Sciences of the USA*. 106(21): 8537-42.

- Research featured on Sciencedaily.com

Impact Factor: 9.453

Jaschke PR, LeBlanc HN, Lang AS, Beatty JT. (2008). The PucC protein of *Rhodobacter capsulatus* mitigates an inhibitory effect of light-harvesting 2 alpha and beta proteins on light-harvesting complex 1. *Photosynthesis Research*. 95(2-3): 279-84.

Impact Factor: 2.785

Jaschke PR, Beatty JT. (2007). The photosystem of *Rhodobacter sphaeroides* assembles with zinc bacteriochlorophyll in a *bchD* (magnesium chelatase) mutant. *Biochemistry*. 46(43): 12491-500.

Impact Factor: 2.897

Loiselle FB, Jaschke P, Casey JR. (2003). Structural and functional characterization of the human NBC3 sodium/bicarbonate co-transporter carboxyl-terminal cytoplasmic domain. *Molecular Membrane Biology*. 20(4): 307-17.

Impact Factor: 1.729

NON-PEER REVIEWED PUBLICATIONS

Hecht A#, Glasgow J#, **Jaschke PR**#, Bawazer L, Munson MS, Cochran J, Endy D, Salit M. (2016). Measurements of translation initiation from all 64 codons in *E. coli*. *bioRxiv*. (Pre-print).

DOI: <http://dx.doi.org/10.1101/063800>.

#Authors contributed equally to the paper as first authors.

• Achieved Altmetric score in top 5% of all research outputs.

Jaschke P, Lu J, Mulyasmita W, Lee LJ. (2013). Incyte Pharmaceuticals Is Primed For A Run. *Seeking Alpha*. Article ID: 1156061. (online).

BOOK CHAPTERS

Jaschke PR, Saer RG, Noll S, Beatty JT. (2011). Modification of the genome of *Rhodobacter sphaeroides* and construction of synthetic operons. *Methods in Enzymology*. Vol 497: *Synthetic Biology*. Ch 23. 519-38.

TEACHING EXPERIENCE

CBMS 785: Laboratory Skills for Molecular Science Research 04-05/2017

Instructor for synthetic biology computational lab skills component

Masters level lecture and computer workshop course

Macquarie University, Sydney

CBMS337: Biochemistry & Cell Biology Semester 2: 2016-Present

Unit Convenor and Instructor

Final year undergraduate level lecture and laboratory course

Macquarie University, Sydney

CBMS215: Microbiology Semester 2: 2016-Present

Guest Lecture

Macquarie University, Sydney

CBMS794: Synthetic Biology Semester 1: 2016-Present

Unit Convenor and Instructor

Masters-level research discussion and lecture course

Macquarie University, Sydney

Making a Bacterial Copper Biosensor 06/2013

Course Designer and Instructor

Zamorano Pan-American Agricultural School, Honduras

Bacteriophage Capture and Release from Yeast 05/2012 - 06/2012

Course Designer and Instructor

BioCurious, Community Biolab, California, USA

GFP Expression in <i>E. coli</i>: Make Cells Glow!	11/2011- 01/2012
Instructor BioCurious Community Biolab, California, USA	
MICB405: Bioinformatics	Fall Semester 2005 - 2008
Teaching Assistant University of British Columbia, British Columbia, Canada	
MENTORING AND LEADERSHIP EXPERIENCE	
Supervisor of PhD and Masters of Research	2016-Present
Guiding and managing graduate student research projects in my synthetic biology group Macquarie University, Sydney, Australia	
Research Experience for Undergraduate (REU) Program	2013 - 2015
Bioengineering Undergraduate Research Project Supervisor Stanford University, California, USA	
San Mateo Biotechnology Career Pathway Internship Program	02/2011 - 06/2013
High-School Student Research Project Supervisor Stanford University, California, USA	
BioE 44: Synthetic Biology Lab	05/2011 - 06/2011
Undergraduate Research Project Supervisor Stanford University, California, USA	
UBC Graduate School Information Events	09/2010
Incoming Student Mentor University of British Columbia, BC	
University of British Columbia iGEM Team	2009
Advisor and Lab Manager University of British Columbia, BC	
MICB 448: Directed Research	2007, 2009-2010
Undergraduate Research Project Supervisor University of British Columbia, BC	
HONORS AND AWARDS	
SB5.0 International Conference Travel Award	2011
Natural Sciences & Engineering Research Council Postdoctoral Fellowship <i>Awarded to top 20% of applicants</i>	2010
Honored at the UBC Student Leader Reception	2010
Sigma-Aldrich Award for Top Presentation at Life Sciences Institute Conference <i>Awarded to one talk for entire conference</i>	2009

The Pacific Century Graduate Scholarship <i>Awarded to top 50 graduate students at UBC</i>	2008
Beverley Green Award for Outstanding Research in the Field of Photosynthesis <i>Awarded to top graduate student talk at Western Photosynthesis Conference</i>	2008
John Richard Turner Fellowship in Microbiology <i>Awarded to top graduate student in Microbiology & Immunology Department at UBC</i>	2007
University of BC Graduate Fellowship	2006, 2008
Natural Sciences & Engineering Research Council Postgraduate Scholarship	2005
Canadian Institutes of Health Research Presentation Award <i>Awarded to one summer student talk in the University of Alberta Biochemistry Department</i>	2003
Alberta Heritage Foundation for Medical Research Summer Studentship	2002, 2003
Jason Lang Scholarship	2000, 2002

PROFESSIONAL ACTIVITIES

Macquarie University PGRF Grant Evaluation Panel	2017
Synthetic Biology Australasia 2017 Conference Organiser	2016-2017
American Chemical Society Member	2016-Present
Synthetic Biology Australasia Society Member	2016-Present
Society for Biological Engineering (AIChE) Member	2016
Scientific Management Series (SMS) for Postdocs: Topics in Scientific Management (INDE230)	2015
Project Management Workshop	2009
Grant Writing for Funding Research and Development Workshop	2008
Elected graduate student representative to Microbiology Department faculty meetings	2008 - 2010

PRESENTATIONS

Jaschke PR. (2016). *The future of DNA technology*. Future Scoping the Anthropocene, Genes to Geosciences Outlook Meeting. Macquarie University, Sydney, Australia (Plenary Presentation)

Jaschke PR. (2016). *Learning How to Engineer Genomes by Building Viruses*. Cutting Edge Symposium on Synthetic Biology, Canberra, Australia (Plenary Presentation)

Jaschke PR. (2016). *Learning How to Engineer Genomes by Building Viruses*. University of Technology, Sydney (UTS), Sydney, Australia (Invited Presentation)

Jaschke PR. (2014). *Learning How to Engineer Genomes by Building Viruses*. Macquarie University, Sydney, Australia (Invited Presentation)

Jaschke PR. (2014). *Learning How to Engineer Genomes by Building Viruses*. Concordia University, Montreal, Canada (Invited Presentation)

Jaschke PR. (2013). *Understanding Genomes by Building Viruses*. Stanford Bioengineering Retreat. Santa Cruz, CA, USA (Selected Presentation)

Jaschke PR. (2013). *Understanding Genomes by Engineering øX174 Phage*. Synthetic Genomics Seminar. Synthetic Genomics Inc. San Diego, CA, USA (Invited Presentation)

Jaschke PR. (2013). *Engineering synthetic bacteriophage øX174 to understand genomes*. Synthetic Biology 6.0 International Conference. Imperial College London. London, UK (Selected Presentation and Poster)

Jaschke PR. (2013). *What is synthetic biology, and why is it the field of the future?* Zamorano University Environment Week. Zamorano Pan-American Agricultural School, Honduras (Keynote Presentation)

Jaschke PR, Lieberman EK, Liu D, Rodriguez J, Sierra A, Endy D. (2013). *Taming genome complexity via bacteriophage øX174 synthetic genome design*. Synthetic Biology Engineering Research Center (SynBERC) Retreat. University of California, Berkeley, Berkeley, CA, USA (Poster Presentation)

Jaschke PR. (2012). *Design and construction of a fully decompressed bacteriophage øX174 genome*. University of British Columbia Microbiology and Immunology Seminar Series. Vancouver, BC (Invited Presentation)

Jaschke PR. (2012). *Design and construction of bacteriophage genomes in yeast*. DuPont Genencor Science. Palo Alto, CA, USA (Invited Presentation)

D'haeseleer P, Shigeta R, Noailles P, Jaschke P, Sahni P, Chavez M, Graham C. (2012). *BioCurious - Moving Biotech Science Education Beyond the Classroom*. ASM 2012 General Meeting. San Francisco, CA, USA (Selected Poster Presentation)

Jaschke PR, Rodriguez J, Sierra A, Endy D. (2011). *Redesign and construction of bacteriophage genomes in yeast*. Synthetic Biology Engineering Research Center (SynBERC) Retreat. University of California, Berkeley, Berkeley, CA, USA (Poster Presentation)

Jaschke PR and Endy D. (2011). *Construction and characterization of redesigned phage genomes*. Synthetic Biology Engineering Research Center (SynBERC) Retreat. Emeryville, CA, USA (Poster Presentation)

Jaschke PR. (2009). *Out of the Blue: a new beginning to the chlorophyll synthesis pathway discovered in a Mg-chelatase mutant*. Stanford University, Stanford, CA, USA (Invited Presentation)

Jaschke PR. (2009). *Out of the Blue: characterizing a bchD (Mg-chelatase) mutant producing Zn-bacteriochlorophyll*. 9th International Conference on Tetrapyrrole Photoreceptors of Photosynthetic Organisms. Asilomar Conference Grounds, Pacific Grove, CA, USA (Selected Presentation)

Jaschke PR. (2009). *Out of the Blue: the discovery of a new chlorophyll in the purple non-sulfur bacterium Rhodospirillum rubrum*. University of British Columbia Microbiology and Immunology Seminar Series. Vancouver, BC (Invited Presentation)

Jaschke PR. (2009). *Investigation of the structure and function of a zinc bacteriochlorophyll photosystem in Rhodospirillum rubrum*. 3rd Life Sciences Institute-Graduate Student Association Conference. University of British Columbia, Vancouver, BC (Selected Presentation)

- Won Sigma-Aldrich award for best presentation of conference

Jaschke PR. (2008). *Investigation of the structure and function of a zinc bacteriochlorophyll photosystem in Rhodobacter sphaeroides*. 17th Western Photosynthesis Conference. Asilomar Conference Grounds, Pacific Grove, CA, USA (Selected Presentation)

- Won Beverley Green award for outstanding work in photosynthesis research

Jaschke PR, LeBlanc HN, Beatty JT. (2007). *Assembly of purple bacterial photosynthetic complexes*. 14th International Congress of Photosynthesis. Glasgow, Scotland (Poster Presentation)

Jaschke PR, and Beatty JT. (2007). *Discovery of a novel form of chlorophyll in Rhodobacter sphaeroides*. American Society for Microbiology-Northwest Branch. Seattle, WA, USA (Poster Presentation)

Jaschke PR. (2003). *The role of calreticulin in cardiomyocyte differentiation*. Canadian Institutes of Health Research and Alberta Heritage Foundation for Medical Research Summer Student Symposium. University of Alberta, Edmonton, AB (Presentation)

- Won award for outstanding presentation

REFERENCES

Drew Endy (Postdoctoral Supervisor)

Associate Professor, Department of Bioengineering

Stanford University

Y2E2, Bioengineering

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Stanford, CA 94305-4201

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J Thomas Beatty (Ph.D. Supervisor)

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University of British Columbia, 4556-2350 Health Sciences Mall

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Vancouver, BC V6T 1Z3

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Michael Murphy (Dissertation Committee Member and MICB405 Instructor)

Professor, Department of Microbiology and Immunology

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