

Curriculum Vitae: A. James Link

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Professional Experience

- Princeton University: July 2007-present
 - Professor, Department of Chemical and Biological Engineering and affiliated faculty, Department of Chemistry, Department of Molecular Biology, and Andlinger Center for Energy and the Environment, July 2018-present
 - Associate Professor, July 2013-July 2018
 - Assistant Professor, July 2007-July 2013
- University of Texas, Austin: September 2005-July 2007
Postdoctoral Fellow, Department of Chemical Engineering and Institute for Cellular and Molecular Biology

Education

- California Institute of Technology: September 2000-September 2005
PhD, Chemical Engineering: June 2006
MS, Chemical Engineering: June 2002
- Princeton University: September 1996 – May 2000
BSE, Chemical Engineering, High Honors: May 2000
Certificate, Engineering Biology: May 2000

Awards and Honors

- Participant in German-American Frontiers of Science Symposium, 2016
- Participant in NAE US/EU Frontiers of Engineering, 2014
- Alfred P. Sloan Research Fellowship (Chemistry), 2013-2015
- DuPont Young Professor, 2011-2014
- E. Lawrence Keyes, Jr. Emerson Electric Co. Faculty Advancement Award, 2010
- NSF CAREER Award, 2010-2015
- NIH Kirschstein/NRSA Postdoctoral Fellow, 2006-2007
- Hertz Foundation Fellowship Finalist, 2001
- Churchill Scholarship Finalist, 2000
- Hertz Foundation Fellowship Finalist, 2000
- National Science Foundation Graduate Research Fellow, 2000-2003
- Tau Beta Pi Fellow, 2000-2001
- Richard K. Toner Prize in Thermodynamics, 2000
- AIChE Outstanding Junior Award, 1999
- Honor Societies: Phi Beta Kappa (2000), Sigma Xi (2000), Tau Beta Pi (1999)

Teaching

- Foundations of Chemical and Biological Engineering (CBE 199)
 - Spring 2019-current
- Separations in Chemical Engineering and Biotechnology (CBE 250)
 - Spring 2009-Fall 2016
- Biomolecular Engineering (CBE 438/538)
 - Fall 2007-current
- Enzymes (CBE 419/519)
 - Spring 2016-current
- Advanced Heat and Mass Transfer (CBE 505)
 - Spring 2018
- Life in the Universe (GEO 255A)
 - Fall 2016
- Introduction to Biomedical Engineering (ELE 547c)
 - Spring 2013

Mentoring

- Graduate students (13)
 - Current
 - Joseph Koos, June 2013-present
 - Wai Ling Cheung-Lee, January 2015-present
 - Chun Yin (Larry) So, February 2018-present
 - Previous
 - Frank Piscotta, January 2013-August 2018
 - Current position: Postdoc, Rockefeller University
 - Chuhan Zong, Ph.D. January 2013-January 2018
 - Current position: Merck
 - Caitlin Allen, Ph.D. March 2012-August 2016
 - Current position: enEvolv
 - Alan Futran, Ph.D. January 2011-November 2015
 - Current position: BMS
 - Mikhail Maksimov, Ph.D. January 2010-January 2015
 - Current position: Illumina
 - Hoang (Jack) Lu, M.A. January 2013-March 2014
 - Current position: Johnson & Johnson
 - Diya Abdeljabbar, Ph.D. January 2008-May 2012
 - Current position: Merck and Co.
 - Si Jia (Jessica) Pan, Ph.D. January 2008-June 2012
 - Current position: Merck and Co.
 - Siyan Zhang, Ph.D. January 2008-June 2012
 - Current position: Merck and Co.
 - Jingjing Sun, M.A., January 2008-May 2009
 - Current position: unknown
- Postdocs (1)
 - Current
 - Hader Elashal, November 2018-current
- Undergraduate students: 58 students supervised, 44 senior theses

- High school students: 11 student supervised

Selected External and University Service

- NIH and NSF panel reviews (2010-current)
- SIMB Program Committee (Natural Products), 2017-2020
- Editorial Board: Biotechnology and Bioprocess Engineering, 2017-present
- CBE Undergraduate departmental representative, 2014-present
- Council of the Princeton University Community, 2017-2020
- Institutional Biosafety Committee, 2014-2017
- Faculty Mentor, Tau Beta Pi, 2013-current
- University Committee on Committees, 2009-2013, 2018
- University Student Life Committee, 2013-2015
- Andlinger Center for Energy and the Environment seminar/faculty search committee, 2011-2013
- SEAS Strategic Planning Undergraduate Committee, 2015-2016
- SEAS Bioengineering Senior Search Committee, 2017-present
- SEAS Building Planning Committee, 2018-present
- First year undergraduate advising, 2007-present
- Upperclassmen advising, 2007-present
- Executive committee for Engineering Biology Program, 2007-present
- Executive committee for Planets and Life Program, 2016-present

Professional Societies

- American Chemical Society (2003-present)
- American Institute of Chemical Engineers (1998-present)
- American Society of Biochemistry and Molecular Biology (2015-present)
- Society for Biological Engineers (2006-present)
- Society of Industrial Microbiology and Biotechnology (2015-present)

Peer-Reviewed Publications (55 peer-reviewed papers published or in press, 39 as independent investigator)

59. Cheung-Lee WL, Parry ME, Link AJ: **Discovery and structure of antimicrobial lasso peptide citrocin**. *Journal of Biological Chemistry*, submitted
58. Koos JD, Link AJ: **Heterologous and *in vitro* reconstitution of fuscanodin, a lasso peptide from *Thermobifida fusca***. *Journal of the American Chemical Society*, submitted
57. Braffman N, Piscotta FJ, Hauver J, Campbell EA, Link AJ, Darst SA: **Structural mechanism of transcription inhibition by lasso peptides microcin J25 and capistrain**. *Proceedings of the National Academy of Sciences, USA*, submitted
56. Piscotta FJ, Jeffrey PD, Link AJ: **ParST: a widespread toxin-antitoxin module that targets nucleotide metabolism**. *Proceedings of the National Academy of Sciences, USA*, in revision

55. Elashal HE, Cohen RD, Elashal HE, Zong C, Link AJ, Raj M: **Cyclic and Lasso Peptides: Structure Determination, Topology Analysis, and Rotaxane Formation.** *Angewandte Chemie International Edition* 2018, **57**: 6150-6154.
54. Zong C, Cheung-Lee WL, Elashal HE, Raj M, Link AJ: **Albusnodin: an acetylated lasso peptide from *Streptomyces albus*.** *Chemical Communications* 2018, **54**, 1339-1342.
53. Zong C, Wu MJ, Qin JZ, Link AJ: **Lasso Peptide Benenodin-1 is a Thermally Actuated [1]Rotaxane Switch.** *Journal of the American Chemical Society* 2017, **139**: 10403-10409.
52. Chekan JR, Koos JD, Zong C, Maksimov MO, Link AJ, Nair SK: **Structure of the Lasso Peptide Isopeptidase Identifies a Topology for Processing Threaded Substrates.** *Journal of the American Chemical Society* 2016, **138**: 16452–16458.
51. Allen CD, Link AJ: **Self-Assembly of Catenanes from Lasso Peptides.** *Journal of the American Chemical Society* 2016, **138**: 14214-14217.
50. Cheung WL, Chen MY, Maksimov MO, Link AJ: **Lasso Peptide Biosynthetic Protein LarB1 Binds Both Leader and Core Peptide Regions of the Precursor Protein LarA.** *ACS Central Science* 2016, **2**: 702-709.
49. Allen CD, Chen MY, Trick AY, Le DT, Ferguson AL, Link AJ: **Thermal Unthreading of the Lasso Peptides Astexin-2 and Astexin-3.** *ACS Chemical Biology* 2016, **11**: 3043-3051.
48. Arnaudo AM, Link AJ, Garcia BA: **Bioorthogonal Chemistry for the Isolation and Study of Newly Synthesized Histones and their Modifications.** *ACS Chemical Biology* 2016, **11**: 782-791.
47. Zong C, Maksimov MO, Link AJ: **Construction of Lasso Peptide Fusion Proteins.** *ACS Chemical Biology* 2016, **11**: 61-68.
46. Maksimov MO, Koos JD, Zong C, Lisko B, Link AJ: **Elucidating the Specificity Determinants of the AtxE2 Lasso Peptide Isopeptidase.** *Journal of Biological Chemistry* 2015, **290**: 30806-30812.
45. Link AJ: **Leading the way to RiPPs.** *Nature Chemical Biology* 2015, **11**: 551-552.
44. Futran AS, Kyin S, Shvartsman SY, Link AJ: **Mapping the binding interface of ERK and transcriptional repressor Capicua using photocrosslinking.** *Proceedings of the National Academy of Sciences* 2015, **112**: 8590-8595.
43. Piscotta FJ, Tharp JM, Liu WR, Link AJ: **Expanding the chemical diversity of lasso peptide MccJ25 with genetically encoded noncanonical amino acids.** *Chemical Communications* 2015, **51**: 409-412.
42. Abdeljabbar DM, Piscotta FJ, Zhang SY, Link AJ: **Protein stapling via azide-alkyne ligation.** *Chemical Communications* 2014, **50**: 14900-14903.
41. Maksimov MO, Link AJ: **Prospecting genomes for lasso peptides.** *Journal of Industrial Microbiology and Biotechnology* 2014, **41**:333-344.
40. Futran AS, Link AJ, Seger R, Shvartsman SY: **ERK as a Model for Systems Biology of Enzyme Kinetics in Cells.** *Current Biology* 2013, **23**: R972-R979.
39. Maksimov MO, Link AJ: **Discovery and Characterization of an Isopeptidase that Linearizes Lasso Peptides.** *Journal of the American Chemical Society* 2013, **135**: 12038-12047.
38. Arnison PG, Bibb MJ, Bierbaum G, Bowers AA, Bugni TS, Bulaj G, Camarero JA, Campopiano DJ, Challis GL, Clardy J, et al.: **Ribosomally synthesized and post-translationally modified peptide natural products: overview and recommendations for a universal nomenclature.** *Natural Product Reports* 2013, **30**:108-160.
37. Maksimov MO, Pelczer I, Link AJ: **A Precursor-centric Genome Mining Approach for Lasso Peptide Discovery.** *Proceedings of the National Academy of Sciences, USA* 2012, **109**:15223-15228.

36. Maksimov MO, Pan SJ, Link AJ: **Lasso Peptides: Structure, Function, Biosynthesis, and Engineering.** *Natural Product Reports* 2012, **29**:996-1006.
35. Park EJ, Wagenaar T, Zhang SY, Link AJ, Prud'homme RK, Koberstein JT, Turro NJ: **Using Light to Covalently Immobilize and Pattern Nanoparticles onto Surfaces.** *Langmuir* 2012, **28**:10934-10941.
34. Zhang SY, Chan KH, Prud'homme RK, Link AJ: **Synthesis and Evaluation of Clickable Block Copolymers for Targeted Nanoparticle Drug Delivery.** *Molecular Pharmaceutics* 2012, **9**:2228-2236.
33. Pan SJ, Rajniak J, Maksimov MO, Link AJ: **The Role of a Conserved Threonine Residue in the Leader Peptide of Lasso Peptide Precursors.** *Chemical Communications* 2012, **48**:1880-1882.
32. Pan SJ, Rajniak J, Cheung WL, Link AJ: **Construction of a Single Polypeptide that Matures and Exports the Lasso Peptide Microcin J25.** *Chembiochem* 2012, **13**:367-370.
31. Abdeljabbar DM, Song HJ, Link AJ: **Trichoderma reesei cellobiohydrolase II is associated with the outer membrane when overexpressed in *Escherichia coli*.** *Biotechnology Letters* 2012, **34**:91-96.
30. Zhang SY, Long A, Link AJ: **A Comparison of Two Strategies for the Affinity Maturation of a BH3 Peptide toward Pro-Survival Bcl-2 Proteins.** *ACS Synthetic Biology* 2012, **1**:89-98.
29. Zhang SY, Link AJ: **Bcl-2 Family Interactome Analysis Using Bacterial Cell Surface Display.** *Integrative Biology* 2011, **3**:823-831.
28. Abdeljabbar DM, Klein TJ, Link AJ: **An Engineered Methionyl-tRNA Synthetase Enables Azidonorleucine Incorporation in Methionine Prototrophic Bacteria.** *ChemBioChem* 2011, **12**:1699-1702.
27. Zhang SY, Prud'homme RK, Link AJ: **Block Copolymer Nanoparticles as Nanobeads for the Polymerase Chain Reaction.** *Nano Letters* 2011, **11**:1723-1726.
26. Pan SJ, Link AJ: **Sequence Diversity in the Lasso Peptide Framework: Discovery of Functional Microcin J25 Variants with Multiple Amino Acid Substitutions.** *Journal of the American Chemical Society* 2011, **133**:5016-5023.
25. Zhang SY, Adamson DH, Prud'homme RK, Link AJ: **Photocrosslinking the Polystyrene Core of Block-Copolymer Nanoparticles.** *Polymer Chemistry* 2011, **2**:665-671.
24. Pan SJ, Cheung WL, Fung HK, Floudas CA, Link AJ: **Computational Design of Functional Variants of the Antimicrobial Peptide Microcin J25.** *Protein Engineering Design & Selection* 2011, **24**: 275-282.
23. Ferguson AL, Zhang SY, Dikiy I, Panagiotopoulos AZ, Debenedetti PG, Link AJ: **An Experimental and Computational Investigation of Spontaneous Lasso Formation in Microcin J25.** *Biophysical Journal* 2010, **99**:3056-3065.
22. Mannoor MS, Zhang SY, Link AJ, McAlpine MC: **Electrical detection of pathogenic bacteria via immobilized antimicrobial peptides.** *Proceedings of the National Academy of Sciences USA* 2010, **107**:19207-19212.
21. Cheung WL, Pan SJ, Link AJ: **Much of the Microcin J25 Leader Peptide is Dispensable.** *Journal of the American Chemical Society* 2010, **132**:2514-2515.
20. Pan SJ, Cheung WL, Link AJ: **Engineered Gene Clusters for the Production of the Antimicrobial Peptide Microcin J25.** *Protein Expression and Purification* 2010, **71**: 200-206.
19. Abdeljabbar DM, Klein TJ, Zhang SY, Link AJ: **A Single Genomic Copy of an Engineered Methionyl-tRNA Synthetase Enables Robust Incorporation of Azidonorleucine into Recombinant Proteins in *E. coli*.** *Journal of the American Chemical Society* 2009, **131**:17078-17079.

18. Sun JJ, Abdeljabbar DM, Clarke N, Bellows ML, Floudas CA, Link AJ: **Reconstitution and Engineering of Apoptotic Protein Interactions on the Bacterial Cell Surface.** *Journal of Molecular Biology* 2009, **394**:297-305.
17. Xu LY, Link AJ: **Stress responses to heterologous membrane protein expression in Escherichia coli.** *Biotechnology Letters* 2009, **31**:1775-1782.

Work prior to Princeton

16. Tang Y, Wang P, Van Deventer JA, Link AJ, Tirrell DA: **Introduction of an Aliphatic Ketone into Recombinant Proteins in a Bacterial Strain that Overexpresses an Editing-Impaired Leucyl-tRNA Synthetase.** *Chembiochem* 2009, **10**:2188-2190.
15. Link AJ, Skretas G, Chari NS, Strauch EM, Georgiou, G: **Efficient production of membrane-integrated and detergent-soluble G protein-coupled receptors in Escherichia coli** *Protein Science* 2008, **17**: 1857-1863.
14. Strable E, Prasuhn DE, Udit AK, Brown S, Link AJ, Ngo JT, Lander G, Quispe J, Potter CS, Carragher B, et al.: **Unnatural amino acid incorporation into virus-like particles.** *Bioconjugate Chemistry* 2008, **19**:866-875.
13. Yoo TH, Link AJ, Tirrell DA: **Evolution of a fluorinated green fluorescent protein.** *Proceedings of the National Academy of Sciences USA* 2007, **104**: 13887-13890.
12. Link AJ, Jeong KJ, Georgiou, G: **Beyond toothpicks: new methods for isolating mutant bacteria.** *Nature Reviews Microbiology* 2007, **5**: 680-688.
11. Link AJ, Vink MKS, Tirrell DA: **Synthesis of the functionalizable methionine surrogate azidohomoalanine using Boc-homoserine as precursor.** *Nature Protocols* 2007, **2**: 1884-1887.
10. Link AJ, Vink MKS, Tirrell DA: **Preparation of the functionalizable methionine surrogate azidohomoalanine via copper-catalyzed diazo transfer** *Nature Protocols* 2007, **2**: 1879-1883.
9. Link AJ, Georgiou G: **Advances and Challenges in Membrane Protein Expression.** *AIChE Journal* 2007, **53**: 752-756.
8. Dieterich DC, Lee JJ, Link AJ, Graumann J, Tirrell DA, Schuman EM: **Labeling, detection and identification of newly synthesized proteomes with bioorthogonal non-canonical amino-acid tagging.** *Nature Protocols* 2007, **2**: 532-540.
7. Link AJ, Vink MKS, Agard NJ, Prescher JA, Bertozzi CR, Tirrell DA: **Discovery of aminoacyl-tRNA synthetase activity through cell-surface display of noncanonical amino acids.** *Proceedings of the National Academy of Sciences USA* 2006, **103**: 10180-10185.
6. Dieterich DC, Link AJ, Graumann J, Tirrell DA, Schuman EM: **Selective identification of newly synthesized proteins in mammalian cells using bioorthogonal non-canonical amino acid tagging (BONCAT).** *Proceedings of the National Academy of Sciences USA* 2006, **103**: 9482-9487.
5. Link AJ, Tirrell DA: **Reassignment of Sense Codons *In vivo*.** *Methods* 2005, **36**: 291-298.
4. Link AJ, Vink MKS, Tirrell DA: **Presentation and Detection of Azide Functionality in Bacterial Cell Surface Proteins.** *Journal of the American Chemical Society* 2004, **126**: 10598-10602.
3. Link AJ, Mock ML, Tirrell DA: **Non-canonical Amino Acids in Protein Engineering.** *Current Opinion in Biotechnology* 2003, **14**: 603-609.
2. Link AJ, Tirrell DA: **Cell Surface Labeling of Escherichia coli via Copper(I)-Catalyzed [3+2] Cycloaddition.** *Journal of the American Chemical Society* 2003, **125**:11164-11165.

1. Bradley AZ, Link AJ, Biswas K, Kahne D, Schwartz J, Jones M, Zhu ZD, Platz MS: **Hydrogen Abstraction on Photolysis of a Naphthocarborane**. *Tetrahedron Letters* 2000, **41**: 8691-8694.

Patents

2. Link AJ, Maksimov MO: US Patent 10,072,048: **Astexin Peptides**, September 11, 2018
1. Link AJ, Zhang S: US Patent 9,464,125: **Engineered Potent Cytotoxic Stapled BH3 Peptides**, October 11, 2016

Book Chapters and Book Reviews

3. Pan SJ, Cheung WL, Zhang S, Maksimov MO, Link AJ: **How To Tie a Peptide Knot**. In *Developments in Biotechnology and Bioprocessing*. Edited by Kantardjieff A, Asuri P, Coffman JL, Jayapal K. American Chemical Society; 2013:113-127.
3. Link AJ: Review of “**The Machinery of Life**” by D. Goodsell, in *Quarterly Review of Biology* 2010, **85**: 105.
1. Dieterich DC, Link AJ: **Click Chemistry in Protein Engineering, Design, Detection and Profiling**. in *Click Chemistry in Biotechnology and Materials Science*, Wiley, ed. Joerg Lahann (2009).

Seminar and Conference Presentations

- International Conference on RiPPs, Granada, Spain, April 2019
- Rockefeller University, January 2019 (invited)
- Conference on Circular Proteins and Peptides, Kawasaki, Japan, November 2018
- Shizuoka University, Shizuoka, Japan November 2018 (invited)
- SIMB Annual Meeting, Chicago, IL, August 2018 (invited)
- Genetic Code Expansion Meeting, Oregon State University, August 2018 (invited)
- University of Amsterdam, June 2018 (invited)
- Dutch Peptide Symposium, Maastricht, Netherlands, June 2018 (keynote, invited)
- Peking University, Beijing, China, May 2018 (two talks, invited)
- ACS National Meeting, March 2018
- Rutgers Medicine, Newark, NJ March 2018 (invited)
- GTCBio Meeting on Protease Inhibitors, San Diego, CA; February 2018 (invited)
- University of Delaware Chemistry, October 2017 (invited)
- SIMB Annual Meeting, Denver, CO; July 2017 (invited)
- American Peptide Society Meeting, Whistler, BC; June 2017 (invited)
- AIChE National Meeting, San Francisco, CA; November 2016
- Gordon Conference on Natural Products, Andover, NH; July 2016
- German-American Frontiers of Science Meeting, Potsdam, Germany, March 2016
- Gordon Conference on Peptides, Ventura, CA; February 2016
- SIMB Annual Meeting, Philadelphia, PA; August 2015 (invited)
- US/EU NAE Frontiers of Engineering Meeting, Seattle, WA; November 2014 (invited)
- Significance of Knotted Structures for Function of Proteins and Nucleic Acids, Warsaw, Poland; September 2014
- Merck & Co., June 2014 (invited)

- Stony Brook University Chemistry, April 2014 (invited)
- Clemson University Chemical Engineering, December 2013 (invited)
- Univ. of Chicago Biochemistry and Molecular Biology, October 2013 (invited)
- Gordon Conference on Enzymes, Coenzymes, and Metabolic Pathways, July 2013
- Univ. of Oklahoma Chemical Engineering, February 2013 (invited)
- University of Illinois Chemistry/Biology Interface, October 2012 (invited)
- Centyrex/Johnson & Johnson, September 2012 (invited)
- Johns Hopkins Chemical Engineering, September 2012 (invited)
- Venenum Biodesign, August 2012 (invited)
- National Science Foundation CBET Grantees Meeting, Baltimore, MD; June 2012 (invited, featured oral presentation)
- Rutgers Chemical Engineering, May 2012 (invited)
- Caltech Chemical Engineering, May 2012 (invited)
- UC Riverside Chemical Engineering, May 2012 (invited)
- USC Chemical Engineering, May 2012 (invited)
- Minnesota Chemical Engineering, May 2012 (invited)
- University of Rochester Chemistry, April 2012 (invited)
- UT Austin Chemical Engineering, April 2012 (invited)
- ACS National Meeting, March 2012
- Columbia Chemical Engineering, March 2012 (invited)
- Univ. of Houston Chemical Engineering, March 2012 (invited)
- Princeton Chemical and Biological Engineering, February 2012 (invited)
- Delaware Valley Enzymology Club, February 2012 (invited)
- DuPont, February 2012 (invited)
- UC Berkeley Chemical Engineering, January 2012 (invited)
- Ohio State Chemical Engineering, January 2012 (invited)
- Wisconsin Chemical Engineering, December 2011 (invited)
- Stanford Chemical Engineering, October 2011 (invited)
- AIChE National Meeting, October 2011
- NYU Chemistry, October 2011 (invited)
- American Chemical Society Best of BIOT Division Webinar, October 2011 (invited)
- MIT Chemical Engineering, September 2011 (invited)
- Society for Industrial Microbiology National Meeting; New Orleans, LA; July 2011 (invited)
- PCCM/MIRTHE REU Program, Princeton University, July 2011 (invited)
- American Chemical Society National Meeting; Anaheim, CA; March 2011
 - Selected as a “Best of BIOT” presentation
- International Conference on Biomolecular Engineering; San Francisco, CA; January 2011
- Cambridge Healthtech Institute’s 6th Annual Conference on Difficult to Express Proteins; Boston, MA; May 2010 (invited)
- Merck & Co.; West Point, PA; January 2010 (invited)
- NYU Poly Departments of Chemical and Biological Sciences/Department of Chemical and Biological Engineering, January 2010 (invited)
- Rutgers, Department of Genetics, November 2009 (invited)
- Bristol-Myers Squibb; New Brunswick, NJ; June 2009 (invited)
- Synthetic Biology Workshop; Groningen, Netherlands; November 2008 (invited)

