

CURRICULUM VITAE

Nathan J. Lanning, Ph.D.

Assistant Professor
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EDUCATION

- 2010-2014 Ruth L. Kirschstein National Research Service Award Postdoctoral Fellowship, Mitochondrial Systems Biology, Van Andel Research Institute, Grand Rapids, Michigan.
- 2004-2009 Ph.D. Cellular & Molecular Biology, University of Michigan, Ann Arbor, Michigan.
- 1999-2003 B.S., Biology (Genetics and Cellular & Molecular Biology Emphasis, Chemistry Minor), Grand Valley State University, Allendale, Michigan.

RESEARCH EXPERIENCE

- 2014-Present Principle Investigator, mitochondrial signaling biology: mapping mitochondrial proteins and functions to disease. California State University, Los Angeles.
- 2010-2014 Postdoctoral Fellow, mitochondrial systems biology: defining the metabolic and bioenergetic determinants of mitochondrial biology. Van Andel Research Institute.
- 2004-2009 Graduate Student, growth hormone signal transduction: University of Michigan.
- 2002-2004 Research Technician, signal transduction in cancer biology; Van Andel Research Institute.

HONORS AND AWARDS

- 2017-2020 R15 Academic Research Enhancement Award (AREA), National Institutes of Health, National Institute of General Medical Sciences
- 2016-2017 California State University Program for Education & Research in Biotechnology (CSUPERB) New Investigator Award
- 2016-2017 CSULA Research, Scholarship, and Creative Activities Minigrant Award
- 2012-2014 Ruth L. Kirschstein National Research Service Award (F32), National Institutes of Health, National Cancer Institute
- 2013 Van Andel Research Institute Research Leadership Council Equipment Proposal Award
- 2009 Rackham Regents Fellowship, Horace H. Rackham School of Graduate Studies, University of Michigan
- 2006-2008 Organogenesis Pre-doctoral Fellowship, University of Michigan Center for Organogenesis (National Institutes of Health, T32)
- 2005-2006 Cellular & Molecular Biology Pre-doctoral training grant, University of Michigan
- 1999-2003 Dean's List, Grand Valley State University

- 1999-2003 Award for Excellence, Grand Valley State University
1999-2003 Faculty Scholarship, Grand Valley State University

TEACHING AND MENTORING EXPERIENCE

Teaching

- 2014-Present Assistant Professor, California State University, Los Angeles:
Introductory Biology II (BIOL 100B, 1100)
Introductory Biology III (BIOL 100C)
General Genetics (BIOL 340)
Cell Biology (BIOL 380)
Integrative Organismal Biology (BIOL 3600)
Molecular and Cellular Biology I (BIOL 3900)
Molecular and Cellular Biology II (BIOL 4000)
Gene Manipulation (BIOL 417, 4170)
Signal Transduction (BIOL 4370)
Animal Cell Culture Theory and Technique (BIOL 4810)
Cellular Basis of Disease (BIOL 541 - Seminar)
Cancer Metabolism (BIOL 5460 - Seminar)
- 2010-2014 Adjunct Professor, Grand Valley State University:
General Biology I (BIO 120)
Cellular & Molecular Biology (BIO 405)
- 2011-2014 Assistant Lecturer, Van Andel Research Institute Graduate School:
Genetics and Metabolism of Brain Cancer (VAI 809)
- 2010-2011 Adjunct Laboratory Instructor, Grand Rapids Community College:
Introduction to Cells, Molecules, and Genes (BI 151)
- 2007 Teaching Assistant, University of Michigan:
Signal Transduction (BIOLCHEM 576)

Mentoring

- 2014-Present California State University, Los Angeles
Graduate Students:
Amelia Abdullah
Maxine Bravo, LSAMP-BD MS Graduate Student
Nicholas DeCuzzi
Carlos Gonzalez-Figueroa, Sally Casanova Awardee
Candice Larson, LSAMP-BD MS Graduate Student
Bea Parcutela
Anh Phuong Nguyen
Jocelyn Rodriguez, Bridges to the PhD MS Graduate Student
Ivan Salladay-Perez, MS Graduate Student
Joshua Silva, LSAMP-BD MS Graduate Student
- Undergraduate Students:
Joshua Alvarado, Bridges Undergraduate Student
Jonah Bautista
Ernesto Castellanos
Jesse Garcia

Jessica Hsueh, Honors Thesis Undergraduate Student
 Kadie Ishida
 Andre Leon
 Sarah Madira, Honors Thesis Undergraduate Student
 Deshna Majmudar, Honors Thesis Undergraduate Student
 Elizabeth Masciale, Honors Thesis Undergraduate Student
 DeVonte Matthews, U.S. Army Research Laboratory High School Student
 Ryan Meraz, Honors Thesis Undergraduate Student
 Flor Merlos
 Benjamin Nittayo, MARC U*STAR Undergraduate Student
 Maria Perilla, Honors Thesis Undergraduate Student
 Neilanie Yadao
 Helma Zecena

ACADEMIC SERVICE AND MEMBERSHIP

CSULA Committees and Service

2019-2020 Steering Committee (College of NSS)
 2018-Present College of Natural and Social Sciences Assessment Coordinator
 2018-Present Educational Effectiveness & Assessment Council (University)
 2018-Present Educational Policy Committee (College of NSS)
 2018-2019 Departmental MCD Biology Option Organizing Group, Chair
 2017-2019 Fiscal and Enrollment Management (Department of Biological Sciences)
 2017-2019 Great Place to Work Consultative Group (University)
 2017-2019 American Society for Cell Biology (ASCB) CSULA Ambassador
 2017-2019 Oral and Poster Presentation Judge, RSCA Annual Symposium
 2017-2018 Strategic Planning Committee (College of NSS; Chair of Research subcommittee)
 2016-2017 Faculty Policy Committee (University, Vice Chair 2016-2017)
 2015-2018 Co-Sponsor, CSULA Pre-Veterinary Club and Animal Welfare Club
 2015-Present Co-Sponsor, Chicanos/Latinos for Community Medicine of CSULA
 2014-Present Assessment Committee (Department of Biological Sciences, Chair 2015-2018, Present)
 2014-2018 Co-Sponsor, Cancer Research and Awareness Society of CSULA

VARI Committees and Service

2013-2014 VARI Postdoctoral Program Council Member
 2013 VARI Confocal Microscopy Conference Organizing Committee
 2013 VARI Grant Writers' Seminars & Workshops Postdoctoral Program Committee
 2013 VARI Nikon A1 siR confocal manager
 2012-2013 Van Andel Institute Graduate School Curriculum Committee
 2012-2013 VARI Grant Writers' Seminars and Workshops Institutional Organizing Committee
 2012-2013 VARI Postdoctoral Program Travel Award Committee
 2012 Van Andel Institute Confocal Microscopy Committee
 2011 Van Andel Institute Postdoctoral Program Handbook Committee

University of Michigan Committees and Service

2008 CMB Admissions Committee, University of Michigan
 2006-2008 Program in Biomedical Sciences Graduate Student Council Member, University of Michigan Medical School
 2005-2009 CMB student recruit host, University of Michigan

- 2005-2008 Student Organizing Committee for the Cellular & Molecular Biology Symposium, University of Michigan
- 2005-2006 CMB Short Course Planning Committee (New Frontiers in Signal Transduction), University of Michigan

Professional Service

- 2019 Reviewer, Sally Casanova Scholarships
- 2019 Reviewer, CSUPERB Seed Grants
- 2019 Reviewer, CSUPERB Travel Grants
- 2019 Panelist, Future Faculty Meeting, Van Andel Research Institute
- 2019 Participant, NSF-Funded ADAPT Pedagogical Decision Making Study
- 2018-2019 Editor, Pearson's Biological Sciences (Freeman, Quillin, Allison) student questions.
- 2018 Moderator, CSUPERB/CSU-ICM CANCER Meeting
- 2017 Panelist, Developmental Biology Careers Meeting, University of Michigan
- 2017 McGraw Hill Education Majors Biology SmartBook and Assessment Consultant
- 2006-Present Assigned *ad hoc* reviewer for
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| <i>Biochemie</i> | <i>British Journal of Pharmacology</i> |
| <i>Cancers</i> | <i>Cancer & Metabolism</i> |
| <i>Cancer Reports</i> | <i>Cell Communication and Signaling</i> |
| <i>Cell Reports</i> | <i>Cells</i> |
| <i>Chinese Journal of Cancer</i> | <i>Endocrinology</i> |
| <i>European Journal of Neuroscience</i> | <i>Genes</i> |
| <i>International Journal of Molecular Sciences</i> | <i>Metabolites</i> |
| <i>Molecular Endocrinology</i> | <i>Proteomics</i> |
| <i>PLoS ONE</i> | <i>Scientific Reports</i> |
| <i>Science Signaling</i> | <i>Seminars in Cancer Biology</i> |

Society Membership

- 2014-Present American Society for Biochemistry and Molecular Biology
- 2014-Present American Society for Cell Biology (Current ASCB Ambassador for CSULA)
- 2008-2009 The Endocrine Society

EXTERNAL INVITED LECTURES

1. *Surveying the Mitochondrial Bioenergetic Landscape for New Therapeutic Targets*. San Diego State University, San Diego, CA. 2019
2. *Cellular Models of Leigh Syndrome*. CSUPERB Conference, Orange County, CA. 2019.
3. *Mapping the mitochondrial bioenergetic landscape for therapeutic targets*. University of California, Merced. 2017.
4. *Surveying the Mitochondrial Bioenergetic Landscape for New Therapeutic Targets*. California State University, Long Beach. 2016
5. *Mapping the mitochondrial bioenergetic landscape*. Southern California Systems Biology Conference. University of California Irvine. 2016
6. *AK4 Loss Supports Glioma Cell Biology through Dual AMPK and mTOR Activation*. Mechanisms and Models of Cancer Conference. Salk Institute, La Jolla, CA. 2015
7. *Defining the genetic determinants of mitochondrial bioenergetics*. Metabolism, Diet, and Disease Conference. Georgetown University, Washington D.C. 2014.

8. *A systems approach to mitochondrial biology*. California State University, Los Angeles. 2013
9. *Systems analysis of metabolic networks in response to varied carbon fuel sources*. Grand Valley State University Bioinformatics Course. 2013.
10. *A systems approach to mitochondrial biology*. Grand Valley State University 2nd Annual Symposium in Bioinformatics and Computational Biology. 2013.
11. *Cancer Biology: Back to the Basics. How biochemistry of the early 20th century is revolutionizing cancer research today*. Aquinas College Biology Departmental Seminar. 2012.
12. *Cancer research at Van Andel Institute*. Duncan Lake Middle School. 2011.
13. *Subcellular localization regulates SH2B1-mediated signal transduction*. Grand Valley State University Biology Department Seminar Series. 2009.
14. *Research in the Biomedical Sciences*. American Society for Biochemistry and Molecular Biology, Grand Valley State University Chapter. 2006.

BIBLIOGRAPHY (CSULA student authors indicated in bold)

Research Papers

1. Lanning NJ, Van Opstall C, Goodall ML, MacKeigan JP, Looyenga BD. LRRK2 Deficiency impairs trans-Golgi to lysosome trafficking and endocytic cargo degradation in human renal proximal tubule epithelial cells. *Am J Physiol Renal Physiol*. 2018; Aug 8. PMID: 30089035
2. Lanning NJ*, Castle JP, Singh SJ, Leon AN, Tovar EA, Sanghera A, MacKeigan JP, Filipp FV, Graveel CR*. Metabolic profiling of triple-negative breast cancer cells reveals metabolic vulnerabilities. *Cancer & Metabolism*. 2017; Aug 22;5:6. eCollection 2017. PMID: 28852500
*Denotes corresponding authors.
3. Sasi NK, Bhutkar A, Lanning NJ, MacKeigan JP, Weinreich M. DKK Promotes Tumor Chemoresistance and Survival via Multiple Pathways. *Neoplasia*. 2017; 19(5):439-450. PMID: 28448802
4. Lanning NJ, Looyenga BD, Kauffman AL, Niemi NM, Sudderth J, DeBerardinis RJ, MacKeigan JP. A mitochondrial RNAi screen defines cellular bioenergetics determinants and identifies an adenylate kinase as a key regulator of ATP levels. *Cell Reports*. 2014; 8;7(3):907-17. PMID: 24767988
5. Niemi NM, Sacoman JL, Westrate LM, Gaither LA, Lanning NJ, Martin KR, MacKeigan JP. The pseudophosphatase MK-STYX physically and genetically interacts with the mitochondrial phosphatase PTPMT1. *PLoS One*. 2014; 9(4):e93896. PMID: 24709986
6. Su HW, Lanning NJ, Morris DL, Argetsinger LS, Lumeng CN, Carter-Su C. Phosphorylation of the adaptor protein SH2B1 β regulates its ability to enhance growth hormone (GH)-dependent macrophage motility. *J Cell Sci*. 2013; 126(8):1733-43. PMID: 23444381
7. Niemi NM, Lanning NJ, Westrate LM, MacKeigan JP. Downregulation of the mitochondrial phosphatase PTPMT1 is sufficient to promote cancer cell death. *PLoS One*. 2013; 8(1):e53803. PMID: 23326511

8. Lanning NJ, Su HW, Argetsinger LS, Carter-Su C. Identification of SH2B1 β as a focal adhesion protein that regulates focal adhesion size and number. *J Cell Sci.* 2011; 124(18):3095-105. PMID: 21878491
9. Cui TX, Lin G, LaPensee CR, Calinescu AA, Rathore M, Streeter C, Piwien-Pilipuk G, Lanning N, Jin H, Carter-Su C, Schwartz J. C/EBP β mediates growth hormone-regulated expression of multiple target genes. *Mol Endocrinol.* 2011; 25(4):681-93. PMID: 21292824
10. Niemi NM, Lanning NJ, Klomp JA, Tait SW, Xu Y, Dykema KJ, Murphy LO, Gaither LA, Xu HE, Furge KA, Green DR, MacKeigan JP. MK-STYX, a catalytically inactive phosphatase regulating mitochondrially dependent apoptosis. *Mol Cell Biol.* 2011; 31(7):1357-68. PMID 21262771
11. Jin H*, Lanning NJ*, Carter-Su C. JAK2, But Not Src Family Kinases, Is Required for STAT, ERK and Akt Signaling in Response to Growth Hormone in Preadipocytes and Hepatoma Cells. *Mol. Endocrinol.* 2008; 22(8) 1825-41. PMID: 18499741 *These authors contributed equally to this work.
12. Zhang YW, Su Y, Lanning N, Swiatek PJ, Bronson RT, Sigler R, Martin RW, Vande Woude GF. Targeted disruption of Mig-6 in the mouse genome leads to early onset degenerative joint disease. *Proc. Natl. Acad. Sci. U S A.* 2005; 102(33):11740-5. PMID: 16087873
13. Zhang YW, Su Y, Lanning N, Gustafson M, Shinomiya N, Zhao P, Cao B, Tsarfaty G, Wang LM, Hay R, Vande Woude GF. Enhanced growth of human met-expressing xenografts in a new strain of immunocompromised mice transgenic for human hepatocyte growth factor/scatter factor. *Oncogene.* 2005; 24(1):101-6. PMID: 15531925

Reviews

14. Castellanos E, Lanning NJ. Phosphorylation of OXPHOS Machinery Subunits: Functional Implications in Cell Biology and Disease. *Yale Journal of Biology and Medicine.* 2019. 92(3):523-531. PMID: 31543713
15. Fogg VC, Lanning NJ, MacKeigan JP. Mitochondria in cancer: at the crossroads of life and death. *Chin. J. Cancer.* 2011; 30(8):526-39 PMID: 21801601
16. Lanning NJ, Carter-Su C. Recent advances in growth hormone signaling. *Rev. Endocr. Metab. Disord.* 2006. 7(4):225-35. PMID: 17308965