
CURRICULUM VITAE

Daniel K. Nomura

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Education

- May 2008 Ph.D. in Molecular Toxicology
University of California, Berkeley
- May 2003 B.A. in Molecular and Cell Biology
University of California, Berkeley

Positions

- 2011-current Assistant Professor
University of California, Berkeley
Program in Metabolic Biology
Department of Nutritional Sciences and Toxicology
- 2008-2011 Postdoctoral Fellow
The Scripps Research Institute, La Jolla, CA
Department of Chemical Physiology
Advisor: Professor Benjamin F. Cravatt
- 2004-2008 Graduate Researcher
University of California, Berkeley
Department of Nutritional Sciences and Toxicology
Advisor: Professor John E. Casida
- 2003-2004 Research Associate
University of California, Berkeley
Advisor: Professor John E. Casida
- 2000-2003 Undergraduate Research Assistant
University of California, Berkeley
Advisor: Professor John E. Casida

Research Interests

Dysregulated metabolism contributes to the pathophysiology of a large number of complex human diseases including cancer, pain, inflammation, neurodegenerative disease, atherosclerosis, obesity, and diabetes. These changes not only include fundamental rewiring of cell metabolism, but also impact the levels of metabolites and activities of enzymes that regulate them. We utilize advanced functional chemoproteomic and metabolomic approaches to globally and comprehensively map dysregulated metabolic pathways that underlie disease progression to identify, characterize, and develop next-generation therapeutic strategies for combatting human disease through targeting nodal points of control in metabolism.

Awards and Fellowships

Selected US (ACS) Representative for Transatlantic Frontiers of Chemistry Conference (2013)
Hellman Fellows Awardee (2013)
Michael J. Fox Foundation Target Validation Award (2013-2015)
Ellison Foundation for Aging Research Award 2012 (declined due to conflict with Searle)
Searle Scholar Award (2012-2015)
Outstanding Research Achievement Award (2012) from Nature Biotechnology/Amgen at SF *SciCafe*
NIH Pathway to Independence (PI) Award (K99/R00) (2010-2015)
American Cancer Society Postdoctoral Fellowship (2009-2011)
California Breast Cancer Research Program Postdoctoral Fellowship (declined)
Adelle Davis Award for Nutritional Sciences Research (2008)

Affiliations

2012-current: Member of the Synthetic Biology Institute (UC Berkeley)
2012-current: Consultant for Abide Therapeutics
2012-current: Endocrinology Graduate Group (UC Berkeley)
2011-current: Program in Metabolic Biology (UC Berkeley)
2011-current: Chemical Biology Graduate Group (UC Berkeley)
2011-current: Molecular Toxicology Graduate Group (UC Berkeley)
2011-current: Molecular and Biochemical Nutrition Graduate Group (UC Berkeley)

Professional Associations

2012-current: International Cannabinoid Research Society
2004-current: American Chemical Society
2004-2008: Society of Toxicology

Teaching

2013-current: UC Berkeley Instructor for Advanced Toxicology (NST110)
2013-current: UC Berkeley Instructor for Introduction to Toxicology (NST11)
2012: UC Berkeley Instructor for Graduate Research Colloquium (NST292)
2012: UC Berkeley Instructor for Graduate Seminar (NST290): Chemical Approaches to Study Metabolism
2011: UC Berkeley Instructor for Undergraduate Special Seminars (NST190): “-Omic Approaches to Study Metabolism”
2007: UC Berkeley Lecturer for Molecular Toxicology (NST120)
2006: UC Berkeley Co-Instructor and Graduate Student Instructor for Advanced Toxicology (NST110)
2006: UC Berkeley Guest Lecturer for Pesticide Chemistry and Toxicology (ESPM148)
2006: UC Berkeley Lecturer for Molecular Toxicology (NST120)

Publications

*co-first authorship; #co-corresponding author

1. Anderson CM, Kazantzis M, Wang J, Venkatraman S, Quinlan CL, Ng R, Jastroch, M, Herber C, Van A, Henkin A, Yun D, Chan K, Nie B, Yu A, Archambault J, Vuong P, Febbraio M, Benjamin DI, **Nomura DK**, Carmena J, Napoli JL, Brand MD, Stahl A. CD36-mediated CoQ uptake is required for brown adipose tissue function and *Ucp1* expression. Submitted.
2. Sogi KM, Holsclaw CM, Fragiadakis GK, **Nomura DK**, Leary JA, Bertozzi CR. Biosynthesis and regulation of sulfomenaquinone, a metabolite associated with virulence in *Mycobacterium tuberculosis*. Submitted.
3. Benjamin DI, Louie S, Mulvihill M, Cozzo A, Ohiri A, **Nomura DK**. INPP1 Promotes Cancer Aggressiveness by Linking Inositol Phosphate Recycling to Glycolytic and Lipid Metabolism. Under review.
4. **Nomura DK**, Cravatt BF. (2013) Lipid Metabolism in Cancer. *Biochimica et Biophysica Acta—Molecular and Cell Biology of Lipids* doi: 10.1016/j.bbalip.2013.08.001.
5. Benjamin DI, Cozzo A, Ji X, Roberts LS, Louie SM, Luo K, **Nomura DK**. (2013) The Ether Lipid Generating Enzyme AGPS Alters the Balance of Structural and Signaling Lipids that Fuel Cancer Pathogenicity. *Proc Natl Acad Sci USA* doi:10.1073/pnas.1310894110.

6. Louie SM*, Roberts LS*, Mulvihill MM, Luo K, **Nomura DK**. (2013) Cancer Cells Incorporate and Remodel Exogenous Fatty Acids into Structural and Oncogenic Signaling Lipids. *Biochimica et Biophysica Acta—Molecular and Cell Biology of Lipids* doi:10.1016/j.bbalip.2013.07.008.
7. Louie SM, Roberts LS, **Nomura DK**. (2013) Mechanisms linking obesity and cancer. *Biochimica et Biophysica Acta—Molecular and Cell Biology of Lipids*. Doi 10.1016/j.bbalip.2013.02.008.
8. Medina-Cleghorn D, **Nomura DK**. (2013) Chemical Approaches to Study Metabolic Networks. *Pflugers Arch* 465,427-440.
9. Cao Z, Mulvihill MM, Mukhopadhyay P, Xu H, Erdelyi K, Hao E, Holovac E, Hasko G, Cravatt BF, **Nomura DK**[#], Pal Pacher[#]. (2013) Monoacylglycerol lipase controls endocannabinoid and eicosanoid signaling and hepatic injury in mice. *Gastroenterology* 144, 808-817.
10. Mulvihill MM, **Nomura DK**. (2013) Therapeutic Potential of Monoacylglycerol Lipase Inhibitors. *Life Sciences* 92, 492-497.
11. Morrison BE, Garibaldi Marcondes MC, **Nomura DK**, Sanchez-Alavez M, Saar I, Bartfai T, Maher P, Sugama S, Conti B. (2012) IL-13R α 1 expression in dopaminergic neurons contributes to their oxidative stress-mediated loss following chronic systemic treatment with LPS. *J. Immunol.* 189, 5498-5502.
12. Benjamin DI, Cravatt BF, **Nomura DK**. (2012) Global Profiling Strategies towards Mapping Dysregulated Metabolic Pathways in Cancer. *Cell Metabolism* 16, 565-567.
13. Piro JR, Benjamin DI, Duerr JM, Pi YQ, Gonzales C, Schwartz JW, **Nomura DK**[#], Samad TA[#]. (2012) A Dysregulated Endocannabinoid-Eicosanoid Network Supports Pathogenesis in a Mouse Model of Alzheimer's Disease. *Cell Reports* 1, 617-623.
14. **Nomura DK**[#], Morrison BE, Blankman JL, Long JZ, Kinsey SG, Marcondes MC, Ward AM, Hahn YK, Lichtman AH, Conti B, Cravatt BF[#]. (2011) Endocannabinoid hydrolysis generates brain eicosanoids that promote neuroinflammation. *Science* 334, 809-813.
15. Ruby MA, **Nomura DK**, Hudak CSS, Barber A, Casida JE, Krauss RM. (2011) Overactive endocannabinoid signaling induces hepatic steatosis, insulin resistance, and global transcriptional changes. *Plos One* 6, e26415.
16. **Nomura DK**[#], Lombardi DP, Chang JW, Niessen S, Ward AM, Long JZ, Hoover HH, Cravatt BF[#]. (2011) Monoacylglycerol lipase exerts bidirectional control over endocannabinoid and fatty acid pathways to support prostate cancer pathogenesis. *Chem. Biol.* 18, 848-856.
17. Ramesh D, Ross GR, Schlosburg JE, Abdullah RA, Kinsey SG, Long JZ, **Nomura DK**, Sim-Selley LJ, Cravatt BF. (2011) Blockade of endocannabinoid hydrolytic enzymes attenuates precipitated withdrawal symptoms in mice. *J. Pharmacol. Exp. Ther.* 339, 173-185.
18. Kinsey SG, **Nomura DK**, O'Neal ST, Long JZ, Cravatt BF, Lichtman AH. (2011) Inhibition of monoacylglycerol lipase (MAGL) attenuates NSAID-induced gastric hemorrhages in mice. *J. Pharmacol. Exp. Ther.* 338, 795-802.
19. Chang JW, **Nomura DK**, Cravatt BF. (2011) A potent and selective inhibitor of KIAA1363/AADACL1 that impairs prostate cancer pathogenesis. *Chem Biol.* 18, 476-484.
20. Ahn K, Smith SE, Liimata MB, Sadagopan N, Dudley D, Young T, Wren P, Zhang Y, Swaney S, Van Becelaere K, Blankman JL, **Nomura DK**, Bhattachar SN, Stif C, Nomanbhoy TK, Weerapana E, Johnson DS, Cravatt BF. (2011) Mechanistic and pharmacological characterization of PF-04457845: a highly potent and selective FAAH inhibitor that reduces inflammatory and noninflammatory pain. *J. Pharmacol. Exp. Ther.* 338, 114-124.
21. **Nomura DK**[#], Casida JE[#]. (2011) Activity-based protein profiling of organophosphorus and thiocarbamate pesticides reveals multiple secondary targets in the mammalian nervous system. *J Agric Food Chem.* 59, 2808-2815.
22. Nicolaou KC, Sanchini S, Sarlah D, Lu G, Wu R, **Nomura DK**, Cravatt BF, Cubitt B, de la Torre JC, Hessel AJ, Burton DR. (2011) Design, synthesis and biological evaluation of a biyouyanagin compound library. *Proc Natl Acad Sci USA*, 108, 6715-6720.
23. Bachovchin DA, Mohr JT, Speers AE, Wang C, Berlin JM, Spicer TP, Fernandez-Vega V, Chase P, Hodder PS, Schürer, **Nomura DK**, Rosen H, Fu GC, Cravatt BF. (2011) Academic cross-fertilization by public screening yields a remarkable class of protein phosphatase methylesterase-1 inhibitors. *Proc Natl Acad Sci USA*, 108, 6811-6816.
24. Kopp F, Komatsu T, **Nomura DK**, Trauger SA, Thomas JR, Simon GM, Cravatt BF. (2010) The glycerophospho-metabolome and its influence on amino acid homeostasis by brain metabolomics of GDE1(-/-) mice. *Chem Biol.* 17, 831-840.

25. Schlosburg JE, Blankman JL, Long JZ, **Nomura DK**, Nguyen PT, Ramesh D, Kinsey SG, Booker L, Burston JK, Wise LE, Ghosh S, Selley DE, Sim-Selley LJ, Liu Q, Cravatt BF, Lichtman AH. (2010) Sustained inactivation of monoacylglycerol lipase produces functional antagonism of the brain endocannabinoid system. *Nat Neurosci.* 13, 1113-1119.
26. **Nomura DK**, Dix MM, Cravatt BF. (2010) Chemoproteomic Approaches for Biochemical Pathway Discovery in Cancer. *Nat Rev Cancer.* 10, 630-638.
27. **Nomura DK**, Long JZ, Niessen S, Hoover HS, Ng S-W, Cravatt BF. (2010) Monoacylglycerol lipase regulates a fatty acid network that promotes cancer pathogenesis. *Cell.* 140, 49-61.
28. Long JZ, **Nomura DK**, Vann RE, Walentiny DM, Booker L, Jin X, Burston JJ, Sim-Selley LJ, Lichtman AH, Wiley JL, Cravatt BF. (2009) Dual blockade of FAAH and MAGL identifies behavioral processes regulated by endocannabinoid crosstalk in vivo. *Proc Natl Acad Sci USA.* 106, 20270-20275.
29. Long JZ, **Nomura DK**, Cravatt BF. (2009) Mechanistic characterization of selective monoacylglycerol lipase inhibition reveals differences in central and peripheral endocannabinoid metabolism. *Chem Biol.* 16, 744-753.
30. Ruby M*, **Nomura DK***, Hudak CS, Mangravite LM, Chiu S, Casida JE, Krauss RM. (2008) Overactive endocannabinoid signaling impairs apolipoprotein E-mediated clearance of triglyceride-rich lipoproteins. *Proc Natl Acad Sci USA.* 105, 14561-14566.
31. **Nomura DK**, Ward AM, Hudak CS, Burston JJ, Issa RS, Fisher KJ, Abood ME, Wiley JL, Lichtman A, Casida JE. (2008) Monoacylglycerol lipase regulates 2-arachidonoylglycerol action and arachidonic acid levels. *Bioorg Med Chem Lett.* 18, 5875-5878.
32. Casida JE, **Nomura DK**, Vose SC, Fujioka K. (2008) Organophosphate-Sensitive Lipases Modulate Brain Lysophospholipids, Ether Lipids and Endocannabinoids. *Chem Biol Interact.* 175, 355-64.
33. **Nomura DK**, Blankman JL, Simon GM, Fujioka K, Issa RS, Ward AM, Cravatt BF, Casida JE. (2008) Activation of the endocannabinoid system by organophosphorus nerve agents. *Nat Chem Biol.* 4, 373-378.
34. **Nomura DK**, Fujioka K, Issa RS, Ward AM, Cravatt BF, Casida JE. (2008) Dual Roles of Brain Serine Hydrolase KIAA1363 in Ether Lipid Metabolism and Organophosphate Detoxification. *Toxicol Appl Pharmacol.* 228, 42-482.
35. **Nomura DK**, Durkin KA, Chiang KP, Quistad GB, Cravatt BF, Casida JE. (2006) Serine Hydrolase KIAA1363: Toxicological and Structural Features with Emphasis on Organophosphate Interactions. *Chem Res Tox.* 19, 1142-1150.
36. Quistad GB, Liang SN, Fisher KJ, **Nomura DK**, Casida JE. (2006) Each Lipase has a Unique Sensitivity Profile for Organophosphorus Inhibitors. *Toxicol Sci.* 91,166-172.
37. **Nomura DK**, Leung D, Chiang KP, Quistad GB, Cravatt BF, Casida JE. (2005) A Brain Detoxifying Enzyme for Organophosphorus Nerve Poisons. *Proc Natl Acad Sci USA.* 102, 6195-6200.
38. Segall Y, Quistad GB, Sparks SE, **Nomura DK**, Casida JE. (2003) Toxicological and Structural Features of Organophosphorus and Organosulfur Cannabinoid CB1 Receptor Ligands. *Toxicol Sci.* 76, 131-137.
39. Segall Y, Quistad GB, **Nomura DK**, Casida JE. (2003) Arachidonylsulfonyl Derivatives as Cannabinoid CB1 Receptor and Fatty Acid Amide Hydrolase Inhibitors. *Bioorg Med Chem Lett.* 13,3301-3303.
40. Quistad GB, **Nomura DK**, Sparks SE, Segall Y, Casida JE. (2002) Cannabinoid CB1 Receptor as a Target for Chlorpyrifos Oxon and Organophosphorus Pesticides. *Toxicol Lett.* 135, 89-93.
41. Quistad GB, Sparks SE, Segall Y, **Nomura DK**, Casida JE. (2002) Selective Inhibitors of Fatty Acid Amide Hydrolase Relative to Neuropathy Target Esterase and Acetylcholinesterase: Toxicological Implications. *Toxicol Appl Pharmacol.* 179, 57-63.

Patents

1. Cravatt BF, **Nomura DK**, Chang JW, Moellering M, Bachovchin, D, Li, W. (2011) Anti-cancer serine hydrolase inhibitory carbamates. Pub. No. WO/2012/058115; international application no. PCT/US2011/057321
2. Cravatt BF, Long JZ, Li W, **Nomura DK**. (2010) Methods and Compositions Related to Targeting Monoacylglycerol Lipase. Pub no. WO/2010/056309; international application no. PCT/US2009/006045

Abstracts/meetings/invited talks

1. Invited Speaker: **Nomura DK** (2013) Endocannabinoid hydrolysis generates eicosanoids that promote inflammation. Bioactive Lipids in Cancer, Inflammation, and Related Diseases meeting, San Juan, Puerto Rico
2. Invited Speaker: **Nomura DK** (2013) Mapping dysregulated metabolic pathways in disease using functional proteomic and metabolomic platforms. Symposium on Frontier Sciences on New Drug Discovery, Tsinghua University, Beijing, China.
3. Invited Speaker: **Nomura DK** (2013) Mapping dysregulated metabolic pathways in disease using functional proteomic and metabolomic platforms. Transatlantic Frontiers of Chemistry (TFOC) meeting, American Chemical Society, Kloster Seon, Germany.
4. Invited Speaker: **Nomura DK** (2013) Endocannabinoid hydrolysis generates eicosanoids that promote inflammation. Gordon conference Molecular and Cellular Biology of Lipids, New Hampshire, NJ
5. Poster: **Nomura DK** (2013) Mapping dysregulated metabolic pathways in cancer. Gordon conference bioorganic chemistry, New Hampshire, NJ.
6. Invited Speaker: **Nomura DK** (2013) Mapping Dysregulated Metabolic Pathways in Disease using Functional Proteomic and Metabolomic Platforms. Seminar speaker at UC Berkeley, Department of Molecular and Cell Biology, Berkeley, CA
7. Invited Speaker: **Nomura DK** (2013) Endocannabinoid hydrolysis generates brain prostaglandins that promote neuroinflammation. Seminar speaker at University of Minnesota, Minneapolis, MN.
8. Invited Speaker: **Nomura DK** (2012) Mapping dysregulated metabolic pathways in disease using functional proteomic and metabolomic platforms. Seminar speaker at Agilent, Santa Clara, CA.
9. Invited Speaker: **Nomura DK** (2012) Endocannabinoid hydrolysis generates brain prostaglandins that promote neuroinflammation. Seminar speaker at Pfizer Neuroscience, Cambridge, MA.
10. Invited Speaker: **Nomura DK** (2012) Mapping Dysregulated Metabolic Pathways using Functional Chemoproteomic and Metabolomic Platforms. Seminar Speaker at Children's Hospital Oakland Research Institute, Oakland, CA.
11. Keynote Invited Speaker: **Nomura DK** (2012) Mapping dysregulated metabolic pathways in cancer using functional proteomic and metabolomic platforms. Austrian Proteomics Research Symposium, Graz, Austria.
12. Invited Speaker: **Nomura DK**. (2012) Endocannabinoid hydrolysis generates brain prostaglandins that promote neuroinflammation. *International Cannabinoid Research Society* meeting, Freiberg, Germany.
13. Poster: **Nomura DK** and Samad TA (2012) Metabolomic profiling for mapping anti-inflammatory pathways in neurodegenerative disease. *Genetics and Chemistry Cell Symposium*, Cambridge, Massachusetts.
14. Invited Speaker: **Nomura DK** (2012) Endocannabinoid hydrolysis generates brain eicosanoids that promote neuroinflammation. *SciCafe* hosted by Nature Biotechnology and Nature Medicine at the Gladstone Institute, San Francisco, CA
15. Poster: **Nomura DK** and Cravatt BF (2011) Monoacylglycerol Lipase Exerts Bidirectional Control over Endocannabinoid and Fatty Acid Pathways to Support Prostate Cancer. Cancer Chemical Biology meeting sponsored by Nature Chemical Biology, Cambridge, Massachusetts.
16. Invited Speaker: **Nomura DK** (2011) Mapping dysregulated metabolic pathways in cancer using activity-based proteomics. American Chemical Society meeting, Denver, Colorado.
17. Invited Speaker: **Nomura DK**, Cravatt BF (2011) Mapping dysregulated metabolic pathways in cancer. American Association for Cancer Research meeting, Orlando, Florida.
18. Invited Speaker: **Nomura DK**, Long JZ, Cravatt BF, Casida JE. (2010) Annotating the role of monoacylglycerol lipase in cancer and in the brain. American Chemical Society meeting, San Francisco, California.
19. Invited Speaker: **Nomura DK**. (2009) Chemical Approaches to Annotating Toxicological and Biological Systems. University of California Toxic Substances & Teaching Program Symposium, Berkeley, California.
20. Poster: **Nomura DK**, Blankman JL, Simon GM, Cravatt BF, Casida JE. (2008) Maximal activation of the endocannabinoid system by organophosphorus nerve agents. University of California Toxic Substances Research & Teaching Program Symposium, Riverside, California.
21. Poster: **Nomura DK**, Casida JE. (2007) Acetyl monoalkylglycerol ether deacetylase: an organophosphate detoxifying enzyme and modulator of tumor growth. IXth Meeting on Cholinesterases, Suzhou, China.
22. Oral Presentation: **Nomura DK**, Durkin KA, Chiang KP, Quistad GB, Cravatt BF, Casida JE. (2006) Toxicological and Structural Features of KIAA1363: A Novel Detoxifying Enzyme for Organophosphorus Nerve Poisons. American Chemical Society meeting, San Francisco, CA.

23. Poster: **Nomura DK**, Leung D, Chiang KP, Quistad GB, Cravatt BF, Casida JE. (2005) A Brain Detoxifying Enzyme for Organophosphorus Nerve Poisons. American Chemical Society meeting, Washington, D.C.

Students/Researchers Supervised (w/ former and current position)

Name	Position in the lab	Current Position
Jessica Counihan (2013-current)	Graduate Researcher	Student at Duke University
Sharon Zhong (2013-current)	Undergraduate Researcher	
David Miyamoto (2013-current)	Undergraduate Researcher	
Karl Fisher (2013-current)	Associate Specialist	
Lauryn Chan (2013-current)	Undergraduate Researcher	
Lucky Ding (2013-current)	Undergraduate Researcher	
Nivedita Keshav (2013-current)	Undergraduate Researcher	
Ann Heslin (2013-current)	Undergraduate Researcher	
Chyna Tang (2013-current)	Undergraduate Researcher	
Yoav Azaria (2012-current)	Undergraduate Researcher	
Devon Hunerdosse (2012-current)	Graduate Researcher	
Lindsay Roberts (2012-current)	Graduate Researcher	
Ramandeep Dhillon (2012-current)	Administrative and Lab Assistant	
Alice Shieh (2012-2013)	Undergraduate Researcher	
Tara Narasimhalu (2012-current)	Undergraduate Researcher	
Rebecca Kohnz (2012-current)	Postdoctoral Fellow	
Patrick Morris (2012-current)	Postdoctoral Fellow	
Melinda Mulvihill (2012-current)	Postdoctoral Fellow	
Alyssa Cozzo (2012-2013)	Undergraduate Researcher	
Daniel Medina-Cleghorn (2011-current)	Graduate Researcher	
Jay Andrew Cosme Barcelon (2011-2012)	Undergraduate Researcher	Instructor in Physiology lab
McKenna Green (2012-current)	Undergraduate Researcher	Graduate Student at SF State
Daniel I Benjamin (2011-current)	Graduate Researcher	
Sharon M Louie (2011-current)	Graduate Researcher	
Anayo Ohiri (2011-2013)	Undergraduate Researcher	
Jae Wong Chang (2009-2011)	Graduate Researcher	
Anna M. Ward (2004-2008, 2010)	Undergraduate Researcher	
Roger Issa (2004-2008)	Undergraduate Researcher	Anesthesiology Resident at Harvard Medical School

Academic Services

2012-current Regents' and Chancellors' Scholarship Faculty Mentor (for 4 students)
 2012-current Faculty Selection committee for the Nutritional Sciences and Toxicology Department
 2012-2013 Seminar Speaker Selection Committee
 2011-current Undergraduate Affairs Committee
 2011-current Molecular Toxicology Graduate Affairs Committee

Professional Services

2011-2012 Editor Special Issue for Biochimica Biophysica Acta (Lipids in Cancer)

Reviewer for: Cell, Cell Metabolism, Chemical Neurosciences, Chemical Reviews, Nature, Chemical Sciences, PNAS, Biochimica et Biophysica Acta, Journal of the American Chemical Society, Nature Structural and Molecular Biology

