CURRICULUM VITAE

Jason G. Williams

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Education

Postdoctoral Fellowship 2002-2004 Laboratory of Dr. Kenneth Tomer, NIEHS, RTP, NC
Ph.D. 2001 Biochemistry and Biophysics, University of North Carolina, Chapel Hill, NC
B.S. 1996 Biochemistry, Biology, and Zoology, University of Tennessee, Knoxville, TN

Employment

2017-Present	Associate Scientist and Co-Director - Mass Spectrometry Research and Support Group, Epigenetics and Stem Cell Biology Laboratory, NIEHS/NIH, Research Triangle Park, NC
2014-2017	Associate Scientist and Director – Protein Micro-characterization Core Facility, Epigenetics and Stem Cell Biology Laboratory, NIEHS/NIH, Research Triangle Park, NC
2004-2014	Staff Scientist and Director – Protein Micro-characterization Core Facility, Laboratory of Structural Biology and Epigenetics and Stem Cell Biology Laboratory, NIEHS/NIH, Research Triangle Park, NC
2003-2004	Interim Head, Protein Micro-Characterization Facility, Laboratory of Structural Biology, NIEHS/NIH, Research Triangle Park, NC
2002-2003	IRTA Postdoctoral Fellow, Laboratory of Structural Biology, NIEHS/NIH, Research Triangle Park, NC
1998 - 2001	Research Assistant, University of North Carolina, Chapel Hill, NC
1996 - 1998	Teaching Assistant, University of North Carolina, Chapel Hill, NC

Memberships and Service

Institute Membership and Service

NIEHS Office of Science Education and Diversity presentations for Vernon Malone College & Career Academy; Nash Rocky Mount Early College High School; NIEHS Science, Teachers & Research Summer (STaRS) Program; Summer STEM training in the WakeEd Partnership, etc. ’15-Present
NIEHS DIR Space and Renovations Committee ’15-Present
NIEHS *Ad hoc* Committee for Service Contracts ’14
NIEHS Assembly of Scientists ’04-present
NIEHS Committee on Promotion IV ’13-’16;’19-Present
NIEHS DIR Committee for Non-recurring Requests ’12-’19
NIEHS DIR Council ’11-‘12

NIEHS Assembly of Scientists Councilor ’11-‘12
NIH National Graduate Student Research Festival Reviewer ’10
NIEHS Summer Internship Program Judge ’08, ’14-’16,’19
NIEHS Peer Award *Ad Hoc* Advisory Board ’10
NIEHS Science Day Judge ’06, ’08, ’10,’13,’15,’19

Other Memberships and Service

The Association of Biomolecular Resource Facilities ’08-Present
The American Chemical Society ’06-present
The American Society for Mass Spectrometry ’02- present
Triangle Area Mass Spectrometry Group ’02-present
ABRF Proteomics Research Group ’12-’14
University of Tennessee Department of Biochemistry, Cellular, and Molecular Biology Advisory Board ’10-present
The American Society for Mass Spectrometry 56th Conference Program Committee ’08
The American Society for Mass Spectrometry 55th Conference Program Committee ’07
Ad hoc reviewer for *ACS Journals, Analytica Chimica Acta*, *Analytical Biochemistry*, *The Journal of Biomolecular Techniques, Electrophoresis, Journal of Biological Chemistry, Journal of Proteome Research, PLoS One,* and *Proteomics*

Awards and Honors

NIH/NIEHS Cash Award –’19
NIH/NIEHS Group Award –’15
NIH/NIEHS Performance Award –’07-’11;’12-’19
NIH/NIEHS Cash Award –‘09
Intramural Research Training Award – NIH/NIEHS ’02-’04
Lineberger Cancer Center - Cancer Cell Biology Pre-doctoral Training Program ’99-’01
University of North Carolina Biophysics Training Program ’98-’01
Merit Scholarship ’00 Keystone Symposium – Assembly of Signaling Networks
University of North Carolina Merit Assistantship ’96-’97
J. Logan Irvin Fellowship – University of North Carolina’96
Threshold Scholar – University of Tennessee ’95-’96
Merit Scholarship – University of Tennessee ’92-’96
Andrew Holt Scholarship – University of Tennessee ’92-’96
National Merit Finalist ’92

Mentoring

NIH Summer Internship Program Mentor ’02, ’05-’07, ’09
NIEHS-Nanjing Medical University Training Partnership 2018

Responsibilities

As a Co-director of the Mass Spectrometry Research and Support Group at the NIEHS I co-manage both the scientific and administrative operations of the group by helping oversee personnel, budget, and scientific projects. These responsibilities include but are not limited to: co-managing fiscal and human resources; writing reports, proposals, and manuscripts; advising institute scientists on experimental design; co-directing and performing sample analyses including protein identification, intact molecular weight determination, characterization of posttranslational modifications of proteins, as well as targeted and untargeted proteomic analyses and small molecule measurements and quantification.

Invited or Selected Presentations

2019 Neurobiology Laboratory NIEHS
2017 University of Tennessee -panelist for BCMB Graduate Students
2014 NIEHS National Toxicology Program Laboratory Seminar Series
2013 University of North Carolina Biochemistry and Biophysics Alumni Day - Careers in Science - panelist
2012 University of North Carolina SURE/REU, Partners, SOLAR, and Biophysics Summer Undergraduate Research Programs - Careers in Science - panelist
2011 University of Tennessee Students in STEM Symposium "What to do with your Ph.D." – panelist
2010 The University of North Carolina Biophysical Society Summer Course in Biophysics: Case Studies in the Physics of Life – panelist
2010 University of North Carolina Biophysics Student Symposium
2008 NIEHS/EPA Career Fair - panelist
2007 Agilent World Tour – Advancing LC and LC-MS Technologies Seminar Series – RTP
2006 Agilent World Tour – Advancing LC and LC-MS Technologies Seminar Series – RTP
2005 NIEHS Laboratory of Molecular Carcinogenesis
2005 NIEHS Laboratory of Signal Transduction
2004 52nd Annual Conference on Mass Spectrometry and Allied Topics
1999 Fifteenth Annual Meeting on Oncogenes

Bibliography

Peer-Reviewed Journal Publications

1. Shats, I., Liu, J., **Williams, J.G.,** Deterding, L.J., Lim, C., Lee, L., Fan, W., Sokolsky, M., Kabanov, A.V., Locasale, J., and Li, X., Bacteria contribute to host NAD metabolism via deamidated biosynthesis pathway. *Cell Metabolism*, 2020, in revision.

2. Xu, Q., Li, Y., Gao, X, Kang, K., **Williams, J.G.,** Ji, M., Deterding, L.J., Locasale, J.W., Li, L., Shats, I., and Li, X., HNF4α confers sensitivity to methionine restriction through regulation of sulfur amino acid metabolism in human hepatocellular carcinoma, *Nature Communication*, 2020, submitted.

3. Kaminski AM, Tumbale PP, Schellenberg MJ, Williams RS, **Williams JG**, Kunkel TA, Pedersen LC, Bebenek K. "Structures of DNA-bound human Ligase IV catalytic core reveal insights into substrate binding and catalysis" Nature Comm. In press.

4. Schellenberg MJ, Lieberman JA, Herrero-Ruiz A, Butler LR, **Williams JG**, Munoz-Cabello AM, Mueller GA, London RE, Cortes-Ledesma F, Williams RS. (2017) Science 357(6358):1412-6. "ZATT (ZNF451)-mediated resolution of topoisomerase 2 DNA-protein cross-links."

5. Pillon MC, Sobhany M, Borgnia MJ, **Williams JG**, Stanley RE. (2017) PNAS U.S.A. 114(28) "Grc3 programs the essential endoribonuclease Las1 for specific RNA cleavage."

6. Johnson KL, **Williams JG**, Maleki SJ, Hurlburt BK, London RE, Mueller GA (2016) J. Agri. Food Chem 64(6)1406-1413 "Enhanced Approaches for Identifying Amadori Products: Application to Peanut Allergens"

7. Schellenberg MJ, Perera L, Strom CN, Waters CA, Monian B, Appel CD, Vilas CK, **Williams JG**, Ramsden DA, Williams RS (2016) Nucleic Acids Res. 44(8): 3829-3844. "Reversal of DNA damage induced Topoisomerase 2 DNA-protein crosslinks by Tdp2"

8. Prasad R, Dyrkheeva N, **Williams J,** Wilson SH (2015) PLoS One 10(5) "Mammalian Base Excision Repair: Functional Partnership between PARP-1 and APE1 in AP-Site Repair"

9. Sharma NK, Kumar A, Kumari A, Tokar EJ, Waalkes MP, Bortner CD, **Williams J**, Ehrenshaft M, Mason RP, Sinha BK. (2015) PLoS One. 10(11) "Nitric Oxide Down-Regulates Topoisomerase I and Induces Camptothecin Resistance in Human Breast MCF-7 Tumor Cells."

10. ZeRuth GT, **Williams JG**, Cole YC, Jetten AM. (2015) PLoS ONE. 10(7). "HECT E3 Ubiquitin Ligase Itch Functions as a Novel Negative Regulator of Gli-Similar 3 (Glis3) Transcriptional Activity."

11. Yong ST, Nguyen HN, Choi JH, Bortner CD, **Williams J**, Pulloor NK, Krishnan MN, Shears SB. BMC Cell Biol. 2015 16:17. "Identification of a functional nuclear translocation sequence inhPPIP5K2."

12. Martin NP, Velasco EMF, Mizuno F, Scappini EL, Gloss B, Erxleben C, **Williams JG**, Stapleton HM, Gentile S, Armstrong, DL (2014) Endocrinology 155(9):3713-24. "A Rapid Cytoplasmic Mechanism for PI3 Kinase Regulation by the Nuclear Thyroid Hormone Receptor, TRβ, and Genetic Evidence for Its Role in the Maturation of Mouse Hippocampal Synapses In Vivo."

13. Mueller, G. A., Maleki, S. J., Johnson, K., Hurlburt, B.K., Cheng, H., Ruan, S., Nesbit, J.B., Pomes, A., Edwards, L.L., Schorzman, A., Deterding, L.J., Park, H., Tomer, K.B., London, R.E., **Williams, J.G**. (2013) Allergy 68(12):1546-54. "Identification of Maillard reaction products on peanut allergens that influence binding to the receptor for advanced glycation end products"

14. Brar SS, Petrovich RM, **Williams JG**, Mason JM. (2013) PLoS One. 2013 Sep 18;8(9):e75381. "Phosphorylation at Serines 216 and 221 Is Important for Drosophila HeT-A Gag Protein Stability."

15. Horton JK, Stefanick DF, Gassman NR, **Williams JG**, Gabel SA, Cuneo MJ, Prasad R, Kedar PS, Derose EF, Hou EW, London RE, Wilson SH. (2013) DNA Repair (Amst). 12(9):774-85. "Preventing oxidation of cellular XRCC1 affects PARP-mediated DNA damage responses."

16. Sharifi R, Morra R, Denise Appel C, Tallis M, Chioza B, Jankevicius G, Simpson MA, Matic I, Ozkan E, Golia B, Schellenberg MJ, Weston R, **Williams JG,** Rossi MN, Galehdari H, Krahn J, Wan A, Trembath RC, Crosby AH, Ahel D, Hay R, Ladurner AG, Timinszky G, Williams RS, Ahel I. (2013) EMBO J. 32(9):1225-37. "Deficiency of terminal ADP-ribose protein glycohydrolase TARG1/C6orf130 in neurodegenerative disease."

17. Nakamura N, Dai Q, **Williams J**, Goulding EH, Willis WD, Brown PR, Eddy EM. (2013) Biol Reprod. 88(4):90. "Disruption of a spermatogenic cell-specific mouse enolase 4 (eno4) gene causes sperm structural defects and male infertility."

18. Brehm, MA, Wundenberg T, **Williams J**, Mayer GW, Shears SB. (2013) J of Cell Sci. 126(Pt 2):437-44. "A non-catalytic role for inositol 1,3,4,5,6-pentakisphosphate 2-kinase in the

synthesis of ribosomal RNA"

19. Prasad R, **Williams JG**, Hou EW, Wilson SH. (2012) Nucleic Acids Res. 40(22):11571-82. "Pol β associated complex and base excision repair factors in mouse fibroblasts."

20. Donovan AJ, Lansu K, **Williams JG**, Denning MF, Gentile S. (2012) Mol Pharmacol. 82(3):428-37. "Long QT2 mutation on the Kv11.1 ion channel inhibits current activity by ablating a protein kinase Cα consensus site."

21. Galliher-Beckley AJ, **Williams JG**, and Cidlowski J. (2011) Mol. Cell Bio. 31(23):4663-75. "Ligand-Independent Phosphorylation of the Glucocorticoid Receptor Integrates Cellular Stress Pathways with Nuclear Receptor Signaling"

22. Merrick BA, Dhungana S, **Williams JG**, Aloor JJ, Peddada S, Tomer KB, Fessler MB. (2011) Mol. Cell Proteomics. 10(10):M110.006007 "Proteomic profiling of S-acylated macrophage proteins identifies a role for palmitoylation in mitochondrial targeting of phospholipid scramblase 3."

23. Odet F, Gabel SA, **Williams J**, London RE, Goldberg E, Eddy EM (2011) Biol. Reprod. 85(3):556-64. "Lactate Dehydrogenase C (LDHC) and Energy Metabolism in Mouse Sperm"

24. Deterding LJ, **Williams, JG**, Humble MM, Petrovich RM, Wei SJ, Trempus CS, Gates MB, Zhu F, Smart RC, Tennant RW, Tomer, KB. (2011) Internat. J. of Mass Spec. 301(1-3):12-21. "CD34 Antigen: Determination of Specific Sites of Phosphorylation In Vitro and In Vivo"

25. Garcia MC, **Williams J**, Johnson K, Olden K, Roberts JD. FEBS Lett. (2011) 585(4):618-22. "Arachidonic acid stimulates formation of a novel complex containing nucleolin and RhoA."

26. Moss ML, Rasmussen FH, Nudelman R, Dempsey PJ, **Williams J**. (2010) Comb. Chem. High Throughput Screen 13(4):358-65. "Fluorescent Substrates Useful as High-Throughput Screening Tools for ADAM9"

27. Guo X, **Williams JG,** Schug TT, Li X (2010) J. Biol. Chem. 285(17):13223-32. "DYRK1A and DYRK3 promote cell survival through phosphorylation and activation of SIRT1."

28. Kedar VP, Darby MK, **Williams JG**, Blackshear PJ. (2010) PLoS One. 5(3):e9588. "Phosphorylation of Human Tristetraprolin in Response to its Interaction with the Cbl Interacting Protein CIN85"

29. McCormack T, Petrovich RM, Mercier KA, DeRose EF, Cuneo MJ, **Williams J**, Johnson KL, Lamb PW, London RE, Yakel JL. (2010) Biochemistry. 49(10):2279-87. "Identification and functional characterization of a novel acetylcholine-binding protein from the marine annelid Capitella teleta"

30. Smyth, J.T., Petranka, J.G., Boyles, R.R., DeHaven, W.I., Fukushima, M., Johnson, K.L., **Williams, J.G.,** and Putney, J.W. (2009) Nat. Cell Bio. 11:1465-1472. "Phosphorylation of STIM1 Underlies Suppression of Store-operated Calcium Entry During Mitosis."

31. Ye, W., Sangaiah, R., Degen, D., Gold, A., Jayaraj, K., Koshlap, K., Boysen, G., **Williams, J.,**

Tomer, K., Mocanu, V., Dicheva, N., Parker, C., Schaaper, R., Ball, L. (2009) JACS;131(17):6114-23. "An Iminohydantoin Lesion Induced in DNA by Peracids and Other Epoxidizing Oxidants"

32. Galliher-Beckley, A.J., **Williams, J.G,** Collins, J.B., Cidlowski, J.A. (2008) Mol. Cell Biol. 24, 7309-22 "GSK-3β-mediated Serine Phosphorylation of the Human Glucocorticoid Receptor Redirects Gene Expression Profiles."

33. Wei, S.J., **Williams, J.G.,** Dang, H., Darden, T.A., Betz, B.L., Humble, M.M., Chang, F.M., Trempus, C.S., Johnson, K.L., Cannon, R.E., Tennant, R.W. (2008) J. Mol. Bio. 383(3):693-712 "Identification of a Specific Motif of the DSS1 Protein Required for Proteasome Interaction and p53 Protein Degradation"

34. Cuthbertson, B.J., Deterding, L.J., **Williams, J.G.,** Tomer, K.B., Etienne, K., Blackshear, P.J., Bullesbach, E.E., Gross, P.S. (2008) Dev. Comp. Immunol.32(3):167-81. "Diversity in penaeidin antimicrobial peptide form and function"

35. Gentile, S., Martin, N., Scappini, E., Smutko, P., **Williams, J.,** Erxleben, C., Armstrong, D.L. (2008) P.N.A.S. 105(38), 14704-8. "The human ERG channel polymorphism, K897T, creates a phosphorylation site that inhibits channel activity"

36. Choi, J.H., **Williams, J.,** Cho, J., Falck, J.R., Shears, S.B. (2007) J. Biol. Chem. 282(42), 30763-75. "Purification, Sequencing, and Molecular Identification of a Mammalian PP-InsP5 Kinase that is Activated When Cells are Exposed to Hyperosmotic Stress"

37. Vitorino, R., Lobo, M.J.C., **Williams, J.G.,** Ferrer-Correia, A.J., Tomer, K.B., Duarte, J., Pedro M. Domingues, P.M., and Amado, F.M.L. (2007) Biomed. Chrom. 21(11), 1107-17. "Peptidomic Analysis of Human Acquired Enamel Pellicle"

38. Vitorino, R., Ferreira, R., Neuparth, M., Guedes, S., **Williams, J.,** Tomer, K.B., Domingues, P.M., Appell, H.J., Duarte, J.A., Amado, F.M.L. (2007) Anal. Biochem. 366(2), 156-169. "Subcellular Proteomics of Mice Gastrocnemius and Soleus Muscles"

39. Pi, J., Bai, Y., Reece, J.M., **Williams, J.,** Liu, D., Freeman, M.L., Fahl, W.E., Shugar, D., Liu, J., Qu, W., Collins, S., and Waalkes, M.P. (2007) Free Radical Biol. Med. 42(12), 1797-1806. "Molecular Mechanism of Human Nrf2 Activation and Degradation: Role of Sequential Phosphorylation by Protein Kinase CK2"

40. Lemieux, G.A., Blumenkron, F., Yeung, N., Zhou, P., **Williams, J.,** Grammer, A.C., Petrovich, R., Lipsky, P.E., Moss M.L., Werb, Z. (2007) J. Biol. Chem. 282(20), 14836-14844. "The Low Affinity IgE Receptor (CD23) is Cleaved by the Metalloproteinase ADAM10"

41. Chu, P., Huang, T., **Williams, J.,** and Stafford, D.W. (2006) P.N.A.S. 103(51), 19308-19313. "Purified VKOR alone is sufficient for conversion of vitamin K epoxide to vitamin K and vitamin K to vitamin KH2"

42. **Williams, J.G.,** Hoie, C., Norris, P.J., Zolla-Pazner, S., Tomer, K.B. (2006) J. Am. Soc. Mass Spectrom. 17(11), 1560-1569. "The Antigenic Determinants on HIV p24 for CD4+ T Cell

Inhibiting Antibodies as Determined by Limited Proteolysis, Chemical Modification, and Mass Spectrometry"

43. Ye, W., Sangaiah, R., Degen, D.E., Gold, A., Jayaraj, K., Koshlap, K.M., Boysen, G., **Williams, J.,** Tomer, K.B., and Ball, L. (2006) Chem. Res. Toxicol. 19(4), 506-510. "A 2-Iminohydantoin from the Oxidation of Guanine"

44. Qian X., Mitchell J., Wei S.J., **Williams J.,** Petrovich R.M., Shears S.B. (2005) Biochem. J. 389(2), 389-395. "The Ins(1,3,4)P 3 5/6-kinase / Ins(3,4,5,6)P 4 1-kinase is not a protein kinase."

45. Thapar, R., **Williams, J.G.,** and Campbell, S.L. (2004) J. Mol. Bio. 343(5), 1391-1408. "NMR Characterization of Full-length Farnesylated and Non-farnesylated H-Ras and its Implications for Raf Activation."

46. **Williams, J.G.** and Tomer, K.B. (2004) J. Am. Soc. Mass Spectrom. 15(9), 1333-1340. "Disposable Chromatography for a High-throughput Nano-ESI/MS and Nano-ESI/MS/MS Platform."

47. **Williams, J.G.,** Pappu, K., Campbell, S.L. (2003) P.N.A.S. 100, 6376-6381. "Structural and Biochemical Studies of p21Ras S-Nitrosylation and Nitric Oxide-Mediated Guanine Nucleotide Exchange."

48. **Williams, J.G.,** Drugan, J.K., Yi, G.S., Clark, G.J., Der, C.J., Campbell, S.L. (2000) J. Biol. Chem. 275, 22172-22179. "Elucidation of Binding Determinants and Functional Consequences of Ras/Raf-Cysteine-Rich Domain Interactions."

49. Zhuang, P., Li, H., **Williams, J.G.,** Wagner, N.V., Seiffert, D., and Peterson, C.B. (1996) J. Biol. Chem. 271, 14333-14343. "Characterization of the Denaturation and Renaturation of Human Plasma Vitronectin. II. Investigation into the Mechanism of Formation of Multimers."

Book Chapters

1. Dhungana, S., **Williams, J.G.,** Fessler, M.B., Tomer, K.B. (2009) Methods Mol. Biol. 524: "Epitope Mapping by Proteolysis of Antigen—Antibody Complexes"

2. **Williams J.G.,** Deterding L.J., Tomer K.B. (2008) "Characterization of Immune Responses to Pathogen Challenge by MS-Based Epitope Mapping, in Applications of Mass Spectrometry in Life Safety." Popescu C, Zamfir A.D, Dinca, N, eds, Springer (Netherlands), p. 123-137

3. Gao, G., **Williams, J.G.,** Campbell, S.L. (2004) Methods Mol. Biol. 261:79-92. "Protein-Protein Interaction Analysis by Nuclear Magnetic Resonance Spectroscopy."