Curriculum Vitae

Lance Wells

Complex Carbohydrate Research Center
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Distinguished Research Professor of Biochemistry and Molecular Biology
Georgia Research Alliance Distinguished Investigator
Associate Director of the Complex Carbohydrate Research Center

Education/Training:

1987-1991	B.S. in Chemistry, Certificate in Psychology Georgia Institute of Technology, Atlanta, GA
1993-1998	Ph.D. in Biochemistry and Molecular Biology, Emory University School of Medicine, Atlanta, GA Dr. Judith L. Fridovich-Keil, Dissertation Advisor
1998-2003	Post-Doctoral Fellow in Biological Chemistry (NCI/NIH NRSA Fellow 1999-2002) Johns Hopkins University School of Medicine, Baltimore, MD Dr. Gerald W. Hart, Post-doctoral mentor

Professional Positions:

1991-1993	Research Specialist II, Microchemical and Proteomics Facility, Winship Cancer Center, Emory University School of Medicine, under Dr. Jan Pohl
2003-2010	Assistant Professor of Biochemistry and Molecular Biology and the Complex Carbohydrate Research Center, University of Georgia
2004-2010	Adjunct Assistant Professor of Chemistry, University of Georgia
2008-2018	Director of Graduate Studies, Biochemistry and Molecular Biology, UGA
2010-2015	Associate Professor of Biochemistry and Molecular Biology and the Complex Carbohydrate Research Center, and Adjunct Chemistry, UGA
2012-2017	Georgia Research Alliance Lars G. Ljungdahl Distinguished Investigator
2015-Present	Professor Biochemistry and Molecular Biology and the Complex Carbohydrate Research Center, and Adjunct Chemistry, UGA
2018-2023	Director, Integrated Life Sciences Program, UGA
2020-Present	Georgia Research Alliance Distinguished Investigator
2022-2024	Associate Director of the Center for Molecular Medicine, UGA
2022-Present	Distinguished Research Professor of Biochemistry & Molecular Biology, UGA
2025-Present	Associate Director of the Complex Carbohydrate Research Center

Significant Awards and Honors:

2003	Georgia Cancer Coalition Scholar
2006	M.G. Michael Award (3 UGA faculty in Arts & Science per year)
2012	Georgia Research Alliance Lars G. Ljungdahl Distinguished Investigator (1 UGA faculty member for 5-year tenure)
2016	Molecular and Cellular Proteomics ASBMB Lectureship (2 international scientists awarded per year)
2019	Lamar Dodd Creative Research Award (1 UGA faculty per year)
2020	Georgia Research Alliance Distinguished Investigator (1 of 7 in state of Georgia)
2022	Distinguished Research Professor of Biochemistry & Molecular Biology, UGA

2024 President, Society for Glycobiology

Entrepreneurial Activities:

2017-Present Arestyr Oncologics, Co-Founder, CSO, Supported by Grants from GRA
2018-Present Third Floor Therapeutics, Co-Founder, CSO, Supported by a GRA Grant

UGA Service Activities:

2004-present Member, CCRC Mass Spectrometry Oversight Committee
2004-present Member, Biomedical Health Science Institute
2004-2007 Member, BMB Graduate Affairs Committee
2004-2006 Chair, Graduate Student Orientation Committee, BMB
2005 Member, Complex Traits/Genetics Department Faculty Search Committee
2005-2006 Member, CCRC Faculty Search Committee
2006-present Member, UGA Proteomics Facility Oversight Committee
2007 Chair, Ad Hoc Committee for Graduate Student Recruiting, BMB
2007-present Member, Institute of Bioinformatics
2007-2008 Member, OVPR Research Task Force
2008-2009 Member, UGA/MCG Med. School Basic Science Chair Search Committee
2008-2018 Chair and Graduate Coordinator, BMB Graduate Affairs Committee
2008-2014 Ex-officio Member, BMB Graduate Recruitment Committee
2011-2012 Member, BMB Open Faculty Search Committee
2012 Member, CCRC Facility Manager Search Committee
2012 Member, BMB & Genetics Joint Obesity-Initiative Faculty Search Committee
2012 Member, Center for Molecular Medicine Faculty Search Committee
2012-2018 Member, Executive Committee for Biochemistry & Molecular Biology
2013-Present Member, OVPR Core Facility Oversight Committee
2014-2017 Member, OVPR Advisory Board for Genomics (GGF) Core Facility
2015-2016 Chair, OVPR Scientific Misconduct Investigation Committee
2015-2016 Chair, BMB Search Committee for Metabolomics Asst Prof Position
2016-2018 BMB Representative, Integrated Life Science (ILS) Recruitment Committee
2016-2017 Chair, X-ray Diffraction Center (XRDC) Advisory Committee
2017 Member, Center for Molecular Medicine Faculty Search Committee
2018-2020 Member, Franklin College of Arts & Sciences Promotion and Tenure Committee
2018-2023 Director, Integrated Life Sciences Program
2019-2020 Member, Complex Carbohydrate Research Center Faculty Search Committee
2019-2020 Member, UGA 2025 Strategic Planning Committee
2019-2021 Member, Executive Committee of the Biomedical and Health Sciences Initiative
2019-Present Member, Biochemistry & Molecular Biology Faculty Hiring Committee
2020-2022 Member, UGA Research Awards Committee
2020 External Member, Center for Molecular Medicine Faculty Search Committee
2020-2021 Member and Sub-committee Co-Chair, OVPR Review/VPR Search Committee
2020 White Paper Co-Author, Diversity Cluster Hire in Life Sciences at UGA
2021-2022 Member, Office of Instruction Committee on Centers and Institutes
2021-2022 Member, Infectious Disease Department Review Committee
2021 Member, CCRC Asst Professor in Biomedical Glycobiology Search Committee
2021-Present Chair, CCRC/BMB Mentoring Committee for Asst. Prof. Ryan Weiss
2021-Present Member, BMB Executive Committee
2022-2023 Member, CMM/BMB Mentoring Committee for Assoc. Prof. Natalia Ivanova
2022-Present Associate Director, Center for Molecular Medicine
2023-2025 Member, UGA Distinguished Research Professor Award Committee

2023 Chair, CCRC Faculty Search Committee (2 positions)

Professional Activities Since 2003:

2003-present Georgia Cancer Coalition Distinguished Scholar
2004-present Member, Society for Glycobiology
2004-present Ad Hoc Reviewer, *Analytical Biochemistry, Analytical Chemistry, Biochemistry, Cell, Electrophoresis, eLife, Journal of American Society for Mass Spectrometry, Journal of Proteome Research, Nature Chemical Biology, Nature Methods, Nature, Proceedings of National Academy of Science, Proteomics, and Rapid Communications in Mass Spectrometry*.
2004-2005 Member, American Diabetes Association
2004-present Member, American Society of Biochemistry and Molecular Biology
2005 Consultant, Ciphergen Biosystems, Inc.
2006-2007 Consultant, GenNext Technologies, Inc.
2006 University of Georgia Pew Scholar Nominee
2007-present Member, NIH Alliance of Glycobiologists for detection of cancer & cancer risk
2007 Ad Hoc Reviewer, US Army Medical Research and Material Command, Proteomics Section
2008 Ad Hoc Reviewer, American Heart Association, Cardiac Biology Regulation Study Section
2008-2010 Ad Hoc Reviewer, Wellcome Trust Senior Fellowships
2008 Ad Hoc Reviewer, NIH, Cancer Biomarker Study Section (CBSS)
2009 Ad Hoc Reviewer, Netherlands Organization for Scientific Research
2009 Ad Hoc Reviewer, NIH/NHLBI, Program Project Grant Study Section
2009 Mail Reviewer, NIH, Stage 1 ARRA RC1 Challenge Grants, Cancer Biomarkers, Biology of Development and Aging IRG Panel
2010-2011 Ad Hoc Reviewer, NIH Special Emphasis Panel ZRG1 Study Section
2010 Organizer, American Society for Mass Spectrometry Fall Workshop
2012-Present Editorial Board Member, *Molecular and Cellular Proteomics*, ASBMB
2012-2017 Editorial Board Member, *Journal of Biological Chemistry*, ASBMB
2012 Rapporteur and Invitee, National Academies of Science Workshop on Glycoscience
2012 Co-organizer*, Mol. and Cell. Proteomics/*ASBMB Glycomics Standards Checklist Meeting
2012 Co-Organizer and Chair, Warren Workshop IV on Glycoconjugate Analysis
2012 Site Visit Reviewer, NCRR/NIGMS P41 Program
2012-2013 Ad-Hoc Reviewer, NIH Intracellular Interactions (ICI) Study Section
2012 ThermoFisher Selected Speaker at HUPO 11th Annual World Congress
2012 Session Chair, Society for Glycobiology Annual Meeting held jointly with ASMB
2013 Theme Organizer, Chair, and Invited Speaker, ASBMB/Experimental Biology
2013-2016 Member of Board of Directors, Society for Glycobiology
2013 Guest Editor for *Mol. and Cell. Proteomics*, Glycomic Special Issue
2013-Present Member, Society for Glycobiology Education Committee
2013 Session Chair, Glycobiology Gordon Conference
2013-Present Editorial Board Member, *Glycobiology*
2013-2014 Consultant, Abeome, LLC
2014 Co-organizer, CFG Workshop: Exploring the Frontiers of Chemical Glycoscience
2015-2017 Co-director, Bill & Melinda Gates Vaccine Accelerator Platform in Glycomics
2015-Present Co-director, ThermoFisher Center of Excellence in Glycoproteomics
2015 Reviewer, NHLBI/NIH P01 Program
2015 Member, Organizing Committee for Society for Glycobiology Annual Meeting
2015-2016 Member, Nominations Committee for Society for Glycobiology

2016	Theme Organizer, Chair, and Invited Speaker, ASBMB/Experimental Biology
2016	Co-Organizer, Chair, and Speaker, Biochemistry Society Hot Topic Meeting, O-GlcNAcylation in Human Health and Disease, London, UK
2016	Co-Organizer and Speaker, Harnessing Glycoscience to Understand Optimize HIV Env Immunogenicity, Bill and Melinda Gates Foundation
2017	External Ph.D. Defense Examiner at University of Copenhagen, Denmark
2017	External Ph.D. Defense Examiner at University of Dundee, Scotland
2017, 2021	Organizer, Society for Glycobiology annual meeting session on Mentoring
2018	Ad-Hoc Reviewer for NIH Membrane Biology and Protein Processing (MBPP) Study Section
2018	Organizer, Society for Glycobiology annual meeting CFG-satellite meeting
2019-2022	Member of Board of Directors, Society for Glycobiology
2019	Session Chair, Society for Glycobiology annual meeting
2019	Guest Editor for *Curr. Opin. Struct. Biol.,* O-Glycosylation Special Issue
2020	Guest Editor for *Mol. and Cell. Proteomics*, Glycoproteomic Special Issue
2020-2022	Standing Member, NIH Intracellular Interactions (ICI) Study Section
2021, 2023	Mentoring Session Co-Chair, Society for Glycobiology annual meeting
2022	Co-Organizer, ASBMB Special Topic Meeting on “O-GlcNAc”
2022-2024	Standing Member, NIH Cellular Structure & Function (CSF1) Study Section
2023	President-Elect, Society for Glycobiology
2024	President, Society for Glycobiology
2025	Vice-Chair, Gordon Research Conference on Glycobiology
2027	Chair, Gordon Research Conference on Glycobiology

Instructional Activities:

2003-present	Graduate Faculty Member of the School of Arts and Sciences
2003-2016	Established and co-organize CCRC Journal Club
2003-Present	CURO Apprentice and Honors Undergraduate Program Mentor
2004-2008	Member, Graduate Affairs Committee for Biochemistry and Molecular Biology
2006-Present	PSLAMP Scholar Faculty Mentor
2006-Present	Foundation Fellows Faculty Mentor
2008-2018	Director of Graduate Studies and Chair of Graduate Affairs Committee for Biochemistry and Molecular Biology
2012-2018	Mentor, UGA High School Summer Young Dawgs Program
2017-Present	Executive Committee Member, Glycoscience Training Program, NIH T32
2018-2023	Director, Integrated Life Sciences Graduate Student Umbrella Program
2022	Co-Instructor, Maymester Cortona, Italy, UGA Biochemistry & Molecular Biology

Classroom Teaching:

2005-2025	BCMB 8130 Glycobiology (developer, course organizer and taught with Tiemeyer), Spring Odd Years
2004, 06	BCMB 8150 Advanced Topics in Cell Communication and Regulation (developed and team taught with Dalton & Tiemeyer), Fall
2005, 07, 09, 12, 14	BCMB 8300 Proteomics (developer, course organizer, and taught with Orlando, Spring)
2014-2021	GRSC 8020 Primary Literature for ILS Students, Fall
2013-2017	BCMB 8060 Student Seminar Series, Fall & Spring (developed with Hajduk, taught with BMB Head)
2015-2025	BCMB 8112/8212 Unified Biochemistry, Cell Biology, and Genetics, Fall & Spring (2 lectures in each semester)

2017-2019	FY0S1001, Freshman Odyssey Course, "Actual and Perceived Controversies in Science", Fall
2018-2023	BCMB8990 Grant Writing (Required Course for all 2nd year BMB graduate students, developed and taught), Spring
2018-2021	GRSC 8010, Professional Development for ILS Students, Fall
2022	GRSC 7001, GradFirst for ILS Students, Fall
2022	BCMB 3433, Biology for Medicine (Cortona, Italy) Maymester
2022-2024	BCMB 4120, Human Biochemistry, Fall (with Dr. Tiemeyer)
2003-Present	Guest Lecturer in BCMB 3100, BCMB 4110/6110, BCMB 4121, BCMB 8010, BCMB 8140, and FRES 1010/1020,

Mentoring:

High School

Young Dawgs Fellows: 2 (2013, 2014)
High School Students Total: 4 (2013, 2014, and 2 in 2017)

Undergraduate

CURO Apprentices/Honors Scholars Supervised: 12
Foundation Fellows Supervised: 8
PSLAMP Recipients Supervised: 2
CURO BHSI Summer Fellow Supervised: 3
Howard and Jane Young CURO Summer Fellow Supervised: 2
Barry M. Goldwater Scholar Supervised: 2
BMB Honors Thesis Supervised: 8
Genetics Honor Thesis Supervised: 1
Visiting Summer URM Undergraduate from Wake Forest: 1
Total Undergraduate Students Supervised Since 2003: >60
(Professional schools currently at or since graduated from include: Stanford, Johns Hopkins, Northwestern, Emory, Augusta, University of Florida, and UCSD)

Graduate

BMB Graduate Students Supervised: 19 (10 Ph.D. graduates, 7 current, 3 M.S. graduates; 2 Cousins Foundation/CCRC Fellows (CF), 4 NIH Glycoscience Training Grant Fellow (GTP, T32), 1 American Heart Association (AHA) Predoctoral Fellow, 1 NIH F30 Predoctoral grant awardee, 1 NIH F31 Diversity Predoctoral grant awardee: Edith Wollaston-Hayden (PhD, CF,post-doc UMinn), Krithika Vaidyanathan (PhD, post-doc Samford-Burnham), Sandii Brimble (PhD, post-doc Emory), Chin Fen Teo (PhD, AHA Predoctoral Fellowship, CF, post-doc HHMI/UCSF), Sean Durning (PhD, post-doc Yale), Jeremy Praissman (PhD, post-doc UGA), Anu Koppikar (MS), Crissy Dobson (MS), Ryan Stuart (MS), Sally Boyd (PhD), Stephanie Halmo (PhD, T32 trainee, post-doc UGA), Hannah Stephen (DVM/PhD, T32 trainee, and F30 fellow, UGA DVM Program), Trevor Adams (Ph.D., T32 trainee, post-doc Emory), Johnathan Mayfield (Current, T32 trainee, F31 fellow), David Steen (Current), Naomi Hitefield (Current), Terrell Carter (Current), Xiaolin Dong (current, co-mentored with Dr. Ryan Weiss), and Jeffrey Fairley (current).
Non-degree Cellular Biology Student Supervised: 1 (since received M.D. from Tulane University)
Chemistry Graduate Students Supervised: 7 (6 Ph.D. graduates, 2 current): Jae-Min Lim (PhD, straight to tenure-track faculty position Chang-Won University, S. Korea), Peng Zhao (PhD, post-doc U Virginia), Stephanie Stalnaker (PhD, post-doc UGA), Meng Fang (PhD, post-doc NIH), Chelsea Desbiens (Ph.D., KBO Biopharma Scientist), Ashley Carter (Ph.D, post-doc UGA), Alyssa Wright (current).

Graduate Student Advisory Committee Member (not including those supervised): >75 to date

Graduate Coordinator for Biochemistry and Molecular Biology: 2008-2018
Director of Integrated Life Sciences Program: 2018-2023

Research Activities:
>75 oral presentations since 2003

Selected Oral Presentations at Meetings:
2003 Selected Speaker, "Proteomics in Diabetes" Workshop, NIH, Bethesda, MD
2004 Selected Speaker, Society for Glycobiology Annual Meeting, Honolulu, HI
2004 Invited Speaker, Thermoelectron Proteomics Symposium, Emory University, Atlanta, GA
2005 Invited Speaker, Federation of Analytical Chemists and Spectroscopy Society Annual Meeting (FACSS), Quebec City, Canada
2005 Invited Speaker, Thermoelectron Proteomics Symposium, University of Florida, Gainesville, FL
2005 Invited Speaker, Society for Glycobiology Annual Meeting, Boston, MA
2006 Invited Speaker, PittCon, Orlando, FL
2007 Selected Speaker, Society for Glycobiology Annual Meeting, Boston, MA
2007 Invited Speaker, Glycobiology Gordon Conference, Ventura, CA
2008 Invited Speaker, Atlanta Clinical and Translational Science Institute, Atlanta, GA
2008 Invited Speaker, GlycoT 6th International Conference, Atlanta, GA
2008 Invited Speaker, 2nd Warren Workshop on Glycoconjugate Analysis, Durham, NH
2009 Invited Speaker, Glycobiology Gordon Conference, Ventura, CA
2009 Invited Speaker, Clinical and Translational Research on Cancer: Glycomics Applications, Ise-Shima, Japan
2009 Invited Speaker, Therapeutic Targets in the CMDs, Atlanta, GA
2010 Invited Speaker, Consortium for Functional Glycomics, Tampa, FL
2010 Invited Lecturer, ASMS Fall Workshop, Tampa, FL
2010 Invited Speaker, Society for Glycobiology, Tampa, FL
2010 Invited Speaker, Rare Disease Day, Sanford-Burnham Institute, San Diego, CA
2011 Invited Speaker, 4th Stem Cell Biology Workshop, Bethesda, MD
2012 Invited Speaker, ASBMB/Experimental Biology Annual Meeting
2012 Invited Speaker, ThermoFisher Select Speaker at HUPO World Congress, Boston, MA
2012 Invited Speaker, ASBMB Workshop on Post-translational Modifications
2013 Invited Speaker, US-HUPO, Baltimore, MD
2013 Invited Speaker, Theme Organizer, Session Chair, and Speaker at Experimental Biology/ASBMB
2014 Invited Speaker, ThermoFisher Select Speaker at ASMS, Baltimore, MD
2014 Invited Speaker, Warren Workshop on Glycoconjugate Analysis, Ireland
2014 Organizer and Speaker, CFG Workshop: Exploring the Frontiers of Chemical Glycoscience Bethesda, MD
2015 Invited Speaker and Panelist, Bill & Melinda Gates Foundation CAVD Meeting
2015 Invited Speaker, Society for Glycobiology Annual Meeting
2016 Invited Speaker, Theme Organizer, Session Chair, and Speaker at Experimental Biology/ASBMB, San Diego, CA
2016 Invited Speaker, Rare Disease Day Symposium, San Diego, CA
2016 Invited Speaker, Co-organizer, and Session Chair, Biochemical Society Hot Topic Meeting on O-GlcNAcylation, London, UK
2016 Invited Speaker, Co-organizer, Harnessing Glycoscience to Understand and Optimize HIV Env Immunogenicity, Bill & Melinda Gates Foundation, Seattle, WA

2016 Award Winner and Invited Speaker, *Molecular and Cellular Proteomics ASBMB Lectureship* at Society for Glycobiology Annual Meeting
2017 Invited Speaker, Glycobiology Gordon Conference, Ventura, CA
2017 Keynote Speaker, Korean Society for Mass Spectrometry, S. Korea
2017 Invited Speaker, GLYCO 24/IGO, Jeju, S. Korea
2017 Invited Speaker, Society for Glycobiology Annual Meeting
2018 Invited Webinar Speaker, *Nature*
2019 Invited Speaker, Glycoscience workshop at ASBMB/Experimental Biology
2019 Session Chair, Society for Glycobiology Annual Meeting
2020 Invited Speaker, ASBMB/Experimental Biology Session & Glycoscience Workshop
2020 Invited Webinar Speaker, *Nature*
2021 Invited Questioner, AAAS Annual Meeting
2022 Invited Speaker, US HUPO 22, Charleston, SC
2022 Invited Speaker, ENMC Dystroglycanopathies, Amsterdam, Netherlands
2022 Invited Speaker and Session Chair, Society for Glycobiology Annual Meeting
2025 Invited Speaker, ASBMB Special Meeting on O-GlcNAc

Selected UGA Seminars:
2003 Invited Speaker, Department of Biochemistry and Molecular Biology
2003 Invited Speaker, Department of Chemistry
2004 Invited Speaker, Department of Cellular Biology
2004 Colloquium Speaker, CCRC Facilities Dedication
2004 Invited Speaker, Georgia Biomedical Partnership
2006 Invited Speaker, Computational Systems Biology Seminar Series
2007 Invited Speaker, Department of Food and Nutrition
2008 Invited Speaker, Department of Cellular Biology
2011 Invited Speaker, Department of Biochemistry and Molecular Biology
2012 Invited Speaker, Obesity Initiative
2014 Invited Speaker, Department of Biochemistry and Molecular Biology
2017 Invited Speaker, Department of Biochemistry and Molecular Biology
2024 Invited Speaker, UGA Research Foundation Board of Directors

Selected Academic Seminars:
2003 Invited Speaker, Department of Biochemistry, Emory University, Atlanta, GA
2003 Invited Speaker, Department of Genetics and Biochemistry, Clemson University, Clemson, SC
2005 Invited Speaker, Department of Biological Sciences, University of Alabama at Huntsville, AL
2006 Invited Speaker, Department of Biochemistry, University of Wisconsin-Madison, Madison, WI
2007 Invited Speaker, Department of Cell Biology, Medical College of Georgia, Augusta, GA
2007 Invited Speaker, Department of Pathology, Emory University, Atlanta, GA
2008 Invited Speaker, Department of Physiology, Medical College of Georgia, Augusta, GA
2009 Invited Speaker, Howard Hughes Medical Institute and Department of Physiology, University of Iowa, Iowa City, IA
2009 Invited Speaker, Kyota University, Kyota, Japan
2011 Invited Speaker, Cancer Center, University of Nebraska Medical Center, Omaha NE
2011 Invited Speaker, Department of Molecular Biology, University of Wyoming, Laramie
2012 Invited Speaker, Barnett Institute, Northeastern University, Boston, MA
2013 Visiting Professor, University of Nebraska Medical Center, Eppley Institute for Research in Cancer and Allied Diseases, Short Course in Cancer Biology

2013 Keynote Lecturer, University of Copenhagen, Institute for Cellular Molecular Medicine, Center for Glycomics, Short Course in Glycoanalysis and Glycochemistry
2014 Invited Speaker, Department of Biochemistry, Biophysics and Molecular Biology, Iowa State University, Ames, IA
2015 Invited Plenary Lecturer, Johns Hopkins Training Course in Glycobiology
2016 Invited Speaker, Medical University of South Carolina
2016 Student Invited Speaker, UCLA Muscle Cell Biology Seminar Series, Los Angeles, CA
2017 Invited Speaker, Department of Chemistry and Biology, Changwon University, S. Korea
2017 Invited Speaker, Department of Medicine, University of Alabama, Birmingham (UAB)
2017 Invited Speaker and External Examiner for Ph.D. Defense, Copenhagen Center of Glycomics, University of Copenhagen, Denmark
2017 Invited Speaker and External Examiner for Ph.D. Defense, College of Life Sciences, University of Dundee, Scotland, UK
2018 Invited Speaker, Texas A&M University, Department of Biochemistry and Biophysics
2018 Invited Speaker, Johns Hopkins School of Medicine, Department of Biological Chemistry
2019 Invited Speaker and External Examiner for Ph.D. Defense, Copenhagen Center of Glycomics, University of Copenhagen, Denmark
2020 Invited Speaker, University of Minnesota, Department of Integrative Biology & Physiology
2021 Invited Speaker, Iowa State University, Department of Biomedical Sciences
2022 Invited Speaker, Augusta University, Department of Physiology Annual Mini-Symposium
2025 Invited Speaker, Medical College of Wisconsin, Department of Biochemistry

Abstracts:
2003-present Co-authored > 200 posters/abstracts at local, national, and international meetings including Gordon Conferences, Society for Glycobiology meetings, American Society for Mass Spectrometry meetings, HUPO, GlycoT, American Society for Cell Biology meetings, ASBMB/Experimental Biology, American Diabetes Association, ABRCMS and UGA CURO symposiums.

Publications: 170; H-index=62 (i10-index=138); 15,708 citations as of 09/24 (Google Scholar)
Complete list of Published Work (in NCBI My Bibliography):
https://www.ncbi.nlm.nih.gov/myncbi/1TQxccqtjjM5z/bibliography/public/

- 1. Shafer WM, Shepherd ME, Boltin B, Wells L, Pohl J. Synthetic peptides of human lysosomal cathepsin G with potent antipseudomonal activity. Infect Immun. 1993 May;61(5):1900-8. PubMed PMID: 8478079; PubMed Central PMCID: PMC280782.
- 2. Fridovich-Keil JL, Quimby BB, Wells L, Mazur LA, Elsevier JP. Characterization of the N314D allele of human galactose-1-phosphate uridylyltransferase using a yeast expression system. Biochem Mol Med. 1995 Dec;56(2):121-30. PubMed PMID: 8825075.
- 3. Wells L, Fridovich-Keil JL. The yeast, Saccharomyces cerevisiae, as a model system for the study of human genetic disease. SAAS Bull Biochem Biotechnol. 1996;9:83-8. PubMed PMID: 8652137.
- 4. Reed RC, Louis-Wileman V, Wells RL, Verheul AF, Hunter RL, et al. Re-investigation of the circumsporozoite protein-based induction of sterile immunity against Plasmodium berghei infection. Vaccine. 1996 Jun;14(8):828-36. PubMed PMID: 8817831.
- 5. Elsevier JP, Wells L, Quimby BB, Fridovich-Keil JL. Heterodimer formation and activity in the human enzyme galactose-1-phosphate uridylyltransferase. Proc Natl Acad Sci U S A. 1996 Jul 9;93(14):7166-71. PubMed PMID: 8692963; PubMed Central PMCID: PMC38954.

- 6. Quimby BB, Wells L, Wilkinson KD, Fridovich-Keil JL. Functional requirements of the active site position 185 in the human enzyme galactose-1-phosphate uridylyltransferase. J Biol Chem. 1996 Oct 25;271(43):26835-42. PubMed PMID: 8900165.
- 7. Wells L, Fridovich-Keil JL. Biochemical characterization of the S135L allele of galactose-1-phosphate uridylyltransferase associated with galactosaemia. J Inherit Metab Dis. 1997 Sep;20(5):633-42. PubMed PMID: 9323558.
- 8. Crews C, Wilkinson KD, Wells L, Perkins C, Fridovich-Keil JL. Functional consequence of substitutions at residue 171 in human galactose-1-phosphate uridylyltransferase. J Biol Chem. 2000 Jul 28;275(30):22847-53. PubMed PMID: 10811638.
- 9. Christacos NC, Marson MJ, Wells L, Riehman K, Fridovich-Keil JL. Subcellular localization of galactose-1-phosphate uridylyltransferase in the yeast Saccharomyces cerevisiae. Mol Genet Metab. 2000 Aug;70(4):272-80. PubMed PMID: 10993714.
- 10. Henderson JM, Wells L, Fridovich-Keil JL. Covalent heterogeneity of the human enzyme galactose-1-phosphate uridylyltransferase. J Biol Chem. 2000 Sep 29;275(39):30088-91. PubMed PMID: 10884393.
- 11. Wells L, Vosseller K, Hart GW. Glycosylation of nucleocytoplasmic proteins: signal transduction and O-GlcNAc. Science. 2001 Mar 23;291(5512):2376-8. PubMed PMID: 11269319.
- 12. Gao Y, Wells L, Comer FI, Parker GJ, Hart GW. Dynamic O-glycosylation of nuclear and cytosolic proteins: cloning and characterization of a neutral, cytosolic beta-N-acetylglucosaminidase from human brain. J Biol Chem. 2001 Mar 30;276(13):9838-45. PubMed PMID: 11148210.
- 13. Comer FI, Vosseller K, Wells L, Accavitti MA, Hart GW. Characterization of a mouse monoclonal antibody specific for O-linked N-acetylglucosamine. Anal Biochem. 2001 Jun 15;293(2):169-77. PubMed PMID: 11399029.
- 14. Vosseller K, Wells L, Hart GW. Nucleocytoplasmic O-glycosylation: O-GlcNAc and functional proteomics. Biochimie. 2001 Jul;83(7):575-81. PubMed PMID: 11522385.
- 15. Wells L, Gao Y, Mahoney JA, Vosseller K, Chen C, et al. Dynamic O-glycosylation of nuclear and cytosolic proteins: further characterization of the nucleocytoplasmic beta-N-acetylglucosaminidase, O-GlcNAcase. J Biol Chem. 2002 Jan 18;277(3):1755-61. PubMed PMID: 11788610.
- 16. Vosseller K, Wells L, Lane MD, Hart GW. Elevated nucleocytoplasmic glycosylation by O-GlcNAc results in insulin resistance associated with defects in Akt activation in 3T3-L1 adipocytes. Proc Natl Acad Sci U S A. 2002 Apr 16;99(8):5313-8. PubMed PMID: 11959983; PubMed Central PMCID: PMC122766.
- 17. Wells L, Vosseller K, Cole RN, Cronshaw JM, Matunis MJ, et al. Mapping sites of O-GlcNAc modification using affinity tags for serine and threonine post-translational modifications. Mol Cell Proteomics. 2002 Oct;1(10):791-804. PubMed PMID: 12438562.
- 18. Vosseller K, Sakabe K, Wells L, Hart GW. Diverse regulation of protein function by O-GlcNAc: a nuclear and cytoplasmic carbohydrate post-translational modification. Curr Opin Chem Biol. 2002 Dec;6(6):851-7. PubMed PMID: 12470741.

- 19. Wells L, Vosseller K, Hart GW. A role for N-acetylglucosamine as a nutrient sensor and mediator of insulin resistance. Cell Mol Life Sci. 2003 Feb;60(2):222-8. PubMed PMID: 12678487.
- 20. Wells L, Whelan SA, Hart GW. O-GlcNAc: a regulatory post-translational modification. Biochem Biophys Res Commun. 2003 Mar 14;302(3):435-41. PubMed PMID: 12615051.
- 21. Wells L, Hart GW. O-GlcNAc turns twenty: functional implications for post-translational modification of nuclear and cytosolic proteins with a sugar. FEBS Lett. 2003 Jul 3;546(1):154-8. PubMed PMID: 12829252.
- 22. Drew ME, Morris JC, Wang Z, Wells L, Sanchez M, et al. The adenosine analog tubercidin inhibits glycolysis in Trypanosoma brucei as revealed by an RNA interference library. J Biol Chem. 2003 Nov 21;278(47):46596-600. PubMed PMID: 12972414.
- 23. Wells L, Kreppel LK, Comer FI, Wadzinski BE, Hart GW. O-GlcNAc transferase is in a functional complex with protein phosphatase 1 catalytic subunits. J Biol Chem. 2004 Sep 10;279(37):38466-70. PubMed PMID: 15247246.
- 24. Akimoto Y, Yamamoto K, Munetomo E, Wells L, Vosseller K, et al. Elevated O-GlcNAc modification of proteins in various tissues of diabetic Goto-Kakizaki rats accompanied by diabetic complications. Acta histochemica et cytochemica. 2005; 38:131-142.
- 25. Vosseller K, Hansen KC, Chalkley RJ, Trinidad JC, Wells L, et al. Quantitative analysis of both protein expression and serine / threonine post-translational modifications through stable isotope labeling with dithiothreitol. Proteomics. 2005 Feb;5(2):388-98. PubMed PMID: 15648052.
- 26. Fakhouri M, Elalayli M, Sherling D, Hall JD, Miller E, et al. Minor proteins and enzymes of the Drosophila eggshell matrix. Dev Biol. 2006 May 1;293(1):127-41. PubMed PMID: 16515779; NIHMSID: NIHMS92834; PubMed Central PMCID: PMC2701256.
- 27. Woosley B, Xie M, Wells L, Orlando R, Garrison D, et al. Comprehensive glycan analysis of recombinant Aspergillus niger endo-polygalacturonase C. Anal Biochem. 2006 Jul 1;354(1):43-53. PubMed PMID: 16697346.
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Structure and Immune Regulatory Implications of the Ubiquitin-Like Tandem Domain Within an Avian 2'-5' Oligoadenylate Synthetase-Like Protein. Front Immunol. 2022;12:794664. doi: 10.3389/fimmu.2021.794664. eCollection 2022. PubMed PMID: 35058932; PubMed Central PMCID: PMC8764230.

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- Need to update to 170…

Disclosures/Provisional Patents/U.S. Patents/International Patents Filed Through UGA:

1. Co-Inventor, Novel Secreted Proteins of Adipocytes for Diagnostic Purposes, 2007.
   Non-exclusive license to Linco (Millipore)
2. Co-Inventor, IDAWG: A novel quantitative method for glycomics, 2008. Patent Issued.
   Patent Number 9,329,169
3. Co-Inventor, Novel IgG-mAb for O-GlcNAc modified proteins, 2010.
   Non-exclusive license to Millipore
   Non-exclusive license to ThermoFisher/Pierce
4. Co-Inventor, Intelligent Consecutive Reaction Monitoring for Automated Assignment and Quantification of Glycans, 2013.

Research Support (since 2003):

Current Funding:

2400220 (Wells, PI) $18,000,000 total over 6 years (**199K/yr Wells**) 09/01/24-08/31/30
NSF
"BioFoundry: Glycoscience Research, Education, and Training (BioF:GREAT)"
Overcoming glycans being understudied at the bench and undertaught in the classroom

R01HD110099 (Wells, PI) **200K/yr Wells** 02/01/2023-01/31/28
NIH/NIGMS
"The Role of the O-GlcNAc Modification in X-linked Intellectual Disability"
Elucidating the mechanisms by which mutations in OGT lead to XLID

R01GM111939 (Wells, PI) **200K/yr Wells** 07/01/14-06/30/27
NIH/NIGMS
"Structure and Function in alpha-Dystroglycan Glycosylation"
Elucidating the functional glycan structures on alpha-dystroglycan and characterizing the enzymes responsible.

R01GM130915-01 (Moremen, Wells, Woods, Kannan, MPIs) 10/01/18 – 09/30/24
NIH
"Origin of N-Glycan Site-Specific Heterogeneity"
Define the molecular mechanisms and rates of defined glycosylation reactions at specific sites on particular substrate proteins to understand the underlying cause of microheterogeneity in glycoproteins.

U01CA233581-01 (Bellis and Wells, MPIs) 10/01/18 – 09/30/24
NIH/NCI **50K/yr Wells**
"Sialyation-dependent mechanisms driving pancreatic cancer progression"
Perform phospho- and glyco-proteomics on organoids and tissues.

R01GM132606 (Schmidt, Wells co-I) 09/20/19-07/31/23
NIH/NIGMS **25K/yr Wells**
Determining the Scope of Prenylatable Protein Sequences
Define proteins carrying isoprenyl groups by tandem mass spectrometry

R21HD097652-01 (Wells, PI) 9/01/19 – 02/01/23
NIH/NICHD **125K/yr Wells**
"O-GlcNAc dynamics and the OGT interactome in X-linked intellectual disability"
Determine the impact of XLID OGT variants on O-GlcNAc turnover and OGT partners

R01GM116891 (Hart PI, Wells co-I) 8/10/20 – 7/31/25
NIH/NIGMS **50K/yr Wells**
"Nutrient Regulation of Cell Physiology by O-GlcNAc"
Determine the impact of O-GlcNAc on gene regulation

R01DK124366 (Hart, Wells co-I) 4/01/20 – 3/31/25
NIH/NIDDK **125K/yr Wells**
"Regulation of Translation by O-GlcNAc"
Determine the impact of O-GlcNAc on protein translation

R01AI151006 (Pegan PI, Wells co-I) 09/16/20 – 08/31/25
NIH/NIAID **25K/yr Wells**
Origin of the innate immunity suppression caused by nairovirus' protease activity
Identify targets of ISGylation in infection models

R01AI140736 (Lau, Wells other significant contributor) 07/01/18 – 06/30/23
NIH/NIAID **10K/yr Wells**
ST6Gal-1 Sialyltransferases in Inflammation
Application of mass spectrometry approaches to understand extracellular sialyation remodelling

R01AI157854 (Tsibris, A, Wells other significant contributor) 04/01/22-03/31/26
NIH/NIAID **35K/yr Wells**
"HIV-1 dynamics and evolution during trispecific broadly neutralizing antibody therapy"
Mass spec for viral spike glycoprotein analyses

Past External Competitive Funding: (**>15,000,000 in direct to Wells' lab since 2003**)
P41GM103490 (Pierce, PI; Wells, Senior Investigator) 09/01/03-06/30/19
NIH/NCRR
"National Center for Biomedical Glycomics"
Development of glycomic and glycoproteomic technology platforms using murine human ESCs including quantitative glycomic and direct glycopeptidomic strategies.

U01CA128454 (Pierce, PI; Wells, co-PI) 07/01/07–06/30/19
NIH/NCI
"Tumor Glycomics Laboratory for Discovery of Pancreatic Cancer Markers"
The major goal of this project is to identify and begin validation of glycoprotein-based prognostic/diagnostic (and potential therapeutic) markers for pancreatic cancer.

CAVD Program (Alter, PI, Wells co-PI of UGA subcontract) 10/01/13 – 3/31/19
Bill and Melinda Gates Foundation
Glyco-adjuvanting HIV vaccines
Goal: Investigate the glycosignatures and glycosylation differences that predict or improve HIV vaccines.

W. M. Keck Foundation (Tiemeyer PI, Wells, co-PI) 01/01/15-12/31/17
Keck Foundation
"The Glycomics of Human Neurodegenerative, Developmental, and Cognitive Disorders"
Elucidating the impact of glycan changes in neurological disorders

P01GM107012 (Boons PI, Wells co-PI) 07/01/13-06/30/19
NIH/NIGMS
"Mamallian glycosyltransferases for use in chemistry and biology"
Determing in vitro and in vivo substrates for terminating glycosyltransferases and applying these findings and new technologies to diseases of trafficking.

R21AI123161 (Wells, West, Tarleton, PI) 07/01/15-12/31/17
NIH/NIAID
"Enabling tools for protist pathogen glycbiology
Genetically modified glycogenes and impact on glycome in Toxoplasma and T. Cruzi.

Contract Grant (Galinski PI, Wells PI of Sub-contract) 01/01/16-8/31/17

NIH/DHHS
Malaria Host-Pathogen Interaction Center (MaHPIC)
Serum glycomics of NHP infected with malaria.

Georgia Research Alliance Lars G. Ljungdahl Distinguished Investigator, 2011-2017
Non-competitive, awarded, income off interest to be used to facilitate creative research.

AHA (Wells, PI) 07/01/05 – 06/30/09
American Heart Association -- National Affiliate Scientific Development Grant
"Defining the Impact of Nutrients and Hormones on Adipocytokine Secretion"
The focus is to define the impact of insulin resistance, the hallmark of type II diabetes, on secretion from adipocytes with an emphasis on how O-GlcNAc modulates this process.

MDA4074 (Wells, PI) 01/01/06-12/31/07
Muscular Dystrophy Association
"Glycan Site Mapping and Characterization of alpha-Dystroglycan"
This work focuses on the mapping of functionally-relevant O-Man Sites on alpha-Dytroglycan and characterization of the glycans present at each residue and their functional impact in several forms of congenital muscular dystrophy.

R21AI070933 (Urbauer, PI; Wells, co-PI) 06/01/06 – 05/31/08
NIH/NIAID
"Regulating Microbial Biofilm Formation: A Novel Prokaryotic Multi-Protein Complex"
The goals of this project are to identify and understand the elaborate regulatory mechanisms utilized by Pseudomonas aeruginosa that result in biofilm formation and chronic infections.

R01DK075069 (Wells, PI) 01/01/07 - 12/31/11
NIH/NIDDK
"Role of O-GlcNAc in Metabolic Signaling"
The major goal of this proposal is to elucidate the mechanism(s) by which post-translational modification of proteins via O-GlcNAc modulates insulin action. In both primary and stable mammalian cell lines, and in *C. elegans*, we are assessing the impact of O-GlcNAc on insulin's role in protection from apoptosis, glucose uptake, and lifespan regulation.

AHA (Teo, PI; Wells, Sponsor) 07/01/07-06/30/09
American Heart Association Predoctoral Fellowship $19,000 per year direct
"Impacts of O-GlcNAc Modification on the Metabolic Branch of the Insulin Signaling Pathway"
This predocotral fellowship supports Chin Fen Teo, a BMB graduate student, in my laboratory.

R21AR056055-01 (Live, PI; Wells, co-PI) 09/22/08 – 06/30/10
NIH
"Post-Translation Processing of Alpha-Dystroglycan"
The aim of this project is to investigate structural and biochemical aspects of O-Man and O-GaINAc glycosylation found in the mucin-like region of alpha-dystroglycan with emphasis on the relationship of glycosylation to forms of muscular dystrophy.

P01GM085354-01 (Dalton, PI; Wells, Project 2 PI) 01/01/09-12/31/13
NIH/NIGMS
"The Basic Biology of hESCs: Understanding mechanisms of self-renewal and cell fate"
Our project, in conjunction with the Tiemeyer laboratory, is to apply glycomic and glycoproteomic technologies to characterize the cell surface of derived cells, as well as to understand the role

that glycosylation, with an emphasis on O-GlcNAc, plays in self-renewal and commitment to cell fate.

R01GM085448 (Smith, PI – Wells, Supplement PI) 08/01/09 – 07/31/11
NIH/NIGMS
"Shotgun Glycomics: Linking Glycan Structure and Function"
The aim of this supplemental proposal is to characterize glycans isolated from shotgun glycomic separations and arrays of functional interest in support of the parent grant.

1R41RR025291-01A2 (Atwood, PI, Wells, co-PI) 07/01/09 - 06/30/10
NIH
"Development of Software to Annotate/Interpret MS data of O and N-linked Glycans"
The research goal is to design an easy to use software application that will allow the automated assignment of MS^n spectra obtained for O-linked and N-linked glycans.

NIH Consortium for Functional Glycomics Bridging Grant 09/01/09-08/31/10
CFG/NIH (Wells, PI)
"O-linked Oligosaccharide Standards for Glycomics"
The research in this application is aimed at defining O-glycan standards for the field.

NIH Consortium for Functional Glycomics Bridging Grant 09/01/09-08/31/10
CFG/NIH (Tiemeyer, PI; Wells, co-PI)
"N-linked Oligosaccharide Standards for Glycomics"
The research in this application is aimed at defining N-glycan standards for the field.

U01CA128454 (Reilly, PI; Wells, co-PI of UGA subcontract) 08/20/11-06/30/15
NIH/NCI
"Glycomics of Heart and Lung Disease in the Genomic Era"
This project focuses on the role of blood group dependent glycosylation in cardiopulmonary disease.

R01CA135069 (Goldman, PI, Wells, PI of UGA subcontract) 08/01/12-07/31/14
NIH/NCI
"Glycans in Hepatocellular Carcinoma"
This project focuses on identifying glycoprotein biomarkers for liver cancer.

U01CA168930 (Cummings, PI; Wells, co-PI of UGA subcontract) 08/01/12-06/30/16
NIH/NCI
"The Tumor Antigens Tn and SialylTn in Human Colorectal Carcinoma"
This project focuses on identify biomarker proteins carrying Tn and SialylTn glycosylation.

P41GM103694 (Cummings, PI; Wells, PI of UGA subcontract) 09/01/13-06/30/16
NIH/NIGMS
"National center for functional glycomics"
This subcontract is geared towards identifying glycan structures of interest based on shotgun glycan arrays that interact with viruses, antibodies, bacteria, or glycan-binding proteins.

Bill and Melinda Gates Foundation (Alter, PI, Wells, co-PI) 12/01/13-11/30/15
Gates Foundation
"Altering glycosylation for increased antigenicity of HIV Env"
Determining the role of glycans in antigenicity of HIV Env.

State of Georgia (excluding start-up package and grants to start-up companies):

n/a (Wells, PI) 08/03-07/08
Georgia Cancer Coalition
"Elucidating the Roles of O-GlcNAc in Cancer"
This seed grant is focused on elucidating the role of glycosylation, with an emphasis on O-GlcNAc, in cancer.

n/a (Wells, PI) 01/05-12/05
UGARF Faculty Research Grant
"Biologically-Relevant Sites of O-Glycosylation on alpha-dystroglycan"
This seed grant allowed us to begin the characterization of alpha-dystroglycan and generated preliminary data for our successful grant application to the MDA followed by NIH R01 funding.

n/a (Wells, PI) 01/06-12/06
University of Georgia M.G. Michael Award
"O-Glycosylation modulates *C. elegans* lifespan"
This award focused on the preliminary data that we generated showing that O-GlcNAc cycling enzymes modulate C. elegans median lifespan and was used as preliminary data in our successful R01 application to NIDDK/NIH and resulting in a publication.

n/a (Wells, PI) 07/07-06/08
Georgia Research Alliance
"Equipment Grant"
This award, that was contingent upon the successful funding of a U01 proposal on pancreatic cancer from the NCI/NIH, was used to purchase two LC-MS/MS systems. Multiple research projects using these instruments have resulted in publications and additional external funding.

Private:

n/a (Wells, PI) 03/07-02/08
Novocell/Bresagen/Viacyte
"Proteomic Analysis of hESCs and derived cell lines"
Application of proteomic methodologies to characterize the BG02 hESC proteome and lay the groundwork for quantitative analysis following differentiation that lead to a publication.

n/a (Wells and Tiemeyer, PI) 07/01/15-Present
ThermoFisher, Inc. Equipment in excess of $1,000,000
"ThermoFisher appointed Center of Excellence in Glycoproteomics/Glycomics"
Development of sample preparation/methods/data analysis for glycans and glycopeptides as well as training modules and access to early hardware/software.

n/a (Wells and Tiemeyer, PI) 06/01/17-05/31/18
Amicus Therapeutics
"Glycoproteomic Analysis of Potential Biologics"
Mass Spectrometry-based analyses of glycoprotein biologics

n/a (Wells and Tiemeyer, PI) In Approval Process
M6P Therapeutics
"Glycoproteomic Analyses of Potential Enzyme-Replacement Therapeutic"
Mass spectrometry-based analyses of glycoprotein biologics

GRA Grants for Start-up Companies as Co-Founder and CSO--multiple