

CURRICULUM VITAE

C. MICHAEL GREENLIEF

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Education:

B.S. in Chemistry with Honors, Emporia State University, Emporia, KS (1983)
Ph.D. in Chemistry, University of Texas at Austin (1987)
Postdoctoral Research Associate, IBM T. J. Watson Research Center (1987–1989)

Professional History:

Director, Charles W. Gehrke Proteomics Center, University of Missouri (2008–present; Co-Director 2001–2008)
Director, MU NMR Facility, University of Missouri (2007–present)
Director, Department of Chemistry Mass Spectrometry Facility, University of Missouri (1997–present)
Faculty member, Interdisciplinary Neuroscience Program, University of Missouri (2018 – present)
Office of Research Faculty Fellow, University of Missouri (2004–2008)
Associate Professor, Department of Chemistry, University of Missouri (1994–present)
Assistant Professor, Department of Chemistry, University of Missouri (1989–1994)
Postdoctoral Research Associate, International Business Machines (1987–1989)
Research Assistant, University of Texas at Austin (1983–1987)
Visiting Summer Researcher, Sandia National Laboratories (1986)
Teaching Assistant, University of Texas at Austin (1985)
Laboratory Assistant, Emporia State University (1979–1983)

Technical Specialties:

Biological mass spectrometry and separation of complex mixtures; Surface chemistry and analysis

Membership in Professional Societies:

American Chemical Society
University of Missouri Local Section; Division of Analytical Chemistry; Division of Colloid and Surface Chemistry, Division of Physical Chemistry
Society for the Advancement of Chicanos and Native Americans in Science
American Vacuum Society
Electronic Materials and Processing Division; Surface Science Division
American Society for Mass Spectrometry

Awards and Honors:

2016 E. Ann Nalley Midwest Award for Volunteer Service (American Chemical Society)
Teaching Development Leave (Fall 2003)
Faculty Research Leave (1998-99)

Big 12 Faculty Fellowship (1997)
MU – Provost’s Outstanding Junior Faculty Teaching Award (1994)
NSF – Young Investigator Award (1993)
IBM Research Division Award (1992)
Outstanding Recent Alumni Award, Emporia State University (1991)
Materials Research Society Graduate Student Award (1986)
American Vacuum Society National Student Scholarship (1986)
Robert A. Welch Pre-doctoral Fellowship (1986)
American Vacuum Society Scholarship Recipient, New Mexico Chapter (1985, 1986)
Outstanding Student in Analytical Chemistry, Emporia State University (1983)
Outstanding Senior Chemistry Major, Emporia State University (1982–1983)
Woodruff Scholar, Emporia State University (1979–1982)

Teaching Activities (Formal Courses – both old [prior to Fall, 2004] and new course numbers are referenced here):

Chem 1100 (Atoms and Molecules) – Winter 2005
Chem 12* (General Chemistry 2) – Winter 1993
Chem 1320 [Chem 32*] (First Semester General Chemistry) – Winter 1994; Fall 1994; Winter 1995; Fall 2000; Winter 2001, Spring 2015
Chem 3200 [Chem 221*] (Quantitative Methods of Analysis) – Winter 2002; Fall 2004; Fall 2005; Fall 2011
Chem 223* (Quantitative Chemical Analysis) – Winter 1996; Fall 1997
Chem 231* (Physical Chemistry I) – Fall 1990
Chem 3330 [Chem 233*] (Physical Chemistry II) – Winter 1990; Winter 1991; Winter 1992; Spring 2017
Chem 3340* [Chem 234*] (Physical Chemistry Laboratory) – Winter 2004; Winter 2005; Winter 2006; Spring 2008; Spring 2009; Spring 2010; Spring 2011; Spring 2013; Spring 2014; Spring 2016; Spring 2018; Spring 2019
Chem 3700 [Chem 270*] (Undergraduate Seminar in Chemistry; writing intensive course) – Winter 1997; Winter 1998; Winter 2000; Winter 2003; Winter 2007
Chem 300 (Problems in Chemistry) – Winter 1996; Fall 2002
Chem 301* (Topics in Chemistry: Computers for Chemists) – Fall 1991; Fall 1992
Chem 301* (Topics in Chemistry: Instrumental Analysis) – Fall 2001
Chem 4200 [Chem 312] (Instrumental Methods of Analysis) – Fall 2001; Fall 2002; Fall 2004; Fall 2009; Fall 2016, Fall 2017
Chem 331* (Intermediate Physical Chemistry I) – Fall 1990
Chem 333* (Intermediate Physical Chemistry II) – Winter 1990; Winter 1991; Winter 1992
Chem 401* (Topics: Surface Analysis and Characterization) – Fall 1993
Chem 401* (Topics: Mass Spectrometry) – Fall 1995; Fall 2001
Chem 430* (Advanced Physical Chemistry) – Fall 1999
Chem 7200 (Instrumental Methods of Analysis) – Fall 2004; Fall 2009; Fall 2016; Fall 2017
Chem 8087 (Seminar in Chemistry) – Spring 2018
Chem 8240 (Mass Spectrometry) – Fall 2015; Fall 2018
Chem 8250 (Analytical Spectroscopy) – Fall 2007; Fall 2008; Fall 2010
Chem 8270 [Chem 425*] (Advanced Analytical Chemistry) – Fall 1991; Winter 2005; Fall 2006; Spring 2010; Fall 2012; Fall 2013; Fall 2014
(*Courses which are no longer offered or in which the content has been altered significantly)

Teaching Activities (Informal Courses and Development of Materials):

Chem 2950 [Chem 150*] (Undergraduate Research) – Winter 1993; Fall 1993; Winter 1998; Fall 1998; Fall 2012; Spring 2013; Summer 2013; Fall 2013, Spring 2014; Fall 2014; Spring 2015; Summer 2016; Fall 2016; Spring 2017
Chem 4950 [Chem 250*] (Senior Research in Chemistry) – Fall 1994; Winter 1995; Fall 1997; Winter 1998; Fall 2002; Winter 2003; Fall 2016; Spring 2017, Spring 2018
Chem 490 (Graduate Research in Chemistry) – 1990 through Summer 2004
Chem 8090 (Dissertation Research in Chemistry) – Fall 2004 to present
Chem 9090 (Post-Candidacy Dissertation Research) – Fall 2004 to present

Development and extensive revision of Physical Chemistry Laboratory – Fall 2003
Development of a new mass spectrometry experiment including building of the high vacuum system for Instrumental Methods of Analysis Laboratory – Spring 2010
Design, development, and construction of an all-metal, high vacuum system for the Knudsen Effusion experiment in Physical Chemistry Laboratory – Spring 2010
Computer interface and automation of Heats of Combustion experiment for Physical Chemistry Laboratory – Spring 2013
Redesign and construction of combined mass spectrometry/Knudsen effusion equipment for Instrumental Analysis and Physical Chemistry laboratory courses – Summer 2013
Design and development of a new gel electrophoresis lab for Instrumental Analysis – Fall 2016
Design and development of a new protein/peptide-based mass spectrometry experiment for Instrumental Methods of Analysis – Fall 2016
Design and development of a new solution calorimetry experiment for Physical Chemistry Laboratory – Spring 2018

Mentor for undergraduate students in the McNair Scholars and EXPRESS programs – 1991 to present
Mentor for Hanzhi Wu, visiting scholar from Hong Kong Baptist University, November 2012 – May 2013
Mentor for undergraduate students in the Arts and Science Discovery Fellows Program – 2015 – 2017
Mentor for undergraduates in the Arts and Science Undergraduate Research Mentorship Program – 2017

Dissertations and Theses directed:

D. A. Klug, MS (1992); W. Du, MS (1994); L. Chen, MS (1995); P. Prayongpan, MS (2001); D. Stripe, MS (2001); Y. Yuan, MS (2002); X. Li, MS (2004); H. Adusumilli, MS (2007); J. Liu, MS (2012)

L. A. Keeling, Ph.D. (1995); J. Chen, Ph.D. (1996); L. M. Nelen, Ph.D. (2000); J. R. Beck, Ph.D. (2001); S. W. Lee, Ph.D. (2001); N. D. Leigh, Ph.D. (2001); P. Prayongpan, Ph.D. (2004); L. Wan, Ph.D. (2007); Y. Li, Ph.D. (2015); J. Wang, Ph.D. (2016); M. Johnson, Ph.D. (2016)

B. Yang, Ph.D. (expected 05/2019); P. Bruner, Ph.D. (expected 12/2019); M. Appenteng (expected 12/2019); X. Wei, Ph.D. (expected 8/2020); X. Li, Ph.D. (expected 8/2020); D. Ahire, Ph.D. (expected 5/2022); N. Perera (expected 5/2023)

Service to the Department of Chemistry:

Undergraduate Committee (1989–1990)
Meetings with prospective chemistry majors and their parents (2001–present)
Graduate Recruiting Committee (1990–1994)
 Author of Analytical Division Brochure (1992)
 Author of Departmental Brochure (1992)
Various graduate student recruiting visits to other campuses (1989–present)
Graduate Committee (1994–1997, 2000–2007)
Long Range Planning Committee (1990–1992)
Faculty Advisor for the Chemistry Graduate Student Association (1990–2000)
Catalyst Society Committee (1992–1995)
Leaders/Development Committee (1996–2004)
L.B. Thomas Chemistry Scholar's Program Committee (1993–present, committee chair 1995)
Chair Advisory Committee (1994–1999)
Inorganic faculty search committee (1995)
Computing committee (1995–1999, 2009–2016), committee chair (1998–1999); Faculty advisor for departmental website and departmental software management (2009–present); development oversight of new departmental website (2014–2015)
Fourth year review committee for Asst. Professor John Kauffman (1995)
Analytical faculty search committee, committee chair (1995–1996, 2001–2002)
Mass spectroscopist search committee, committee chair (1995–1996, 2003)
Houchins Professor search committee (1996–1997)
Promotion and tenure review committee for Asst. Professor Silvia Jurisson (1996)
Personnel Committee (1997–2000, 2007–2009, 2012–2015, 2017–2020), committee chair (1998–2000, 2008–2009, 2014–2015)
Instrument Committee (1998–1999)
Director, Mass Spectrometry Facility (1997–present)
Third year tenure review committee for Asst. Professor Shon Pulley (1998)
Third year tenure review committee for Asst. Professor Donald Riederer (1999)
Third year tenure review committee for Asst. Professor Gary Baker (2014)
Third year tenure review committee for Asst. Professor Mark Lee, committee chair (2015)
Promotion and tenure review committee for Asst. Professor Sheryl Tucker (2001)
Promotion and tenure review committee for Assoc. Professor Carol Deakyne, committee chair (2002)
Bioanalytical faculty search committee, committee chair (2001–2002, 2004–2005)
Faculty search committee, committee chair (2006–2007)
Webmaster for department website (2006–2007)
Faculty Responsibility Committee (2008)
Oversight of shared departmental research/teaching instrumentation (2008–2016)
Physical Chemistry faculty search committee, committee chair (2017)
Medicinal Chemistry faculty search committee (2018)

Service to the College of Arts and Science:

Faculty search committee in the Department of Physics and Astronomy (1991, 1999)
Chemistry department chair search committee (1993–1994)
Special Task Force on the AB degree in Computer Science (1995–1996)

Physical and Biological Sciences Cluster Review Panel (1995–1997), committee chair (1997)
Review Committee of the Chemistry Chair (1996–1997, 1999)
Ad Hoc Committee to recommend a candidate for the Herman Schlundt Distinguished Professorship in Chemistry (1998)
Division of Biological Sciences Faculty Search Committee (2009)
College Diversity Committee (2016–2019), Committee Chair (2018-19)

Service to the University and the Columbia campus:

MU Research Reactor Evaluation Group on Neutron Reflectometry (1991–1992)
Scholars Day participant (1992)
University system review panel for the NSF Presidential Faculty Fellows Program, panel chair (1993)
Site Review Team at UMKC for the UM Research Board (1994)
Provost Committee for Teaching Awards (1995, 1996)
MU Research Council (1995–1998)
Selection Committee for Nominations to the Searle Scholars' Program (1995)
Chemical Engineering Faculty Search Committee (1996–1997)
Office of Research PRIME Fund Committee (2000–2004)
Office of Research *Ad Hoc* Review Committee for the NSF-MRI program (2000, 2001, 2011, 2017)
Director, Charles W. Gehrke Proteomics Center (2008–present; Co-Director 2001–2008) – The Center has over \$4M in instrumentation and an operating budget of ~\$450K.
Office of Research Faculty Fellow (2004–2008)
Review of MU Research Core Facilities Committee, committee chair (2005–2007)
Director of the Center for Arts and Humanities Search Committee (2005)
Graduate Program Review Committee member for the Mechanical and Aerospace Engineering Department (2006–2007)
Program Committee for the Missouri Nanoalliance Meeting at MU (2006)
Director, MU NMR Facility (2007–present) – The Facility has over \$3.4M in instrumentation and an operating budget of ~\$350K.
Hispanic and Latin American Faculty/Staff Association, Historian (2003), Vice President (2004–2006), President (2007–2008), Faculty Representative (2009–2010)
MU Research Advisory Committee (2009–2013)
Judge, Spring 2010–2017 Undergraduate Research and Creative Achievements Forum
Faculty mentor, Mizzou Advance Program (2010)
Led workshop on NSF Broader Impacts for the MU Grant Writers Network (2010)
Mock review panel member for the Office of Research Grant Writing Institute (2011)
Office of Undergraduate Research program review committee (2013)
Organized and led a workshop on Metabolomics for Life Sciences Week (2013)
Life Sciences Undergraduate Research Opportunity Program Review Committee (2013–2017)
Office of Research *Ad Hoc* Review Committee for the NSF-NRT program (2017, 2018)
Organized and led a workshop on Proteomics at Life Sciences Week (2018)

Professional Service:

American Chemical Society

- University of Missouri Local Section: Secretary/Treasurer (1992–93); Treasurer for the 1993 Midwest Regional Meeting; Local Section Representative to the Midwest Region Board (1997 – present); Program Chair for the 2003 Midwest Regional Meeting; General Chair for the 2014 Midwest Regional Meeting
- Member of Midwest Region Board of Directors (1997–present): Board secretary 2006, 2011, 2016; Chair-elect 2007, 2012, 2017; Chair 2008, 2013, 2018; Awards Committee 2009–2015, 2017 – present
- Advisor, American Chemical Society Student Affiliates (1993–1995)
- Co-organized a symposium for the 2010 Midwest Regional Meeting of the American Chemical Society entitled “Converging of Experiment & Theory in Chemical Research”
- Co-organized a symposium for the 1998 Midwest Regional Meeting of the American Chemical Society entitled “Surface Science: What can we learn from model systems?”
- Co-organized and chaired a session on Surface Science at the 1997 Midwest Regional Meeting of the American Chemical Society
- Co-organized and chaired a session on Surface Science at the 1996 Midwest Regional Meeting of the American Chemical Society
- Session moderator for the Symposium on Surface and Colloid Chemistry of Advanced Materials at the 207th National Meeting of the American Chemical Society, San Diego, CA (1994)
- Session Chair for the Molecular Processes at Surfaces Symposium at the National Meeting of the American Chemical Society (1991)
- Session Chair for the Symposium on Silicon Hydride Chemistry and Silicon Chemical Vapor Deposition at the National Meeting of the American Chemical Society (1991)
- Moderator for the Kendall Award Symposium I at the 199th National Meeting of the American Chemical Society, Boston, MA (1990)
- Society for the Advancement of Chicanos and Native Americans in Science
Program Committee (2007-present, Chair – Chemistry section 2009)
- American Vacuum Society
Session Chair for the Surface Science Division at the 45th National Meeting of the American Vacuum Society for the session entitled “Photochemistry and Deposition.” (1998)
- Nominated for the Executive Committee of the Surface Science Division (1998)
- U.S. Army Materiel Command, Rapid Production System for High Affinity Reagents
Recognizing Protein Biomarkers – SBIR Phase I and Phase II review panel (2007)
- National Science Foundation
National Science Foundation, review panelist (1991)
National Science Foundation, review panelist (2003)
National Science Foundation, review panelist (2007)
National Science Foundation, review panelist (2012–2017)
National Science Foundation, review panelist (2019)
BIO Advisory Panel (2015, 2018)
- National Institutes of Health
ZRG1 BCMB-D Mass Spectrometry Shared Instruments Study Section (2009)
Special Emphasis Panel/Scientific Review Group 2014/01 ZRG1 BCMB-D (30) I –
Shared Instrumentation Program (2013)

Special Emphasis Panel/Scientific Review Group 2015/05 ZAT1 SM (35) P – Centers for Advancing Natural Products Innovation and Technology Program (2014)
National Defense Education Program, SMART Fellowship Program review panel (2010, 2011)
National Defense Science and Engineering Graduate Fellowship Program review panel (2012)
Educational Testing Service, Committee of Examiners for the GRE Subject Test in Chemistry (2010–2018), committee chair (2016–2018)
The First International Conference on Elderberry, Columbia, MO, Organizing and Editorial Committees (June 2013) under the auspices of the International Society for Horticultural Science. Associate editor for a special volume 1061 of *Acta Horticulturae* (2015) which contains peer-reviewed papers from the conference.

Manuscript Referee:

ACS Omega; Analyst; Antioxidants; Applied Physics Letters; Applied Surface Science; Chemical Communications; Chemical Physics Letters; Chemical Reviews; Chemistry of Materials; Data in Brief; Food Chemistry; International Journal of Food Science and Technology, Journal of the American Chemical Society; Journal of Applied Physics; Journal of Chemical Physics; Journal of the Electrochemical Society; Journal of Environmental Chemical Engineering; Journal of Materials Chemistry; Journal of Nanoscience and Nanotechnology; Journal of Physical Chemistry; Journal of Physical Chemistry Letters; Journal of Physics and Chemistry of Solids; Journal of Vacuum Science and Technology; Langmuir; Metabolites; Physical Chemistry Chemical Physics; Physical Review Letters; The Plant Journal; PLoS Biology; PLoS ONE; Proteomics; Rapid Communications in Mass Spectrometry; Surface and Interface Analysis; Surface Science; Thin Solid Films

Proposal Reviewer (external to the University):

U.S. Army Materiel Command
U.S. Civilian Research and Development Foundation
The Research Corporation
National Institutes of Health
National Science Foundation
Petroleum Research Fund
Kansas NSF EPSCoR Program
Australian Research Council
The British Council – Canada

External manuscript reviewer for the U.S. Geological Survey (2012)

Editorial Board, *PLoS ONE* (2018 – present)

Funding History:

University of Missouri–Columbia Research Council, Summer Research Fellowship, 1990
American Chemical Society-Petroleum Research Fund, Type G Grant, 1991–1993, \$18,000
National Science Foundation, “Surface Chemistry of Germanium Organometallics,” 1991–1994, \$224,500
National Science Foundation, Young Investigator Award Program, 1993–1998, \$312,500
University of Missouri Research Board, “Photon and Electron Induced Chemistry at the Gas/Semiconductor Interface, 1994–1995, \$44,700

- National Science Foundation, “Development of an *In-Situ* Growth and Analysis Chamber for X-ray Scattering Experiments at the Advanced Photon Source,” Co-PI with Haskell Taub, Paul Miceli, and Edward Conrad (Georgia Institute of Technology), 1995–2001, \$287,300
- Department of Energy, “Planning and Design of Beamlines at the Advanced Photon Source,” Co-PI with Haskell Taub and Paul Miceli at MU, in addition to 15 other scientists at 7 other mid-western universities (administered through Iowa State University), 1994–1995, \$187,000
- International Business Machines, Instrumentation Award, 1995, \$60,000
- Monsanto Company, Instrumentation Award, 1995, \$154,000
- Department of Energy, “Midwest Universities Collaborative Access Team (μ CAT) Beamlines on the Advanced Photon Source,” Co-PI with Haskell Taub and Paul Miceli at MU, in addition to 15 other scientists at 7 other mid-western universities, 1995–1998, \$2,800,000
- Visiting Industrial Scholar Program, Oak Ridge Associated Universities, 1997, \$600
- Big 12 Faculty Fellowship Program, 1997, \$2,500
- University of Missouri Research Board, “Upgrade of Chemistry Department Mass Spectrometry Facilities,” lead PI with Dmitri Zagorevski, 1997–1998, \$16,667
- Research Leave, University of Missouri-Columbia Research Council, “Cycloaddition Reactions at Semiconductor Interfaces—Research Leave Support,” 1998–1999, \$2,260
- Department of Energy, “Operation of the MUCAT Undulator Beamline at the Advanced Photon Source,” (administered through Iowa State University/Ames Laboratory) A. I. Goldman—lead PI, Co-PI with Haskell Taub and Paul Miceli at MU, in addition to 16 other scientists at 9 other universities, 1998–2000, \$450,000
- University of Missouri–Columbia Research Council, “Acquisition of a PC–based data system for a mass spectrometer,” 1999–2000, \$4,000
- Department of Energy, “Operation of the MUCAT Undulator Beamline at the Advanced Photon Source,” (administered through Iowa State University/Ames Laboratory) A. I. Goldman—lead PI, Co-PI with Haskell Taub and Paul Miceli at MU, in addition to 16 other scientists at 9 other universities, 2000–2002, \$460,000
- University of Missouri, “2000 Life Sciences Mission Enhancement Proposal: Proteomics,” Co-author, 2002–2005, \$1,567,000
- University of Missouri Research Board, “Mass Spectrometry of Reactive Intermediates,” lead-PI with Dmitri Zagorevski, 2001, \$20,500
- Monsanto Company, “Development of Proteomics Center and Plant Biology Research Projects,” Doug Randall and John Walker co-PIs, Stephen Alexander, Tom Quinn, and Mike Greenlief co-I, 2001–2008, \$5,000,000
- University of Missouri-Columbia/Monsanto Major Projects Grants, “Proteomics of Symbiotic Development,” Co-PI with Gary Stacy, David Emerich, Toni Kazic, and Jay Thelen, 2002–2004, \$236,603
- State of Missouri Life Sciences Trust Fund, “Development of Quantitative Proteomics-Building Missouri’s Research Capacity,” John Walker, Scott Peck, Jay Thelen, Brian Mooney, and Mike Greenlief were contributors to this part of the proposal. Marc Linit is the lead PI on the \$3.3M overall proposal, 2008–2010, the proteomics section: \$800,000
- National Institutes of Health - Dietary Supplement Research Centers: Botanicals (P50), “MU Center for Botanical Interaction Studies,” Dennis Lubahn, lead PI; co-I with 20 others, Greenlief was the Interactions Core scientific leader (Core budget is about \$110K/year in direct costs), 2010–2016, \$7,567,253
- Battelle Energy Alliance, “A Research Program for Fission Product/Dust Transport and Adsorption/Desorption in HTGRs,” S. Loyalka, lead PI, co-I with 7 others, 2011–2015, \$1,157,367

- University of Missouri Research Board, “Surface Studies of Carbon Dioxide Reduction,” lead PI with T.R. Marrero co-I, 2012–2014, \$33,000
- Mizzou Advantage, “Effect of Elderberry Juice on Cognition & Inflammation in Patients with Mild Cognitive Impairment,” David Beversdorf, lead PI, co-I with 5 others, (Proteomics budget: \$15,000), 2014–2018, \$50,000
- USDA - MDA Specialty Crop Block Grant, “Determining and Mitigating the Potential Occurrence of Cyanide in Elderberries,” Andrew Thomas and Michael Greenlief co-PIs, 2016–2018, \$29,775
- National Science Foundation, “MRI: Acquisition of a High Resolution Mass Spectrometer/UPLC System,” C.M. Greenlief, lead PI with 4 other co-PIs, 2017–2019, \$476,424
- USDA - MDA Specialty Crop Block Grant, “Development of Elderberry Flowers as a Viable Specialty Crop,” Andrew Thomas and Michael Greenlief co-PIs, 2018 – 2020, \$22,460

Publications

84. Grace Y. Sun, Runtong Li, Bo Yang, Kevin L. Fritsche, Zezong Gu, Jiankun Cui, David Q. Beversdorf, Dennis Lubahn, Xue Geng, James C. Lee, and C. Michael Greenlief, “Quercetin potentiates docosahexaenoic acid to suppress lipopolysaccharide-induced oxidative and inflammatory responses in BV-2 microglial cells,” *Life Sciences*, manuscript in preparation.
83. Bo Yang, Runtong Li, Jimmy D. Browning, Kevin L. Fritsche, Hailong Song, Zezong Gu, Jiankun Cui, James C. Lee, David Q. Beversdorf, Grace Y. Sun, and C. Michael Greenlief, “Maternal dietary docosahexaenoic acid alters lipid peroxidation products and (n-3)/(n-6) fatty acid balance in offspring mice,” manuscript in preparation.
82. Bo Yang, Andrew L. Thomas, and C. Michael Greenlief, “Comparative proteomic analysis unveils critical pathways underlying the role of nitrogen fertilizer treatment in American elderberry,” *Proteomes*, manuscript in preparation.
81. Hailong Song, Hui Zhou, Zhe Qu, Jie Hou, Weilong Chen, Weiwu Cai, Qiong Cheng, Dennis Y. Chuang, Shanyan Chen, Shuwei Li, Jilong Li, Jianlin Cheng, C. Michael Greenlief, Yuan Lu, Agnes Simonyi, Grace Y. Sun, Chenghan Wu, Jiankun Cui, and Zezong Gu, “From Analysis of Ischemic Mouse Brain Proteome to Identification of Human Serum Clusterin as a Potential Biomarker for Severity of Acute Ischemic Stroke,” *Translational Stroke Research*, **xx**, 1-11 (2018), <https://doi.org/10.1007/s12975-018-0675-2>.
80. Bo Yang, Runtong Li, C. Michael Greenlief, Agnes Simonyi, Kevin L. Fritsche, Zezong Gu, Jiankun Cui, David Q. Beversdorf, and Grace Y. Sun, “Unveiling anti-oxidative and anti-inflammatory effects of 4-hydroxyhexenal and 4-hydroxynonenal and their regulation by docosahexaenoic acid and lipopolysaccharide in microglial cells,” *Journal of Neuroinflammation*, **15**, 202 (2018), <https://doi.org/10.1186/s12974-018-1232-3>.
79. Grace Y. Sun, Agnes Simonyi, Kevin L. Fritsche, Dennis Y. Chuang, Mark Hannink, Zezong Gu, C. Michael Greenlief, Jeffrey Yao, James C. Lee, and David Q. Beversdorf, “Docosahexaenoic acid (DHA): an essential nutrient and a nutraceutical for brain health and diseases,” *Prostaglandins, Leukotrienes, and Essential Fatty Acids*, **136**, 3-13 (2018), doi.org/10.1016/j.plefa.2017.03.006.

78. John-David Seelig, Tushar Ghosh, Nathan Jacobson, John Brockman, Luke Carter, C. Michael Greenlief, and Sudarshan K. Loyalka, "Sorption of Ag and its Vaporization from graphite at high temperatures," *Journal of Nuclear Materials*, **493**, 132-146 (2017), doi.org/10.1016/j.jnucmat.2017.06.002.
77. Mitch C. Johnson, Matheus Dela Libera Tres, Andrew L. Thomas, George E. Rottinghaus, and C. Michael Greenlief, "Discriminant Analyses of the Polyphenol Content of American Elderberry Juice from Multiple Environments Provide Genotype Fingerprint," *Journal of Agricultural and Food Chemistry*, **65**, 4044–4050 (2017), doi.org/10.1021/acs.jafc.6b05675.
76. Mitch C. Johnson, Hailong Song, Jiankun Cui, Valeri V. Mossine, Zezong Gu, and C. Michael Greenlief, "Method development and validation for quantitation of FruArg in mice plasma and brain tissue using UPLC-MS/MS," *ACS Omega*, **1**, 663-668 (2016), doi.org/10.1021/acsomega.6b00220.
75. Hailong Song, Yuan Lu, Zhe Qu, Valeri V. Mossine, Jie Hou, Jiankun Cui, Brenda Peculis, Thomas P. Mawhinney, Jianlin Cheng, C. Michael Greenlief, Kevin Fritsche, Frank J. Schmidt, Ronald B. Walter, Dennis B. Lubahn, Grace Y. Sun, and Zezong Gu, "Effects of aged garlic extract and FruArg on gene expression and signaling pathways in lipopolysaccharide-activated microglial cells," *Scientific Reports*, **6**, 35323 (2016), doi.org/10.1038/srep35323.
74. Zhe Qu, C Michael Greenlief, and Zezong Gu, "Quantitative proteomic approaches for analysis of protein S-nitrosylation," *Journal of Proteome Research*, **15**, 1-14 (2016), doi.org/10.1021/acs.jproteome.5b00857.
73. Mitch C. Johnson, Andrew L. Thomas, and C. Michael Greenlief, "Impact of Frozen Storage on the Anthocyanin and Polyphenol Content of American Elderberry Fruit Juice," *Journal of Agricultural and Food Chemistry*, **63**, 5653-5659 (2015), doi.org/10.1021/acs.jafc.5b01702.
72. Jilong Li, Lin Sun, Kishore Banala, Jordan Maximillian Wilkins, Yuan Lu, Chad E. Niederhuth, Benjamin Ryan Merideth, Thomas P. Mawhinney, Valeri V. Mossine, C. Michael Greenlief, John C. Walker, William R. Folk, Mark Hannink, Dennis B. Lubahn, James A. Birchler, and Jianlin Cheng, "From Gigabyte to Kilobyte: A Bioinformatics Protocol for Mining Large RNA-Seq Transcriptomics Data," *PLoS ONE*, **10** (4): e0125000 (2015), doi:10.1371/journal.pone.0125000.
71. Agnes Simonyi, Zihong Chen, Jinghua Jiang, Yijia Zong, Dennis Y. Chuang, Zezong Gu, Chi-Hua Lu, Kevin L. Fritsche, C. Michael Greenlief, Andrew L. Thomas, Dennis B. Lubahn and Grace Y. Sun, "Inhibition of Microglial Activation by Elderberry Extracts and Its Phenolic Components," *Life Sciences*, **128**, 30-38 (2015), doi: 10.1016/j.lfs.2015.01.037.
70. Hanzhi Wu, Mitch C. Johnson, Chi-Hua Lu, Kevin L. Fritsche, Andrew L. Thomas, Zongwei Cai and C. Michael Greenlief, "Determination of Anthocyanins and Total Polyphenols in a Variety of Elderberry Juices By UPLC/MS and Other Methods," *Acta Horticulturae*, **1061**, 43-51 (2015), doi: 10.17660/ActaHortic.2015.1061.3.

69. Hanzhi Wu, Mitch C. Johnson, Chi-Hua Lu, Kevin L. Fritsche, Andrew L. Thomas, Zongwei Cai and C. Michael Greenlief, "Peptidomics study in anthocyanin abundant juice of elderberry," *Talanta*, **131**, 640-644 (2015), doi: 10.1016/j.talanta.2014.08.022.
68. Hui Zhou, Zhe Qu, Valeri V. Mossine, Dineo L. Nknlise, Jilong Li, Zhenzhou Chen, Jianlin Cheng, C. Michael Greenlief, Thomas P. Mawhinney, Paula N. Brown, Kevin L. Fritsche, Mark Hannink, Dennis B. Lubahn, Grace Y. Sun, Zezong Gu, "Proteomic analysis of the effects of aged garlic extract and its FruArg component on lipopolysaccharide-induced neuroinflammatory response in microglial cells," *PLoS ONE*, **9** (11): e113531 (2014), doi: 10.1371/journal.pone.0113531.
67. Ping Gong, Zeynep Madak-Erdogan, Jilong Li, Jianlin Cheng, C. Michael Greenlief, William G. Helferich, John A. Katzenellenbogen and Benita S. Katzenellenbogen, "Transcriptome Analyses Reveal Gene Networks Regulated by ER α and ER β that Control Distinct Effects of Different Botanical Estrogens," *Nuclear Receptor Signaling*, **12**, 1-13 (2014), doi:10.1621/nrs.12001.
66. Jeremy Dahmen, Yongqiang Yang, C. Michael Greenlief, Gary Stacey, and Heather Hunt, "Interfacing whispering gallery mode optical microresonator biosensors with the plant defense elicitor chitin," *Colloids and Surfaces B: Biointerfaces*, **122**, 241-249 (2014), doi: 10.1016/j.colsurfb.2014.06.067.
65. Zhe Qu, Fanjun Meng, Ryan Bomgarden, Rosa Viner, Jilong Li, John Rogers, Jianlin Cheng, C. Michael Greenlief, Jiankun Cui, Dennis Lubahn, Grace Sun, and Zezong Gu, "Proteomic Quantification And Site-Mapping of S-Nitrosylated Proteins Using Isobaric iodoTMT Reagents," *Journal of Proteome Research*, **13**, 3200-3211 (2014), doi: 10.1021/pr401179v.
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Selected Presentations (since 2014)

35. 2018 Neuroscience Meeting, San Diego, CA, November 2018, "Effects of docosahexaenoic acid and its peroxidation product on A β -stimulated microglia," Xue Geng, Bo Yang, Runtong, Teng Tao, Grace Y. Sun, C. Michael Greenlief and James C. Lee.
34. 2018 Neuroscience Meeting, San Diego, CA, November 2018, "Effects of maternal docosahexaenoic acid (DHA) supplementation on lipid peroxidation products in offspring mouse," Taeseon, Woo, Bo Yang, Runtong Li, Kevin L. Fritsche, Grace Y. Sun, C. Michael Greenlief and David Q. Beversdorf.
33. 2018 Neuroscience Meeting, San Diego, CA, November 2018, "Quercetin enhances the protective effects of docosahexaenoic acid (DHA): Studies with activated BV-2 microglial cells," Grace. Y. Sun, Runtong Li, Bo Yang, James C. Lee, Kevin L. Fritsche, David Q. Beversdorf, Zezong Gu, C. Michael Greenlief.
32. 53rd Midwest Regional Meeting of the American Chemical Society, Ames, IA, October 2018, "Cyanogenic glycoside analysis in American elderberry: Method development and validation," M.K. Appenteng, R. Krueger, M.C. Johnson, A.L. Thomas, C. Greenlief.
31. 53rd Midwest Regional Meeting of the American Chemical Society, Ames, IA, October 2018, "Which is better frozen storage or heat drying?: Effect of storage method on the compounds in American elderberry (*sambucus nigra* subsp. *canadensis*)," P.H. Bruner, C. Greenlief, A.L. Thomas.
30. UMKC School of Pharmacy, "Unveiling anti-oxidative and anti-inflammatory effects of 4-hydroxyhexenal and 4-hydroxynonenal and their regulation by docosahexaenoic acid," October 9, 2018, C. Michael Greenlief.
29. American Society for Neurochemistry 2018, Riverside, CA, March 2018, "Effects of maternal docosahexaenoic acid (DHA) supplementation on lipid peroxidation products in offspring mice," Bo Yang, Runtong Li, Hailong Song, Jimmy D. Browning, Kevin L. Fritsche, Zezong Gu, Jiankun Cui, David Q. Beversdorf, Grace Y. Sun, and C. Michael Greenlief.
28. 2017 Neuroscience Meeting, Washington, DC, November 2017, "Anti-oxidative effects of docosahexaenoic acid and its peroxidation products in microglia," Grace Y. Sun, Runtong Li, Bo Yang, C. Michael Greenlief, Kevin L. Fritsche, Jiankun Cui, and David Q. Beversdorf.

27. 44th Annual Conference and K-12 STEM Week of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers, November 2017, Minneapolis, MN, “Cyanogenic Glycosides Analysis in American Elderberry: Picrate Paper and LC MS/MS Method Development and Validation,” Michael K. Appenteng, Mitch C. Johnson, Ritter Krueger, Harrison Ingold, Richard Bell, Andrew Thomas, and C. Michael Greenlief.
26. Neurochemical Conference 2017: Advances in molecular and epigenetic mechanisms in neurodegeneration and neuroinflammation: novel therapeutic approaches, Warsaw, Poland, October 2017, “Docosahexaenoic acid (DHA) and its peroxidation products in microglia,” Grace Y. Sun, Runting Li, Bo Yang, Jiankun Cui, Zezong Gu, C. Michael Greenlief, Kevin L. Fritsche, and David Q. Beversdorf.
25. 52nd Midwest Regional Meeting of the American Chemical Society, Lawrence, KS, October 2017, “Cyanogenic glycosides analysis in American elderberry: picrate paper and LC MS/MS method development and validation,” Michael K. Appenteng, Mitch C. Johnson, Ritter Krueger, Harrison Ingold, Richard Bell, Andrew Thomas, and C. Michael Greenlief.
24. 52nd Midwest Regional Meeting of the American Chemical Society, Lawrence, KS, October 2017, “Untargeted identification of polyphenol secondary metabolites in *Sambucus nigra* (subsp. *canadensis*) flower extracts,” Paul H. Bruner, Michael A. Rotondi, Andrew L. Thomas, and C. Michael Greenlief.
23. 52nd Midwest Regional Meeting of the American Chemical Society, Lawrence, KS, October 2017, “Identification of individual phenolic metabolites in American elderberry pomace extract utilizing high performance liquid chromatography tandem mass spectrometry,” Ritter Krueger, Andrew L. Thomas, and C. Michael Greenlief.
22. Drury University, Springfield, MO, November 2016, “Using Mass Spectrometry to Understand Botanicals,” C. Michael Greenlief.
21. 51st Midwest Regional Meeting of the American Chemical Society, Manhattan, KS, October 2016, “Cyanogenic glycosides analysis in elderberry: picrate paper method and LC MS/MS method development and optimization,” Michael K. Appenteng, Mitch C. Johnson, Richard Bell, Andrew Thomas, and C. Michael Greenlief.
20. 51st Midwest Regional Meeting of the American Chemical Society, Manhattan, KS, October 2016, “Method development and validation for quantitation of FruArg in mice plasma and brain tissue using UPLC-MS/MS,” Mitch C. Johnson, Hailong Song, Jiankun, Valeri Mossine, Zezong Gu, and C. Michael Greenlief.
19. 51st Midwest Regional Meeting of the American Chemical Society, Manhattan, KS, October 2016, “Investigating the differentially expressed proteome in *Sambucus nigra* subsp. *canadensis*,” Bo Yang, Andrew L. Thomas, and C. Michael Greenlief.
18. International Mass Spectrometry Conference, Toronto, Canada, August 2016, “Method Development and Validation for the Quantitation of N- α -(1-deoxy-D-fructos-1-yl)-L-arginine (FruArg) using LC-MS/MS,” Mitch C. Johnson, Hailong Song, Jiankun Cui, Valeri Mossine, Zezong Gu, C. Michael Greenlief.

17. The International Chemical Congress of Pacific Basin Societies, Pacificchem 2015, Honolulu, HI, December 2015, “Characterization of American elderberry fruit juice using mass spectrometry,” Mitch Johnson, Andrew Thomas, and C. Michael Greenlief.
16. College of Charleston, Charleston, SC, December 2015, “Protein Identification and Quantitative Proteomics,” C. Michael Greenlief
15. 50th Midwest Regional Meeting of the American Chemical Society, St. Joseph, MO, October 2015, “Method development and validation for the quantitation of N- α -(1-deoxy-D-fructos-1-yl)-L-arginine (FruArg) using LC-MS/MS ,” Mitch C. Johnson, Hailong Song, Jiankun, Valeri Mossine, Zezong Gu, and C. Michael Greenlief.
14. 50th Midwest Regional Meeting of the American Chemical Society, St. Joseph, MO, October 2015, “Identification of polyphenols and other compounds in *Sambucus niga* subsp. *candensis* (American elderberry) flowers,” Paul Bruner, Zachary D. Smith, Mitch C. Johnson, Andrew L. Thomas, and C. Michael Greenlief.
13. Neuroscience 2015, Chicago, IL, October 2015, “Quantitative proteomic analysis of brain protein levels in mice after transient cerebral ischemia injury by tandem mass spectrometry using isobaric DiART sixplex reagents,” Hailong Song, Hui Zhou, Zhe Qu, Dennis Y. Chuang, Shanyan Chen, Shuwei Li, Jilong Li, Jianlin Cheng, Michael Greenlief, Dennis B. Lubahn, Jiankun Cui, Agnes Simonyi, Grace Y. Sun, and Zezong Gu.
12. Neuroscience 2015, Chicago, IL, October 2015, ”Proteomic quantification and site-mapping of S-nitrosylated proteins using isobaric iodoTMT reagents,” Zhe Qu, F. Meng, R. D. Bomgarden, R. I. Viner, J. Li, J. C. Rogers, J. Cheng, C. Greenlief, J. Cui, D. B. Lubahn, G. Y. Sun, and Z. Gu.
11. University of Northern Iowa, Cedar Falls, IA, October 2015, “Mass Spectrometry and Protein Identification,” C. Michael Greenlief
10. The 6th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM BCB), Atlanta, GA, September 2015, “From Gigabyte to Kilobyte: A Bioinformatics Protocol for Mining Large RNA-Seq Transcriptomics Data,” Jilong Li, Jie Hou, Lin Sun, Jordan Maximillian Wilkins, Yuan Lu, Chad E. Niederhuth, Benjamin Ryan Merideth, Thomas P. Mawhinney, Valeri V. Mossine, Michael Greenlief, John C. Walker, William R. Folk, Mark Hannink, Dennis B. Lubahn, James A. Birchler, and Jianlin Cheng.
9. 2015 The ISN-APSN Biennial Meeting Singapore Satellite Symposium “Nutraceuticals in Neurodegeneration and Aging” at Centre for Life Sciences, National University of Singapore, Singapore on August 20 – 21, 2015, “Quantitative proteomic analysis of proteins by deuterium isobaric amine reactive tagging (DiART) mass spectrometry: Comparing moderate vs. severe cerebral ischemic injury,” Jiankun Cui, Hailong Song, Hui Zhou, Zhe Qu, Dennis Y. Chuang, Shanyan Chen, Shuwei Li, Jilong Li, Jianlin Cheng, Michael Greenlief, Dennis B. Lubahn, Agnes Simonyi, Grace Y. Sun, and Zezong Gu.

8. 63rd ASMS Conference on Mass Spectrometry and Allied Topics, St. Louis, MO, June 2015, “Investigating the Impact of Frozen Storage on the Anthocyanin Content of American Elderberry Fruit Juice Using Mass Spectrometry,” Mitch Johnson, Andrew Thomas, and C. Michael Greenlief.
7. 63rd ASMS Conference on Mass Spectrometry and Allied Topics, St. Louis, MO, June 2015, “Quantitative proteomic analysis of proteins on cerebral ischemia injury mice by deuterium isobaric amine reactive tagging (DiART) mass spectrometry,” Hailong Song, Hui Zhou, Zhe Qu, Dennis Y Chuang, Jiankun Cui, Agnes Simonyi, Shanyan Chen, Jilong Li, Jianlin Cheng, Michael Greenlief, Shuiwei Li, Dennis B Lubahn, Grace Y Sun, and Zezong Gu.
6. 49th Midwest Regional Meeting of the American Chemical Society, Columbia, MO, November 2014, “Proteomic quantification and site-mapping of S-nitrosylated proteins using isobaric iodoTMT reagents,” Z. Gu, Z. Qu, F. Meng, R. D. Bomgarden, R. I. Viner, J. Li, J. C. Rogers, J. Cheng, C. M. Greenlief, J. Cui, D. B. Lubahn, and G. Y. Sun.
5. 49th Midwest Regional Meeting of the American Chemical Society, Columbia, MO, November 2014, “Studies of the reaction of CO₂ with MgO(100) and TiO₂(110) Surfaces,” Juan Wang, Thomas R. Marrero, and C. Michael Greenlief.
4. 49th Midwest Regional Meeting of the American Chemical Society, Columbia, MO, November 2014, “Strategies for the attachment of organic functional groups to silicon surfaces,” Yuan Li and C. Michael Greenlief.
3. 49th Midwest Regional Meeting of the American Chemical Society, Columbia, MO, November 2014, “Identification of Proteins in Elderberry leaves by 2-Dimensional Gel Electrophoresis and Mass Spectrometry,” Bo Yang, Andrew L. Thomas, and C. Michael Greenlief.
2. 49th Midwest Regional Meeting of the American Chemical Society, Columbia, MO, November 2014, “The Impact of Frozen Storage on the Anthocyanin and Polyphenol Content of Elderberry Fruit Juice,” Mitch C. Johnson, Andrew L. Thomas, and C. Michael Greenlief.
1. 62nd ASMS Conference on Mass Spectrometry and Allied Topics, Baltimore, MD, June 2014, “DiART tandem mass spectrometric analysis reveals anti-oxidant signaling of elderberry and Sutherlandia against transient cerebral ischemia in mice,” Hui Zhou, Zhe Qu, Jiankun Cui, Agnes Simonyi, Jilong Li, Shuwei Li, Victoria A. Engel, Shanyan Chen, Jianlin Cheng, C. Michael Greenlief, Andrew L. Thomas, Kevin L. Fritsche, William R. Folk, Dennis B. Lubahn, Grace Y. Sun, Zezong Gu.