

## CURRICULUM VITAE

**John A. McLean, Ph.D.**

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### EDUCATION

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| <b>Ph.D. in Chemistry</b>                                              | Department of Chemistry, The George Washington University<br>Washington, District of Columbia                                                | May 2001        |
| <b>M.Phil. in Chemistry</b>                                            | Research Director: Professor Akbar Montaser<br>Department of Chemistry, The George Washington University<br>Washington, District of Columbia | May 1998        |
| <b>M. Legal Studies</b>                                                | Research Director: Professor Akbar Montaser<br>Vanderbilt University Law School<br>Nashville, Tennessee                                      | Aug. 2024-pres. |
| <b>B.S. in Chemistry</b>                                               | Department of Chemistry, The University of Michigan<br>Ann Arbor, Michigan                                                                   | May 1995        |
| <b>Vanderbilt Leadership Academy</b>                                   | Vanderbilt University, Nashville, Tennessee                                                                                                  | 2018-2019       |
| <b>Southeastern Conference Academic Leadership Development Program</b> |                                                                                                                                              | 2018-2019       |

### ACADEMIC, ADMINISTRATIVE, & PROFESSIONAL APPOINTMENTS

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| 2024 - present | Senior Associate Dean of Research and Graduate Education (to align university titles)                                           |
| 2023 - present | Dean of Research and Graduate Education, College of Arts & Science, Vanderbilt University                                       |
| 2014 - present | Stevenson Professor of Chemistry, Department of Chemistry, Vanderbilt University                                                |
| 2014 - present | Director, Center for Innovative Technology, Vanderbilt University                                                               |
| 2025 - present | Inaugural Fellow, American Society for Mass Spectrometry (FASMS)                                                                |
| 2024 - present | Fellow, Royal Society of Chemistry (FRSC)                                                                                       |
| 2022 - present | Fellow (elected), American Association for the Advancement of Science (FAAAS)                                                   |
| 2021 - present | Fellow (elected), National Academy of Inventors (FNAI)                                                                          |
| 2022 - 2023    | Associate Provost for Graduate Education, Vanderbilt University                                                                 |
| 2019 - 2023    | Chair, Department of Chemistry, College of Arts & Science, Vanderbilt University                                                |
| 2020 - 2021    | Past-Chair, Vanderbilt University Faculty Senate                                                                                |
| 2019 - 2020    | Chair, Vanderbilt University Faculty Senate                                                                                     |
| 2018 - 2019    | Chair-Elect, Vanderbilt University Faculty Senate                                                                               |
| 2017 - 2018    | Chair, College of Arts & Sciences Faculty Council, Vanderbilt University                                                        |
| 2016 - 2017    | Secretary, College of Arts & Science Faculty Council, Vanderbilt University                                                     |
| 2014           | Stevenson Associate Professor of Chemistry, Department of Chemistry, Vanderbilt University                                      |
| 2013 - 2014    | Associate Professor of Chemistry, Department of Chemistry, Vanderbilt University                                                |
| 2006 - 2013    | Assistant Professor of Chemistry, Department of Chemistry, Vanderbilt University                                                |
| 2013 - 2022    | Deputy Director, Vanderbilt Institute for Integrative Biosystems Research and Education                                         |
| 2012 - 2017    | Co-Director, Automated Biosystems Core, Vanderbilt University                                                                   |
| 2006 - present | Faculty Fellow, Vanderbilt Institute of Chemical Biology                                                                        |
| 2008 - present | Faculty Fellow, Vanderbilt Institute for Integrative Biosystems Research and Education                                          |
| 2001 – 2006    | Postdoctoral Research Associate, Texas A&M University, Department of Chemistry<br>Research Director: Professor David H. Russell |
| 2001           | Postdoctoral Fellow, The George Washington University, Department of Chemistry<br>Research Director: Professor Akbar Montaser   |

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| 2001 | Visiting Scientist, Central Department of Analytical Chemistry, Research Center Jülich, Jülich, Germany, Research Directors: Dr. J. Sabine Becker and Professor Akbar Montaser                         |
| 2000 | Lecturer, The George Washington University, Department of Chemistry                                                                                                                                    |
| 2000 | Visiting Scientist (as Postdoctoral Fellow), Central Department of Analytical Chemistry, Research Center Jülich, Jülich, Germany; Research Directors: Dr. J. Sabine Becker and Dr. Hans-Joachim Dietze |

#### AWARDS

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| 2025           | Inaugural Fellow, American Society for Mass Spectrometry (FASMS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 2024           | Charles H. Herty Medal – presented by the Georgia Section of the American Chemical Society                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 2024           | Fellow, Royal Society of Chemistry (FRSC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2023           | Eastern Analytical Symposium Award for Outstanding Achievements in Mass Spectrometry                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2022           | Fellow (elected), American Association for the Advancement of Science (FAAAS)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2022           | Chancellor's Award for Research, Vanderbilt University                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2021           | Fellow (elected), National Academy of Inventors (FNAI)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2021           | Thomas Jefferson Award, Vanderbilt University, Distinguished service to Vanderbilt through extraordinary contributions as a member of the faculty in the councils and government of the University                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2021           | College of Arts & Science, Vanderbilt University, Teaching Award – Developing Innovative Approaches to Teaching Science                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 2019           | Vanderbilt University Leadership Academy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2017           | Highly Cited Article Award – Vanderbilt Institute for Chemical Biology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2015           | High Impact Research Award – Vanderbilt Center for Quantitative Sciences                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2015           | Highly Cited Article Award – Vanderbilt Institute for Chemical Biology                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2014 - present | Agilent Thought Leader Award. Agilent Technologies (a world leader in measurement technologies – created from the scientific instrumentation arm of Hewlett-Packard, \$6B/year), provides \$180k over three years to support postdoctoral research in the broadly defined area of integrated biology. Description of the Thought Leader Award from Agilent: “Agilent is increasing mind share and market share among leading academics of our best-in-class life science solutions and analytical instrumentation. With the Thought Leader Program, we select a few very influential thought leaders in well-defined focus areas and we contribute funds, products, and expertise to their research. We demonstrate the role of Agilent's measurement solutions in enabling these advancements.” Internationally there are presently 23 Thought Leaders spanning three continents. |
| 2014 - present | Waters Center of Innovation. Waters Corporation is a global leader in scientific instrumentation development, (\$2B/year). Waters Centers of Innovation Program recognizes analytical scientists facilitating breakthroughs in health and life science research, food safety, environmental protection, sports medicine and many other areas. Internationally there are presently 21 Centers of Innovation spanning four continents.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2012           | Jefferson Cup, presented at Microscale Bioseparations 2012, the University of Virginia                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2010           | Excellence in Teaching Award, presented by the Student Affiliates of the American Chemical Society                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2009           | Defense Threat Reduction Agency Research Award                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2008           | American Society for Mass Spectrometry Research Award                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 2008           | Spectroscopy Society of Pittsburgh Starter Grant Award                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2004           | Excellence Award, International Conference on Laser Probing (Argonne National Laboratory, IL)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 2001           | The Bunsen-Kirchhoff Prize, presented by the DASp working group of the Society of German Chemists (Gesellschaft Deutscher Chemiker, GDCh) for outstanding achievements in the analytical spectroscopy of atoms or molecules.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 2000           | American Chemical Society Division of Industrial and Engineering Chemistry Graduate Award                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1999 - 2000    | American Chemical Society Division of Analytical Chemistry Fellowship (full-year)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 1999           | R&D-100 Award with co-inventors Professor Akbar Montaser and Dr. Jerold M. Kacsir for the direct injection high efficiency nebulizer as one of the 100 most technologically significant products of 1998                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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| 1999        | European Winter Conference on Plasma Spectrochemistry Graduate Student Award            |
| 1998 - 1999 | Achievement Rewards for College Scientists (ARCS) Foundation Scholar                    |
| 1998        | The Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) Student Award |
| 1998        | National Science Foundation Graduate Research Fellowship Honorable Mention              |
| 1998        | Society for Applied Spectroscopy (Baltimore-Washington Section) Graduate Student Award  |
| 1998        | Winter Conference on Plasma Spectrochemistry Graduate Student Award (Scottsdale, AZ)    |
| 1997 - 1998 | Achievement Rewards for College Scientists (ARCS) Foundation Scholar                    |

#### AFFILIATIONS

|                |                                                                                              |
|----------------|----------------------------------------------------------------------------------------------|
| 2025 - present | Inaugural Fellow, American Society for Mass Spectrometry (FASMS)                             |
| 2024 - present | Fellow, Royal Society of Chemistry                                                           |
| 2022 - present | Fellow (elected), American Association for the Advancement of Science<br>Member, 2012 – 2022 |
| 2021 - present | Fellow (elected), National Academy of Inventors                                              |
| 2019 - present | Member, Scientific Advisory Board, MOBILion Systems Inc.                                     |
| 2001 - present | Member, The American Society for Mass Spectrometry                                           |
| 2000 - present | Member, Phi Lambda Upsilon National Chemistry Honorary Society                               |
| 1996 - present | Member, The Society for Applied Spectroscopy                                                 |
| 1994 - present | Member, The American Chemical Society                                                        |

#### CURRENT RESEARCH FUNDING

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| Agency and grant No.: | National Institutes of Health (Office of the Director U24OD035523)                                                                                                                                                                                          |
| Title:                | ECHO Laboratory core at Vanderbilt for integrated sample biobanking and processing                                                                                                                                                                          |
| Project period:       | 09/01/2023 – 08/20/2030                                                                                                                                                                                                                                     |
| Funding level:        | \$ 51,099,917                                                                                                                                                                                                                                               |
| Role:                 | PI (McLean, Das, Shah, Mallal, Freedman (MPI))                                                                                                                                                                                                              |
| Agency and grant No.: | Department of Energy (DE-SC0022207)                                                                                                                                                                                                                         |
| Title:                | Systems biology to enable modular metabolic engineering of fatty acid production in cyanobacteria                                                                                                                                                           |
| Project period:       | 09/01/2021 – 08/31/2025                                                                                                                                                                                                                                     |
| Funding level:        | \$ 1,500,000                                                                                                                                                                                                                                                |
| Role:                 | co-PI (PI-Young)                                                                                                                                                                                                                                            |
| Agency and grant No.: | Verso Biosciences (SRA00000122)                                                                                                                                                                                                                             |
| Title:                | Illuminating the dark matter of food using ion mobility-mass spectrometry                                                                                                                                                                                   |
| Project period:       | 07/01/2022 – 12/31/2025                                                                                                                                                                                                                                     |
| Funding level:        | \$ 200,284                                                                                                                                                                                                                                                  |
| Role:                 | PI                                                                                                                                                                                                                                                          |
| Agency and grant No.: | Pfizer Inc. (UNIV62160, SRA00000076, and SRA00000229)                                                                                                                                                                                                       |
| Titles:               | Ion-mobility mass spectrometry to understand formulation performance; Evaluation of drug formulations by ion mobility-mass spectrometry and computational methods; and Ion mobility-mass spectrometry-based approaches for chiral molecule characterization |
| Project period:       | 05/01/2021 – 09/17/2025                                                                                                                                                                                                                                     |
| Funding level:        | \$ 136,328                                                                                                                                                                                                                                                  |
| Role:                 | PI                                                                                                                                                                                                                                                          |
| Agency and grant No.: | Bruker Corporation (01CA-7DDA)                                                                                                                                                                                                                              |
| Title:                | To provide in-depth analysis of accuracy of TIMS acquired CCS values, assessment of artifact mobility peaks generated, and provide insight into metastable ion transmission.                                                                                |
| Project period:       | 01/01/2024-12/31/2025                                                                                                                                                                                                                                       |
| Funding level:        | \$ 130,877 (in addition to ca. \$800,000 instrumentation)                                                                                                                                                                                                   |
| Role:                 | PI                                                                                                                                                                                                                                                          |

#### SELECT COMPLETED RESEARCH FUNDING

Sources of prior funding include NIH, NSF, DARPA, IARPA, DTRA, EPA, foundations, industry, and research awards.

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| Agency and grant No.: | National Science Foundation (NSF2117782)                                                                                                             |
| Title:                | MRI: Development of a fully automated, 1,000-MicroChemostat microfluidic system for parallel, independent, long-duration, machine-guided experiments |
| Project period:       | 10/01/2021-09/30/2024                                                                                                                                |
| Funding level:        | \$ 999,810                                                                                                                                           |
| Role:                 | Co-PI (PI-Wikswo)                                                                                                                                    |
| Agency and grant No.: | National Institutes of Health (R01HD102752)                                                                                                          |
| Title:                | Instrumenting the fetal membrane on a chip                                                                                                           |
| Project Period:       | 09/01/2020-06/30/2024                                                                                                                                |
| Funding level:        | \$ 2,549,651                                                                                                                                         |
| Role:                 | co-I (PI-Cliffel)                                                                                                                                    |
| Agency and grant No.: | Environmental Protection Agency (R839501)                                                                                                            |
| Title:                | Instrumenting phenotypic immunological responses to toxicants that threaten human reproduction                                                       |

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| Project period:       | 08/01/2019-07/31/2024                                                                                              |
| Funding level:        | \$ 848,923                                                                                                         |
| Role:                 | co-PI (PI-Osteen)                                                                                                  |
| Agency and grant No.: | Department of Energy (DE-SC0019404)                                                                                |
| Title:                | Rapid flux phenotyping to accelerate metabolic engineering of cyanobacteria                                        |
| Project period:       | 09/15/2018-09/14/2023                                                                                              |
| Funding level:        | \$ 1,500,000                                                                                                       |
| Role:                 | co-PI (PI-Young)                                                                                                   |
| Agency and grant No.: | National Institutes of Health (U01TR002383)                                                                        |
| Title:                | Harnessing human brain and liver microphysiological systems for testing therapeutics for metastatic melanoma       |
| Project period:       | 08/01/2020-07/31/2023                                                                                              |
| Funding level:        | \$ 7,643,688                                                                                                       |
| Role:                 | co-I (PI-Wikswo)                                                                                                   |
| Agency and grant No.: | Defense Advanced Research Projects Agency (W911NF-14-2-0022)                                                       |
| Title:                | Chemical threat assessment by rapid molecular phenotyping                                                          |
| Project period:       | 02/01/2014 – 01/31/2019                                                                                            |
| Funding level:        | \$ 16,499,589                                                                                                      |
| Role:                 | co-PI (PI-Caprioli)                                                                                                |
| Agency and grant No.: | National Institutes for Health (5R01GM092218)                                                                      |
| Title:                | New methodologies for accelerating natural product discovery                                                       |
| Project period:       | 08/15/2010-12/31/2019                                                                                              |
| Funding level:        | \$ 2,661,664                                                                                                       |
| Role:                 | PI (McLean, Bachmann (MPI))                                                                                        |
| Agency and grant No.: | Environmental Protection Agency (R835736)                                                                          |
| Title:                | Vanderbilt-Pittsburgh resource for organotypic models for predictive toxicology (VPROMPT)                          |
| Project period:       | 01/01/2015 – 12/31/2019                                                                                            |
| Funding level:        | \$ 6,000,000                                                                                                       |
| Role:                 | co-I (PI-Hudson)                                                                                                   |
| Agency and grant No.: | Intelligence Advanced Research Project Agency (2017-17081500003)                                                   |
| Title:                | Neural microphysiological system for time dependent phenomics of C/B neurotoxins                                   |
| Project period:       | 09/01/2017-08/31/2018                                                                                              |
| Funding level:        | \$ 1,000,000                                                                                                       |
| Role:                 | co-PI (PI-Cliffel, McLean, Wiksowo)                                                                                |
| Agency and grant No.: | Defense Threat Reduction Agency (DE-AC52-06NA25396)                                                                |
| Title:                | Integration of novel technologies for organ development and rapid assessment of medical countermeasures (INTO-RAM) |
| Project period:       | 10/01/2012 – 09/30/2017                                                                                            |
| Funding level:        | \$ 7,852,000 (to Vanderbilt)                                                                                       |
| Role:                 | PI (Vanderbilt) (Prime Award - R. Iyer, Los Alamos National Laboratory)                                            |
| Agency and grant No.: | Defense advanced research project agency (W911NF-12-2-0036)                                                        |
| Title:                | Integrated human organ-on-chip microphysiological systems                                                          |
| Project period:       | 06/01/2012 – 05/31/2017                                                                                            |
| Funding level:        | \$ 3,077,280 (to Vanderbilt)                                                                                       |
| Role:                 | Subcontract (Prime Award: D. Ingber, Harvard University)                                                           |

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| Agency and grant No.: | National Institutes of Health (UH3TR000491)                                                                                          |
| Title:                | Neurovascular Unit on a Chip: Chemical Communication, Drug and Toxin Responses                                                       |
| Project period:       | 07/01/2012 – 06/30/2017                                                                                                              |
| Funding level:        | \$ 6,441,097                                                                                                                         |
| Role:                 | co-I (Wikswow, Janigro, Niswender, Webb (MPI))                                                                                       |
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| Agency and grant No.: | National Science Foundation (CHE-1229341)                                                                                            |
| Title:                | MRI: Development of advanced multiplexed structural mass spectrometer for research and training                                      |
| Project period:       | 09/01/2012 – 08/30/2015                                                                                                              |
| Funding level:        | \$ 715,459                                                                                                                           |
| Role:                 | PI                                                                                                                                   |
|                       |                                                                                                                                      |
| Agency and grant No.: | Defense Threat Reduction Agency (HDTRA1-09-1-001)                                                                                    |
| Title:                | Automated characterization of the interaction dynamics between toxic biological agents and biomolecules and cells of blood and lymph |
| Project period:       | 02/09/2009 – 02/08/2014                                                                                                              |
| Funding level:        | \$ 2,506,047                                                                                                                         |
| Role:                 | co-PI (PI-Wikswow)                                                                                                                   |
|                       |                                                                                                                                      |
| Agency and grant No.: | National Institutes of Health (RC2DA028981)                                                                                          |
| Title:                | Elucidation of leukocyte and macrophage biomarker signatures from drugs of abuse                                                     |
| Project period:       | 09/31/2009 – 08/31/2012                                                                                                              |
| Funding level:        | \$ 2,661,005                                                                                                                         |
| Role:                 | PI (McLean, Lipson, Wikswow (MPI))                                                                                                   |

#### PUBLICATIONS - PEER REVIEWED ARTICLES

(Research articles have been featured on the cover page of the respective journal 18 times)

220. R.A. Harris, E. Zlibut, A.R. Reardon, K.E. Lira, J.C. May, S.M. Stow, D.L. Williamson, J. Krone, K. Kedia, **J.A. McLean**, F.G. Strathmann, An Interlaboratory Comparison of High-Resolution Ion Mobility Collision Cross Sections from Human Plasma, *Journal of the American Society for Mass Spectrometry*, in press (2025).
219. J. Jaroensuk, J.P. Abraham, B.E. Zuniga, H.S. Shepard, M. Wei, R. Williams, S.A. Morley, M. Lingwan, J. Zhou, M.A. Jindra, P. Jyoti, B. Wang, J.C. May, **J.A. McLean**, J.D. Young, B.F. Pfeleger, D.K. Allen, Disruption of acyl-acyl carrier protein (acyl-ACP) synthetase in cyanobacteria impairs lipid remodeling as revealed by acyl-ACP measurements, *Metabolic Engineering* 94, 45-56 (2026).
218. H.S. Shepard, E. Zlibut, J.C. May, B.K. Blakley, **J.A. McLean**, Structural characterization of cyclodextrin and maltodextrin alkali-metal coordination via ion mobility-mass spectrometry and computational modeling, *Physical Chemistry Chemical Physics* 27, 19006 – 19015 (2025).
217. H.S. Shepard, J.C. May, B.E. Zuniga, J.P. Abraham, B.F. Pfeleger, J.D. Young, **J.A. McLean**, A Fast-Pass, Desorption Electrospray Ionization-Mass Spectrometry Strategy for Untargeted Metabolic Phenotyping, *Journal of the American Society for Mass Spectrometry* 36, 400-408 (2025).
216. D.C. Koomen, K.L. Leaptrot, J.C. May, B.S. Rose, K.E. Lira, J.A. Raziel, A.D. Pumford, G. de A. Cavalcanti, M.C. Padilha, H.M.G. Pereira, **J.A. McLean**, Rapid annotation strategy for in vivo phase II metabolites of anabolic-androgenic steroids using liquid chromatography-ion mobility-mass spectrometry, *Journal of the American Society for Mass Spectrometry* 36, 1762-1770 (2025).
215. M.T. Odenkirk, C. Michel, K.A. Doenges, K.L. Leaptrot, S.D. Sherrod, J.C. May, M.L. Read, J.M. Chaparro, N. Montgomery, S. Brinkley, A. Vaniya, S.B. Mitchell, B. Yu, J.K. Elhaderi, L. Henson, C.D. Broeckling, O. Fiehn, R. Reisdorph, N. Reisdorph, **J.A. McLean**, C.-M. Chien, T. Shafizadeh, J. de la Parra, S. Ahmed, J.E. Prenni, S. Watkins, A standardized nontargeted metabolomics method for cross-laboratory comparison of food profiles, *Food Chemistry* 493, 145934 (2025).

214. M. Kim, K. Kim, J. Lee, L.A. Barny, L. Scaggs, I. Romaine, J. Kyuok, S.G. Codreanu, S.D. Sherrod, **J.A. McLean**, A.P. Naren, G.A. Sulikowski, L. Plate, Photoaffinity ligand of Cystic Fibrosis corrector VX-445 identifies SCCPDH as an off-target, *ACS Chemical Biology* 20, 1560-1573 (2025).
213. B.R. Kimmel, K. Arora, N.C. Chada, V. Bharti, A.J. Kwiatkowski, J.E. Finkelstein, A. Hanna, E.N. Arner, T.L. Sheehy, L.E. Pastora, J. Yang, H.M. Pagendarm, P.T. Stone, E. Hargrove-Wiley, B.C. Taylor, L.A. Hubert, B.M. Fingleton, K.N. Gibson-Corley, J.C. May, **J.A. McLean**, J.C. Rathmell, A. Richmond, W.K. Rathmell, J.M. Balko, J.T. Wilson, Potentiating cancer immunotherapies with modular albumin-hitchhiking nanobody–STING agonist conjugates, *Nature Biomedical Engineering* (2025).
212. H.S. Shepard, R.L.G. Gottschalk, J.C. May, **J.A. McLean**, Active humidity control chamber for desorption electrospray ionization-mass spectrometry imaging applications, *Journal of the American Society for Mass Spectrometry* 36, 1995-1999 (2025).
211. K.E. Lira, J.C. May, **J.A. McLean**, Ion mobility spectrometry and ion mobility-mass spectrometry in clinical chemistry, *Advances in Clinical Chemistry* 124, 123-160 (2025).
210. L. Deng, J.C. May, J.K. McBee, A. Rosen, L.C. Rorrer III, R. Clingman, M. Fico, **J.A. McLean**, D. DeBord, Rounded turn SLIM design for high-resolution ion mobility mass spectrometry analysis of small molecules, *Analytical Chemistry* 96, 20179-20188 (2024).
209. G. Hiremath, G.S. Codreanu, S.D. Sherrod, R. Tyree, H. Correa, Y. Choksi, **J.A. McLean**, A. Locke, Salivary metabolomic signatures in pediatric Eosinophilic Esophagitis, *Allergy* 80, 354 (2024).
208. B.K. Blakley, E. Zlibut, R.M. Gupta, J.C. May, **J.A. McLean**, Direct enantiomer differentiation of drug and drug-like compounds via noncovalent copper-amino acid complexation and ion mobility-mass spectrometry, *Analytical Chemistry* 96, 12892-12900 (2024). **Featured on Coverage.**
207. R.J. Stark, A.C. Schrimpe-Rutledge, S.G. Codreanu, S.D. Sherrod, **J.A. McLean**, L.T. Krispinsky, F.S. Lamb, Endothelial-dependent vascular reactivity after cardiopulmonary bypass is associated with unique metabolomic signatures, *Shock: Injury, Inflammation, and Sepsis: Laboratory and Clinical Approaches* 62, 656-662 (2024).
206. J.C. May, E. Zlibut, B.K. Blakley, C.S. Wood, Y. Wei, B. Showalter, E. Dybeck, E.R. Remish, V. Guidolin, B.A. Bernat, **J.A. McLean**, Ion mobility-mass spectrometry strategies to elucidate the anhydrous structure of noncovalent guest/host complexes, *Analytical Chemistry* 96, 12453-12462 (2024).
205. A.J. Mouton, N.M. Aitken, J.G. Morato, K.R. O’Quinn, J.M. do Carmo, A.A. da Silva, A.C. Omoto, X. Li, Z. Wang, A.C. Schrimpe-Rutledge, S.G. Codreanu, S.D. Sherrod, **J.A. McLean**, J.K. Stanford, J.A. Brown, J.E. Hall, Glutamine metabolism improves left ventricular function but not macrophage-mediated inflammation following myocardial infarction, *American Journal of Physiology-Cell Physiology* 327, C571-586 (2024).
204. M.D. Westland, A.C. Schrimpe-Rutledge, S.G. Codreanu, S.D. Sherrod, **J.A. McLean**, M.S. McClain, T.L. Cover, Taurine modulates host cell responses to Helicobacter pylori VacA toxin, *Infection and Immunity* 92, e00224-24 (2024).
203. D. Koomen, J.C. May, A. Mansueto, T. Graham, **J.A. McLean**, An untargeted lipidomics workflow incorporating high resolution demultiplexed (HRdm) drift tube ion mobility-mass spectrometry, *Journal of the American Society for Mass Spectrometry* 35, 2448-2457 (2024).
202. A.R. Reardon, J.C. May, K.L. Leaptrot, **J.A. McLean**, High-resolution ion mobility based on traveling wave structures for lossless ion manipulation resolves hidden lipid features, *Analytical Bioanalytical Chemistry* 416, 5473-5483 (2024).
201. A.C. Pfalzer, S. Shiino, J. Silverman, S.G. Codreanu, S.D. Sherrod, **J.A. McLean**, D.O. Claassen, Alterations in cerebrospinal fluid urea occur in late manifest Huntington’s disease, *Journal of Huntington’s Disease* 13, 103-111 (2024).
200. K.M. Schalich, M.A. Buendia, H. Kaur, Y.A. Choksi, M.K. Washington, G.S. Codreanu, S.D. Sherrod, **J.A. McLean**, R.M. Peek, S.A. Acra, S.D. Townsend, F. Yan, A human milk oligosaccharide prevents intestinal inflammation in adulthood via modulating gut microbial metabolism, *mBio* 15, 1-20 (2024).
199. G.K. Reder, E.Y. Bjurström, D. Brunnsäker, F. Kronström, P. Lasin, L. Tiukova, O.I. Savolainen, J.N. Dodds, J.C. May, J.P. Wikswo, **J.A. McLean**, R.D. King, AutonoMS: Automated ion mobility metabolomic fingerprinting, *Journal of the American Society for Mass Spectrometry* 35, 542-550 (2024).

198. R.A. Harris, J.C. May, S.R. Harvey, V.H. Wysocki, **J.A. McLean**, Evaluation of surface-induced dissociation ion mobility-mass spectrometry for lipid structural characterization, *Journal of the American Society for Mass Spectrometry* 35, 214-223 (2024).
197. A.C. Norris, E.M. Yazlovitskaya, L. Zhu, B.S. Rose, J.C. May, K.N. Gibson-Corley, **J.A. McLean**, J.M. Stafford, T.R. Graham, Deficiency of the lipid flippase ATP10A causes diet-induced dyslipidemia in female mice, *Scientific Reports* 14, Article No. 343 (2024).
196. N. Cheung, J.C. May, R.A.S. Robinson, **J.A. McLean**, Solvent Composition Can Have a Measurable Influence on the Ion Mobility-Derived Collision Cross Sections of Small Molecules, *Journal of the American Society for Mass Spectrometry* 35, 234-243 (2024).
195. E. Zlibut, J.C. May, Y. Wei, D. Gessmann, C.S. Wood, B.A. Bernat, T.E. Pugh, L. Palmer-Jones, R.P. Cosquer, E. Dybeck, **J.A. McLean**, Noncovalent host-guest complexes of artemisinin with  $\alpha$ -,  $\beta$ -, and  $\gamma$ -cyclodextrin examined by structural mass spectrometry strategies, *Analytical Chemistry* 95, 8180-8188 (2023).
194. K.A. Richardson, R.A. Harris, K.L. Anderson, R.A.S. Robinson, **J.A. McLean**, S.D. Verberne-Sutton, Uncovering the importance of peer-to-peer communication during the COVID-19 pandemic: rotating chromatography experiments to overcome limited student capacity, *Journal of Chemical Education* 100, 1277-1282 (2023).
193. A.J. Mouton, N.M. Aitken, S.P. Moak, J.M. do Carmo, A.A. da Silva, A.C.M. Omoto, X. Li, Z. Wang, A.C. Schrimpe-Rutledge, S.G. Codreanu, S.D. Sherrod, **J.A. McLean**, J.E. Hall, Temporal changes in glucose metabolism reflect polarization in resident and monocyte-derived macrophages after myocardial infarction, *Frontiers in Cardiovascular Medicine* 10, DOI:10.3389/fcvm.2023.1136252 (2023).
192. W. Song, J.L. Postoak, G. Yang, X. Guo, H.H. Pua, J. Bader, J.C. Rathmell, H. Kobayashi, V.H. Haase, K.L. Leaptrot, A.C. Schrimpe-Rutledge, S.D. Sherrod, **J.A. McLean**, J. Zhang, L. Wu, L. Van Kaer, Lipid kinase PIK3C3 maintains healthy brown and white adipose tissues to prevent metabolic diseases, *Proceedings of the National Academy of Sciences* 120, e2214874120 (2023).
191. C.D. Shelton, J. Mo, N.G. Shealy, E. Sing, W. Yoo, J. Thomas, G.N. Fitz, T.P. Torres, N.J. Foegeding, J.K. Zieba, M.W. Calcutt, S.G. Codreanu, S.D. Sherrod, **J.A. McLean**, F. Yang, N. Markham, M. Liu, M.X. Byndloss, An early-life microbiota metabolite protects against obesity by regulating intestinal lipid metabolism, *Cell Host & Microbe* 31, 1604-1619 (2023).
190. K.R. Sekhar, S.G. Codreanu, O.C. Williams, J.C. Rathmell, W.K. Rathmell, **J.A. McLean**, S.D. Sherrod, N. Baregamian, Metabolism of parathyroid organoids, *Frontiers in Endocrinology* 14, 1223312 (2023).
189. V.V. Gadkari, B.R. Juliano, C.S. Mallis, J.C. May, R.T. Kurulugama, J.C. Fjeldsted, **J.A. McLean**, D.H. Russell, B.T. Ruotolo, Performance evaluation of in-source ion activation hardware and collision-induced unfolding of proteins and protein complexes on a drift tube ion mobility-mass spectrometry, *Analyst* 148, 391-401 (2023).
188. J.C. May, I.D. Tomlinson, S. Soni, **J.A. McLean**, D.M. Hercules, A method for the preparation and characterization of single molecular weight urethane oligomers: A preliminary ion mobility and mass spectrometry study, *Polymer* 265, 125582 (2023).
187. J.C. May, **J.A. McLean**, Integrating ion mobility into comprehensive multidimensional metabolomics workflows: critical considerations, *Metabolomics* 18, 104 (2022).
186. E. Zlibut, J.C. May, **J.A. McLean**, Enantiomer differentiation of amino acid stereoisomers by structural mass spectrometry using noncovalent trinuclear copper complexes, *Journal of the American Society for Mass Spectrometry* 33, 996-1002 (2022). **Featured on cover page.**
185. B.S. Rose, J.C. May, A. Reardon, **J.A. McLean**, A collision cross section calibration strategy for lipid measurements in SLIM-based high resolution ion mobility, *Journal of the American Society for Mass Spectrometry* 33, 1229-1237 (2022).
184. J.C. Pino, A.L.R. Lubbock, L.A. Harris, D.B. Gutierrez, M.A. Farrow, N. Muszynski, T. Tsui, S.D. Sherrod, J.L. Norris, **J.A. McLean**, R.M. Caprioli, J.P. Wikswo, C.F. Lopez, Processes in DNA damage response from a whole-cell multi-omics perspective, *iScience* 25(11), 105341 (2022).
183. D.C. Koomen, J.C. May, **J.A. McLean**, Insights and prospects for ion mobility-mass spectrometry in clinical chemistry, *Expert Reviews in Proteomics* 19, 17-31 (2022).
182. B.S. Rose, J.C. May, J.A. Picache, S.G. Codreanu, S.D. Sherrod, **J.A. McLean**, Improving confidence in lipidomic annotations by incorporating empirical ion mobility regression analysis and chemical class prediction, *Bioinformatics* 38, 2872-2879 (2022).
181. H.N. Cukier, H. Kim, A.J. Griswold, S.G. Codreanu, L.M. Prince, S.D. Sherrod, **J.A. McLean**, D.M. Dykxhoorn, K.C. Ess, P. Hedera, A.B. Bowman, M.D. Neely, Genomic, transcriptomic, and metabolomic profiles of hiPSC-derived

- dopaminergic neurons from clinically discordant brothers with identical PRKN deletions, *npj Parkinson's Disease* 8, 84 (2022).
180. J.C. May, **J.A. McLean**, D. DeBord, K.L. Leaptrot, B.S. Rose, L.L. Deng, K. Moser, Effectiveness of high-resolution ion mobility for complex analyses, *Column* 18, 23-27 (2022).
  179. M.A. Wiebe, J.R. Brannon, B.D. Steiner, A. Bamidele, A.C. Schrimpe-Rutledge, S.G. Codreanu, S.D. Sherrod, **J.A. McLean**, M. Hadjifrangiskou, Serine deamination is a new acid resistance mechanism observed in uropathogenic *Escherichia coli*, *mBio* 13, e02963-22 (2022).
  178. I.D. Tomlinson, J.C. May, R.A. Harris, K.M. Buck, S.J. Rosenthal, **J.A. McLean**, D.M. Hercules, Preparation and characterization of discrete mass polyether-based polyurethane oligomers, *Polymers* 254, 125069 (2022).
  177. H.M. Taha, R. Aalizadeh, N. Alygizakis, J.-P. Antignac, H.P.H. Arp, R. Bade, N. Baker, L. Belova, L. Bijlsma, E.E. Bolton, W. Brack, A. Celma, W.-L. Chen, T. Cheng, P.I. Chirsir, Ľ. Čirka, L. D'Agostino, Y.D. Feunang, V. Dulio, S. Fischer, P. Gago-Ferrero, A. Galani, B. Geueke, N. Głowacka, J. Glüge, K. Groh, S. Grosse, P. Haglund, P.J. Hakkinen, S.E. Hale, F. Hernández, E.M.-L. Janssen, T. Jonkers, K. Kiefer, M. Kirchner, J. Koschorreck, M. Krauss, J. Krier, M.H. Lamoree, M. Letzel, T. Letzel, Q. Li, J. Little, Y. Liu, D.M. Lunderberg, J.W. Martin, A.D. McEachran, **J.A. McLean**, C. Meier, J. Meijer, F. Menger, C. Merino, J. Muncke, M. Muschket, M. Neumann, V. Neveu, K. Ng, H. Oberacher, J. O'Brien, P. Oswald, M. Oswaldova, J.A. Picache, C. Postigo, N. Ramírez, T. Reemtsma, J. Renaud, P. Rostkowski, H. Rüdel, R. Salek, S. Samanipour, M. Scheringer, I. Schliebner, W. Schulz, T. Schulze, M. Sengl, B.A. Shoemaker, K. Sims, H. Singer, R.R. Singh, M. Sumarah, P.A. Thiessen, K.V. Thomas, S. Torres, X. Trier, A.P. van Wezel, R.C.H. Vermeulen, J.J. Vlaanderen, C. Peter, Z. Wang, A.J. Williams, E.L. Willighagen, D.S. Wishart, J. Zhang, N.S. Thomaidis, J. Hollender, J. Slobodnik, E.L. Schymanski, The NORMAN suspect list exchange (NORMAN-SLE): Facilitating european and worldwide collaboration on suspect screening in high resolution mass spectrometry, *Environmental Sciences Europe* 34, 1-26 (2022).
  176. B. M. Ellis, P. Babel, J. C. May, C. H. Johnson, B. F. Pfleger, J. D. Young, **J. A. McLean**, Accelerating strain phenotyping with desorption electrospray ionization-imaging mass spectrometry and untargeted analysis of intact microbial colonies, *Proceedings of the National Academy of Sciences USA* 118, e2109633118 (2021).  
**Several popular press reports.**
  175. D. R. Miller, E. S. McClain, J. N. Dodds, A. Balinski, J. C. May, **J. A. McLean**, D. E. Cliffl, Chlorpyrifos disrupts acetylcholine metabolism across model blood-brain barrier, *Frontiers in Bioengineering and Biotechnology* 9, 622175 (2021).
  174. V. Mancini, P. J. McKeegan, A. C. Schrimpe-Rutledge, S. G. Codreanu, S. D. Sherrod, **J. A. McLean**, H. M. Picton, V. Pensabene, Probing morphological, genetic and metabolomic changes of in vitro embryo development in a microfluidic device, *Biotechnology Progress* 37, e3194 (2021).
  173. A. Taylor, D. E. Davis Jr., S. G. Codreanu, F. Harrison, S. D. Sherrod, **J. A. McLean**, Targeted and untargeted mass spectrometry reveals impact of high fat diet on peripheral amino acid regulation in a mouse model of Alzheimer's disease, *Journal of Proteome Research* 20(9), 4405-4414 (2021).
  172. J. M. Bryan, B. H. Vanderloop, C. M. Nichols, Z. Haratipour, K. T. Poor, S. D. Sherrod, **J. A. McLean**, R. D. Blind, The acyl chains of phosphoinositide PIP3 alter the structure and function of nuclear receptor steroidogenic factor-1, *Journal of Lipid Research* 62, 100081 (2021).
  171. D. E. Davis Jr., K. L. Leaptrot, D. C. Koomen, J. C. May, G. A. Cavalcanti, M. C. Padilha, H. M. G. Pereira, **J. A. McLean**, Multidimensional separations of intact phase II steroid metabolites utilizing LC-Ion Mobility-MS, *Analytical Chemistry* 93(31), 10990-10998 (2021).
  170. V. Mancini, A. C. Schrimpe-Rutledge, S. G. Codreanu, S. D. Sherrod, **J. A. McLean**, H. M. Picton, V. Pensabene, Metabolomic analysis evidences that uterine epithelial cells enhance blastocyst development in a microfluidic device, *Cells* 10(5), 1194 (2021).
  169. J. C. May, K. L. Leaptrot, B. S. Rose, K. L. Wormwood Moser, L. Deng, L. Maxon, D. DeBord, **J. A. McLean**, Resolving Power and Collision Cross Section Measurement Accuracy of a Prototype High-Resolution Ion Mobility Platform Incorporating Structures for Lossless Ion Manipulation, *Journal of the American Society for Mass Spectrometry* 32, 1126-1137 (2021). **Featured on cover page.**
  168. T. M. Popaya, J. Wang, C. M. Adams, S. G. Codreanu, S. D. Sherrod, **J. A. McLean**, L. R. Thomas, S. L. Lorey, Y. J. Machid, A. M. Weissmiller, C. M. Eischend, Q. Liu, W. P. Tansey, MYC regulates ribosome biogenesis and mitochondrial gene expression programs through interaction with Host Cell Factor-1, *eLife* 10:e60191 (2021).

167. J. C. May, R. Knochenmuss, J. C. Fjeldsted, **J. A. McLean**, Resolution of isomeric mixtures in ion mobility using a combined demultiplexing and peak deconvolution technique, *Analytical Chemistry* 92, 9482-9492 (2020).
166. J. A. Picache, J. C. May, **J. A. McLean**, Chemical class prediction of unknown biomolecules using ion mobility-mass spectrometry and machine learning: supervised inference of feature taxonomy from ensemble randomization, *Analytical Chemistry* 92, 10759-10767 (2020).
165. A. Pfalzer, J. Wilcox, S. Codreanu, M. Totten, T. Bichell, T. Halbesma, P. Umashanker, K. Yang, N. Parmalee, S. D. Sherrod, K. Erikson, F. Harrison, **J. A. McLean**, M. Aschner, A. Bowman, Huntington's Disease Genotype Suppresses Global Manganese-Responsive Processes in Pre-Manifest and Manifest YAC128 mice, *Metallomics* 12, 1118-1130 (2020).
164. A. R. Eberly, C. J. Beebout, C. M. C. Tong, G. T. Van Horn, H. D. Green, M. J. Fitzgerald, S. De, E. K. Apple, A. C. Schrimpe-Rutledge, S. G. Codreanu, S. D. Sherrod, **J. A. McLean**, D. B. Clayton, C. W. Stratton, J. E. Schmitz, M. Hadjifrangiskou, Defining a molecular signature for uropathogenic versus urocolonizing escherichia coli: The status of the field and new clinical opportunities, *Journal of Molecular Biology* 432, 786-804 (2020).
163. A. R. Eberly, C. J. Beebout, C. M. C. Tong, G. T. Van Horn, H. D. Green, M. J. Fitzgerald, S. De, E. K. Apple, A. C. Schrimpe-Rutledge, S. G. Codreanu, S. D. Sherrod, **J. A. McLean**, D. B. Clayton, C. W. Stratton, J. E. Schmitz, M. Hadjifrangiskou, nnData highlighting phenotypic diversity of urine-associated Escherichia coli isolates, *Data in Brief* 105811 (2020).
162. V. Allwardt, A. Ainscough, P. Viswanathan, S. D. Sherrod, **J. A. McLean**, M. Haddrick, V. Pensabene, Translational roadmap for the organs-on-a-chip industry toward broad adoption, *Bioengineering* 7, 112-141 (2020).
161. D.E. Davis Jr., S.D. Sherrod, R.L. Gant-Branum, J.M. Colby, **J.A. McLean**, Targeted Strategy to Analyze Antiepileptic Drugs in Human Serum by LC-MS/MS and LC-Ion Mobility-MS, *Analytical Chemistry* 92, 14648-14656 (2020).
160. S. Chambers, R. Moore, K. Craft, H. Thomas, R. Das, S. Manning, S. Codreanu, S. D. Sherrod, D. Aronoff, **J. A. McLean**, J. Gaddy, S. Townsend, A Solution to Antifolate Resistance in Group B Streptococcus: Untargeted Metabolomics Identifies Human Milk Oligosaccharide-Induced Perturbations that Result in Potentiation of Trimethoprim, *mBio* 11, e00076-20 (2020).
159. C. J. Tainter, N. D. Schley, C. M. Harris, D. F. Stec, A. K. Song, A. Balinski, J. C. May, **J. A. McLean**, K. S. Reece, T. M. Harris, Algal toxin goniodomin A binds potassium ion selectively to yield a conformationally altered complex with potential biological consequences, *Journal of Natural Products* 83, 1069-1081 (2020).
158. J. M. Picache, J. C. May, **J. A. McLean**, Crowd-sourced chemistry: considerations for building a standardized database to improve omic analyses, *ACS Omega* 5, 980-985 (2020).
157. B. B. Paudel, J. Lewis, K. Hardeman, C. Hayford, C. Robbins, P. Stauffer, S. Codreanu, S. D. Sherrod, **J. A. McLean**, M. Kemp, V. Quaranta, An Integrative Gene Expression and Mathematical Flux-Balance Analysis Identifies Targetable Redox Vulnerabilities in Melanoma Cells, *Cancer Research* 80, 4565-4577 (2020).
156. T. Manzo, B. M. Prentice, K. G. Anderson, A. Raman, A. Schalck, G. S. Codreanu, A. Raimondi, K. Clise-Dwyer, M. Jones, M. Reyzer, B. M. Bates, N. H. Patterson, J. M. Spraggins, **J. A. McLean**, K. Rai, C. Tacchetti, S. Tucci, J. A. Wargo, S. D. Sherrod, M. Kim, N. E. Navin, R. M. Caprioli, P. Greenberg, G. Draetta, L. Nezi, Accumulation of long-chain fatty acids drives dysfunction in intra-pancreatic CD8+ T cells, *Journal of Experimental Medicine* 217, e20191920.8 (2020).
155. R. A. Harris, J. A. Picache, I. D. Tomlinson, E. Zlibut, B. M. Ellis, J. C. May, **J. A. McLean**, D. M. Hercules, Mass spectrometry and ion mobility study of poly(ethylene glycol)-based polyurethane oligomers, *Rapid Communications in Mass Spectrometry* 34, e8662 (2020).
154. D. Miller, E. McClain, J. Brown, J. N. Dodds, A. Balinski, J. C. May, J. P. Wikswo, **J. A. McLean**, D. E. Cliffl, Chlorpyrifos disrupts acetylcholine metabolism across model blood-brain barrier, *ACS Chemical Neuroscience* (2020). Submitted.
153. A. R. Eberly, C. J. Beebout, G. T. van Horn, C. M. C. Tong, H. D. Green, M. J. Fitzgerald, S. De, E. K. Apple, A. C. Schrimpe-Rutledge, S. G. Codreanu, S. D. Sherrod, **J. A. McLean**, D. B. Clayton, C. W. Stratton, J. E. Schmitz, M. Hadjifrangiskou, Defining a molecular signature for uropathogenic versus urocolonizing escherichia coli: the status of the field and new clinical opportunities, *Journal of Molecular Biology* 432, 786-804 (2020).
152. M. J. Khan, S. G. Codreanu, S. Goyal, P. A. Wages, S. K. K. Gorti, M. J. Pearson, I. Uribe, S. D. Sherrod, **J. A. McLean**, N. A. Porter, R. A. S. Robinson, Evaluating a Targeted MRM Approach to a Global Untargeted Approach for Lipidomic Analyses of Human Plasma, *Rapid Communications in Mass Spectrometry* 34, e8911 (2020).

151. J. C. Poland, K. L. Leaptrot, S. D. Sherrod, C. R. Flynn, **J. A. McLean**, Collision cross section conformational analyses of bile acids via ion mobility-mass spectrometry, *Journal of the American Society for Mass Spectrometry* 31, 1625-1631 (2020).
150. B. M. Ellis, C. M. Fischer, L. B. Martin, B. O. Bachmann, **J. A. McLean**, Spatially profiling intermicrobial interactions with imaging desorption electrospray - ion mobility - mass spectrometry and unsupervised segmentation, *Analytical Chemistry* 91, 13703-13711 (2019).
149. J. C. Poland, A. Schrimpe-Rutledge, S. D. Sherrod, C. R. Flynn, **J. A. McLean**, Utilizing untargeted ion mobility-mass spectrometry to profile changes in the gut metabolome following biliary diversion surgery, *Analytical Chemistry* 91, 14417-14423 (2019).
148. T M. Crescentini, J. C. May, **J. A. McLean**, D. M. Hercules, Mass spectrometry of polyurethanes, *Elsevier Polymer* 181, No. 121624, 1-13 (2019). **Featured on cover page.**
147. K. L. Leaptrot, J. C. May, J. N. Dodds, **J. A. McLean**, Ion mobility conformational atlas for high confidence lipidomics, *Nature Communications* 10(1):985 (2019).
146. J. A. Picache, B. S. Rose, A. Balinski, K. L. Leaptrot, S. D. Sherrod, J. C. May, **J. A. McLean**, Collision cross section compendium to annotate and predict multi-omic compound identities, *Chemical Science* 10, 983-993 (2019). **Featured on cover page.**
145. R. A. Harris, K. L. Leaptrot, J. C. May, **J. A. McLean**, New frontiers in lipidomic analyses using structurally selective ion mobility-mass spectrometry, *Trends in Analytical Chemistry* 116, 316-323 (2019).
144. T. M. Crescentini, J. C. May, **J. A. McLean**, D. M. Hercules, Alkali metal cation adduct effect on polybutylene adipate oligomers: ion mobility-mass spectrometry, *Elsevier Polymer* 173, 58-65 (2019).
143. L. D. Palmer, A. T. Jordan, K. N. Maloney, M. A. Farrow, D. B. Gutierrez, R. Gant-Branum, W. J. Burns, C. Romer, T. Tsui, J. L. Allen, S. D. Sherrod, **J. A. McLean**, D. B. Lacy, J. L. Norris, R. M. Caprioli, E. P. Skaar, Zinc intoxication induces ferroptosis in A549 human lung cells, *Metallomics* 11, 982-993 (2019).
142. P. Pier-Luc, É. Francovic-Fontaine, J. C. May, **J. A. McLean**, E. S. Baker, F. Laviolette, M. Marchand, J. Corbeil, Predicting ion mobility collision cross sections using a deep neural network: DeepCCS, *Analytical Chemistry* 91, 5191-5199 (2019).
141. C. B. Morris, J. C. May, K. L. Leaptrot, **J. A. McLean**, Evaluating separation selectivity and collision cross section measurement reproducibility in helium, nitrogen, argon, and carbon dioxide drift gases using drift tube ion mobility-mass spectrometry, *Journal of the American Society for Mass Spectrometry* 30, 1059-1068 (2019).
140. W. Jiang, N. A. Chung, J. C. May, **J. A. McLean**, R. A. S. Robinson, Ion mobility-mass spectrometry, *Encyclopedia of Analytical Chemistry* 1-34 (2019).
139. V. Gabelica, C. Afonso, P. Barran, J. L. Benesch, C. Bleiholder, M. T. Bowers, A. Bilbao, M. F. Bush, J. L. Campbell, I. D. G. Campuzano, T. J. Causon, B. H. Clowers, C. Creaser, E. De Pauw, J. Far, F. Fernandez-Lima, J. C. Fjeldsted, K. Giles, M. Groessl, C. J. Hogan Jr., S. Hann, H. I. Kim, R. T. Kurulugama, J. C. May, **J. A. McLean**, K. Pagel, K. Richardson, M. E. Ridgeway, F. Rosu, F. Sobott, A. A. Shvartsburg, K. Thalassinou, S. J. Valentine, T. Wytenbach, Recommendations for reporting ion mobility mass spectrometry measurements, *Mass Spectrometry Reviews* 30, 1-30 (2019).
138. C. M. Nichols, J. N. Dodds, B. S. Rose, J. A. Picache, C. B. Morris, S. G. Codreanu, J. C. May, S. D. Sherrod, **J. A. McLean**, Untargeted molecular discovery in primary metabolism: Collision cross section as a molecular descriptor in ion mobility-mass spectrometry, *Analytical Chemistry* 90, 14484-14492 (2018).
137. T.M. Crescentini, S.M. Stow, J.G. Forsythe, J.C. May, **J.A. McLean**, D.M. Hercules, Structural characterization of methylenedianiline regioisomers by ion mobility-mass spectrometry and tandem mass spectrometry: IV. MALDI spectra of 3-ring and 4-ring isomers, *Analytical Chemistry* 90, 14453-14461 (2018).
136. S.T. Phillips, J.N. Dodds, B.M. Ellis, J.C. May, **J.A. McLean**, Chiral separation of diastereomers of the cyclic nonapeptides vasopressin and desmopressin by uniform field ion mobility mass spectrometry, *Chemical Communications*, 54, 9398 – 9401 (2018). **Featured on cover page.**
135. C. L. Gibson, S. G. Codreanu, A. C. Schrimpe-Rutledge, C. L. Retzlaff, J. Wright, D. P. Mortlock, S. D. Sherrod, **J. A. McLean**, R. D. Blakely, Global untargeted serum metabolomic analyses nominate metabolic pathways responsive to loss of expression of the orphan metallo  $\beta$ -lactamase, MBLAC1, *Molecular Omics* 14, 142-155 (2018).
134. D. Gutierrez, R. Gant-Branum, C. Romer, M. Farrow, J. Allen, N. Dahal, Y.-W. Nei, S. Codreanu, A. Jordan, L. Palmer, S. Sherrod, **J. A. McLean**, E. Skaar, J. Norris, R. M. Caprioli, An integrated, high-throughput strategy for multi-omic systems level analysis, *Journal of Proteome Research* 17, 3396-3408 (2018).
133. C. M. Nichols, J. C. May, S. D. Sherrod, **J. A. McLean**, Automated flow injection method for the high precision determination of drift tube ion mobility collision cross sections, *Analyst* 143, 1556-1559 (2018).

132. M. Rogers, T. Sobolik, D. K. Schaffer, P. C. Samson, A. C. Johnson, P. Owens, S. G. Codreanu, S. D. Sherrod, **J. A. McLean**, J. P. Wikswo, A. Richmond, Engineered microfluidic bioreactor for examining the three-dimensional breast tumor microenvironment, *Biomicrofluidics* 12(3):034102 (2018).
131. R. A. Harris, J. C. May, C. A. Stinson, Y. Xia, **J. A. McLean**, Determining double bond position in lipids using online ozonolysis coupled to liquid chromatography and ion mobility-mass spectrometry, *Analytical Chemistry* 90, 1915-1924 (2018).
130. A. C. Schrimpe-Rutledge, S. D. Sherrod, **J. A. McLean**, Improving the discovery of secondary metabolite natural products using ion mobility-mass spectrometry, *Current Opinion in Chemical Biology* 42, 160-166 (2018).
129. J. C. May, E. Jurneczko, S. M. Stow, I. Kratochvil, S. Kalkhof, **J. A. McLean**, Conformational landscapes of ubiquitin, cytochrome c, and myoglobin: uniform field ion mobility measurements in helium and nitrogen, *International Journal of Mass Spectrometry* 427, 79-90 (2018).
128. S. M. Stow, T. M. Crescenti, J. G. Forsythe, J. C. May, **J. A. McLean**, D. M. Hercules, Structural characterization of methylenedianiline regioisomers by ion mobility and mass spectrometry: III MALDI spectra of 2-ring isomers, *Analytical Chemistry* 89, 9900-9910 (2017).
127. J. N. Dodds, J. C. May, **J. A. McLean**, Correlating resolving power, resolution, and collision cross section: unifying cross-platform assessment of separation efficiency in ion mobility spectrometry, *Analytical Chemistry* 89, 12176-12184 (2017).
126. P. Matta, S. D. Sherrod, C. C. Marasaco, D. J. Moore, **J. A. McLean**, and J.-H. Weitkamp, In Utero exposure to histological chorioamnionitis primes the exometabolomic profiles of preterm CD4+ T lymphocytes, *Journal of Immunology* 199, 3074-3085 (2017).
125. S. M. Stow, T. J. Causon, X. Zheng, R. T. Kurulugama, T. Mairinger, J. C. May, E. E. Rennie, E. S. Baker, R. D. Smith, **J. A. McLean**, S. Hann, J. C. Fjeldsted, An interlaboratory evaluation of drift tube ion mobility- mass spectrometry collision cross section measurements, *Analytical Chemistry* 89, 9048-9055 (2017).
124. J. L. Norris, M. A. Farrow, D. B. Gutierrez, L. D. Palmer, N. Muszynski, S. D. Sherrod, J. C. Pino, J. L. Allen, J. M. Spraggins, A. L. R. Lubbocks, A. Jordan, W. Burns, J. C. Poland, C. Romer, M. L. Manier, Y.-W. Nei, B. M. Prentice, K. L. Rose, S. Hill, R. Van de Plas, T. Tsui, N. M. Braman, M. R. Keller, S. A. Rutherford, N. Lobdell, C. F. Lopez, D. B. Lacy, **J. A. McLean**, J. P. Wikswo, E. P. Skaar, R. M. Caprioli. Integrated, high-throughput, multiomics platform enables data-driven construction of cellular responses and reveals global drug mechanisms of action, *Journal of Proteome Research* 16, 1364-1375 (2017).
123. J. N. Dodds, J. C. May, **J. A. McLean**, Investigation of the complete suite of the leucine and isoleucine isomers: towards prediction of ion mobility separation capabilities, *Analytical Chemistry* 89, 952-959 (2017).
122. J. C. May, C. B. Morris, **J. A. McLean**, Ion mobility collision cross section compendium, *Analytical Chemistry* 89, 1032-1044 (2017).
121. B. Covington, **J.A. McLean**, B.O. Bachman, Comparative mass spectrometry-based metabolomics strategies for the investigation of microbial secondary metabolites, *Natural Product Reports* 34, 6-24 (2017).
120. A.C. Schrimpe-Rutledge, S.G. Codreanu, S.D. Sherrod, **J.A. McLean**, Untargeted metabolomic strategies: challenges and emerging directions, *Journal of American Society of Mass Spectrometry* 27, 1897-1905 (2016).
119. J.R. Montenegro-Burke, J.A. Sutton, L.M. Rogers, G.L. Milne, **J.A. McLean**, D.M. Aronoff, Lipid profiling of polarized human monocyte-derived macrophages, *Prostaglandins and Other Lipid Mediators* 127, 1-8 (2016).
118. J.A. Brown, S.G. Codreanu, M. Shi, S.D. Sherrod, D.A. Markov, M.D. Neely, C.M. Britt, O.S. Hoilett, R.S. Reiserer, P.C. Samson, L.J. McCawley, D.J. Webb, A.B. Bowman, **J.A. McLean**, J.P. Wikswo, Metabolic consequences of inflammatory disruption of the blood-brain barrier in an organ-on-chip model of the human neurovascular unit, *Journal of Neuroinflammation* 13, 306-323 (2016).
117. B. Harper, E.K. Neuman, S.M. Stow, J.C. May, **J.A. McLean**, T. Solouki, Determination of ion mobility collision cross sections for unresolved isomeric mixtures using tandem mass spectrometry and chemometric deconvolution, *Analytica Chimica Acta* 939, 64-72 (2016).
116. K.M. Hines, J.C. May, **J.A. McLean**, L. Xu, Evaluation of collision cross section calibrants for structural analysis of lipids by traveling wave ion mobility-mass spectrometry, *Analytical Chemistry* 88, 7329-7336 (2016).
115. J.C. May, **J.A. McLean**, Advanced multidimensional separations in mass spectrometry: navigating the big data deluge, *Annual Reviews in Analytical Chemistry* 9, 387-409 (2016).
114. J.C. May, R.L. Gant-Branum, **J.A. McLean**, Targeting the untargeted in molecular phenomics with structural mass spectrometry, *Current Opinions in Biotechnology* 39, 192-197 (2016).
113. B.R. Spears, M.A. Marin, J.R. Montenegro-Burke, B.C. Evans, **J.A. McLean**, E. Harth, Aqueous epoxide ring-opening polymerization (AEROP): green synthesis of polyglycidol with ultralow branching, *Macromolecules* 49, 2022-2027 (2016).

112. S. D. Sherrod and **J. A. McLean**, Systems-Wide High-Dimensional Data Acquisition and Informatics Using Structural Mass Spectrometry Strategies, *Clinical Chemistry* 62, 77-83 (2016).
111. J. R. Montenegro-Burke, J. M. Bennett, **J. A. McLean**, D. M. Hercules, Novel Behavior of the Chromatographic Separation of Linear and Cyclic Polymers, *Analytical Bioanalytical Chemistry* 408, 677-681 (2016).
110. A. J. Farrand, K. P. Haley, N. M. Lareau, S. Heilbronner, **J. A. McLean**, T. Foster, E. P. Skaar, An Iron-regulated Autolysin Remodels the Cell Wall to Facilitate Heme Acquisition in *Staphylococcus lugdunensis*, *Infection and Immunity* 83, 3578-3589 (2015).
109. J. C. May, J. N. Dodds, R. T. Kurulugama, G. Stafford, J. Fjeldsted, **J. A. McLean**, Broadscale Resolving Power Performance of a High Precision Uniform Field Ion Mobility-Mass Spectrometer, *Analyst* 140, 6824-6833 (2015).
108. D. K. Derewacz, B. C. Covington, **J. A. McLean**, B. O. Bachmann, Mapping Microbial Response Metabolomes for Induced Natural Product Discovery, *ACS Chemical Biology* 10, 1998-2006 (2015).
107. J. C. May and **J. A. McLean**, A Uniform Field Ion Mobility Study of Melittin and Implications of Low-Field Mobility for Resolving Fine Cross-Sectional Detail in Peptide and Protein Experiments, *Proteomics* 15, 2862-2871 (2015).
106. S. M. Stow, T. M. Onifer, J. G. Forsythe, H. Nefzger, N. W. Kwiecien, J. C. May, **J. A. McLean**, D. M. Hercules, Structural Characterization of Methylenedianiline Regioisomers by Ion Mobility-Mass Spectrometry, Tandem Mass Spectrometry, and Computational Strategies: II. Electrospray Spectra of 3-Ring and 4-Ring Isomers, *Analytical Chemistry* 87, 6288-6296 (2015).
105. C. R. Goodwin, B. C. Covington, D. K. Derewacz, C. R. McNeese, J. P. Wikswow, **J. A. McLean**, B. O. Bachmann, Structuring Microbial Metabolic Responses to Multiplexed Stimuli Via Self-Organizing Metabolomics Maps, *Chemistry and Biology* 22, 661-670 (2015).
104. A. P. Gies, S. M. Stow, **J. A. McLean**, D. M. Hercules, MALDI-TOF/TOF CID Study of Poly(1,4-dihydroxybenzene terephthalate) Fragmentation Reactions, *Polymer* 64, 100-111 (2015).
103. L. Xu, M. Kliman, J. G. Forsythe, Z. Korade, A. B. Hmelo, N. A. Porter, **J. A. McLean**, Profiling and Imaging Ion Mobility-Mass Spectrometry Analysis of Cholesterol and 7-Dehydrocholesterol in Cells Via Sputtered Silver MALDI, *Journal of the American Society of Mass Spectrometry* 26, 924-933 (2015).
102. N. M. Lareau, J. C. May, **J. A. McLean**, Non-derivatized Glycan Analysis by Reverse Phase Liquid Chromatography and Ion Mobility-Mass Spectrometry, *Analyst* 140, 3295-3307 (2015).
- Featured on Cover page**
101. C. C. Marasco, J. R. Enders, K. T. Seale, **J. A. McLean**, J. P. Wikswow, Real-Time Cellular Exometabolome Analysis with Microfluidic-Mass Spectrometry Platform, *PLOS One* 10, e0117685 (2015).
100. K. K. Kumar, C. R. Goodwin, M. A. Uhouse, J. Bornhorst, T. Schwerdtle, M. Aschner, **J. A. McLean**, A. B. Bowman, Untargeted metabolic profiling identifies interactions between Huntington's disease and neuronal manganese status, *Metallomics* 7, 363-370 (2015).
99. W. R. French, L. J. Zimmerman, B. Schilling, B. W. Gibson, C. A. Miller, R. R. Townsend, S. D. Sherrod, C. R. Goodwin, **J. A. McLean**, D. L. Tabb, Wavelet-Based Peak Detection and a New Charge Inference Procedure for MS/MS Implemented in ProteoWizard's msConvert, *Journal of Proteome Research* 14, 1299-1307 (2015).
98. J. C. May and **J. A. McLean**, Ion mobility-mass spectrometry: time-dispersive instrumentation, *Analytical Chemistry* 87, 1422-1436 (2015). **Featured on cover page.**
97. J. C. May, C. R. Goodwin, **J. A. McLean**, Ion mobility-mass spectrometry strategies for untargeted systems, synthetic, and chemical biology, *Current Opinions in Biotechnology* 31, 117-121 (2015).
96. C. R. Goodwin, S. D. Sherrod, C. C. Marasco, B. O. Bachmann, N. Schramm-Sapota, J. P. Wikswow, **J. A. McLean**, Phenotypic mapping of metabolic profiles using self-organizing maps of high-dimensional mass spectrometry data, *Analytical Chemistry* 86, 6563-6571 (2014).
95. J. A. Brown, S. D. Sherrod, C. R. Goodwin, B. M. Brewer, L. Yang, K. A. Garbett, D. Li, **J. A. McLean**, J. P. Wikswow, K. Mirnics, Metabolic response of developing neurons and astroglia to interleukin-6 challenge, *Journal of Neuroinflammation* 11:183 (2014).
94. S. M. Stow, C. R. Goodwin, M. Kliman, B. O. Bachmann, **J. A. McLean**, T. P. Lybrand, Distance geometry protocol to generate conformations of natural products to structurally interpret ion mobility-mass spectrometry collision cross sections, *Journal of Physical Chemistry B* 118(48), 13812-13820 (2014).
93. N. G. Hendricks, N. M. Lareau, **J. A. McLean**, R. R. Julien, Bond specific dissociation following excitation energy transfer for distance constraint determination in the gas phase, *Journal of the American Chemical Society* 136(38), 13363-13370 (2014).

92. K. M. Hines, B. R. Ballard, D. M. Marshall, **J. A. McLean**, Structural mass spectrometry of tissue extracts to distinguish cancerous and non-cancerous breast diseases, *Molecular Biosystems* 10, 2827-2837 (2014). **Featured on Cover page**
91. J. C. Evans, K. M. Hines, J. G. Forsythe, B. Erdogan, M. Shi, S. Hill, K. L. Rose, **J. A. McLean**, D. J. Webb, Phosphorylation of serine 106 in Asef2 regulates cell migration and adhesion turnover, *Journal of Proteome Research* 13, 3303-3313 (2014).
90. J. G. Forsythe, S. Stow, H. Nefzger, N. Kwiecien, J. C. May, **J. A. McLean**, D. M. Hercules, Structural characterization of methylenedianiline regioisomers by ion mobility and mass spectrometry I. Electrospray ionization of 2-ring isomers, *Analytical Chemistry* 86, 4362-4370 (2014).
89. J. C. May, C. R. Goodwin, N. M. Lareau, K. L. Leaptrot, C. B. Morris, R. Kurulugama, A. Mordehai, C. Klein, W. Barry, E. Darland, G. Overney, K. Imatani, G. Stafford, J. C. Fjeldsted, **J. A. McLean**, Conformational ordering of biomolecules in the gas-phase: nitrogen collision cross-sections measured on a prototype high resolution drift tube ion mobility-mass spectrometer, *Analytical Chemistry* 86, 2107-2116 (2014).
88. C. R. Lamberson, L. Xu, H. Muchalski, M. Shchepinov, J. R. Montenegro-Burke, **J. A. McLean**, C. Clarke, N. Porter, Unusual kinetic isotope effects of deuterium reinforced polyunsaturated fatty acids in tocopherol mediated free radical chain oxidations, *Journal of the American Chemical Society* 136, 838-841 (2014).
87. C. C. Marasco, C. R. Goodwin, K. T. Seale, D. Winder, N. Schramm-Sapya, **J. A. McLean**, J. P. Wikswo, Systems level view of cocaine addiction: the interconnect of immune and nervous systems, *Experimental Biology and Medicine* 239, 1433-1442 (2014).
86. D. K. Derewacz, C. R. Goodwin, C. R. McNees, **J. A. McLean**,\* B. O. Bachmann,\* Antimicrobial drug resistance affects broad changes in metabolomic phenotype in addition to secondary metabolism, *Proceedings of the National Academy of Sciences of the United States of America* 110(6), 2336-2341 (2013).
85. M. Shi, D. Majumdar, Y. Gao, B. M. Brewer, C. R. Goodwin, **J. A. McLean**, D. Li, D. J. Webb, Glia co-culture with neurons in microfluidic platforms promotes the formation and stabilization of synaptic contacts, *Lab on a Chip* 13, 3008-3021 (2013).
84. D. J. Alcendor, F. E. Block III, D. E. Cliffel, J. Daniels, K. L. J. Ellacott, C. R. Goodwin, L. H. Hofmeister, D. Li, D. A. Markov, J. C. May, L. J. McCawley, B. McLaughlin, **J. A. McLean**, K. D. Niswender, V. Pensabene, K. T. Seale, S. D. Sherrod, H.-J. Sung, D. L. Tabb, D. J. Webb, J. P. Wikswo, Neurovascular unit on a chip: implications for translational applications, *Stem Cell Research & Therapy* 4 (Suppl 1), S18, 1-5 (2013).
83. K. M. Hines, S. Ashfaq, J. M. Davidson, S. R. Opalenik, J. P. Wikswo, **J. A. McLean**, Biomolecular signatures of diabetic wound healing by structural mass spectrometry, *Analytical Chemistry* 85(7), 3651-3659 (2013).
82. J. C. May and **J. A. McLean**, The influence of drift gas composition on the separation mechanism in traveling wave ion mobility spectrometry: insight from electrodynamic simulations, *International Journal for Ion Mobility Spectrometry* 16, 85-94 (2013).
81. J. P. Wikswo, F. E. Block III, D. E. Cliffel, C. R. Goodwin, C. C. Marasco, D. A. Markov, D. L. McLean, **J. A. McLean**, J. R. McKenzie, R. S. Reiserer, P. C. Samson, D. K. Schaffer, K. T. Seale, S. D. Sherrod, Engineering challenges for instrumenting and controlling integrated organ-on-chip systems, *IEEE Transactions on Biomedical Engineering* 60(3), 682-690 (2013).
80. J. G. Forsythe, J. A. Broussard, J. L. Lawrie, M. Kliman, Y. Jiao, S. M. Weiss, D. J. Webb, **J. A. McLean**, Semitransparent Nanostructured Films for Imaging Mass Spectrometry and Optical Microscopy, *Analytical Chemistry* 84(24), 10665-10670 (2012).
79. K. M. Harkness, Y. Tang, A. Dass, J. Pan, N. Kothalawala, V. J. Reddy, D. E. Cliffel, B. Demeler, F. Stellacci, O. M. Bakr, **J. A. McLean**, Ag<sub>44</sub>(SR)<sub>30</sub><sup>4-</sup>: A silver-thiolate superatom complex, *Nanoscale* 4, 4269-4274 (2012).
78. K. M. Harkness, B. N. Turner, A. C. Agrawal, Y. Zhang, **J. A. McLean**, D. E. Cliffel, Biomimetic monolayer-protected gold nanoparticles for immunorecognition, *Nanoscale* 4, 3843-3851 (2012).
77. J. R. Enders, C. C. Marasco, J. P. Wikswo, **J. A. McLean**, A dual-column solid phase extraction strategy for online collection and preparation of continuously flowing effluent streams for mass spectrometry, *Analytical Chemistry* 84, 8467-8474 (2012).
76. A. Matusch, L. S. Fenn, C. Depboylu, M. Kliezt, S. Strohmer, **J. A. McLean**, J. S. Becker, Combined elemental and biomolecular mass spectrometry imaging for probing the inventory of tissue at a micrometer scale, *Analytical Chemistry* 84, 3170-3178 (2012).

75. C. R. Goodwin, L. S. Fenn, D. K. Derewacz, B. O. Bachmann, **J. A. McLean**, Structural mass spectrometry: Rapid methods for separation and analysis of peptide natural products, *Journal of Natural Products* 67, 48-53 (2012).
74. K. M. Harkness, A. Balinski, **J. A. McLean**, D. E. Cliffel, Nanoscale phase segregation of mixed thiolates on gold nanoparticles, *Angewandte Chemie International Edition* 50, 10554–10559 (2011). **Frontispiece article and “Very Important Paper” designation.**
73. M. Kliman, J. C. May, **J. A. McLean**, Lipid analysis and lipidomics by structurally selective ion mobility-mass spectrometry, *Biochimica et Biophysica Acta - Molecular and Cell Biology of Lipids* 1811, 935-945 (2011).
72. J. R. Enders, C. R. Goodwin, C. C. Marasco, K. T. Seale, J. P. Wikswo, **J. A. McLean**, Advanced structural mass spectrometry for systems biology: pulling the needles from haystacks, *Current Trends in Mass Spectrometry* (July) 18-23 (2011).
71. T. J. Kerr, R. L. Gant-Branum, and **J. A. McLean**, Multiplexed analysis of peptide functionality using lanthanide-based structural shift reagents, *International Journal of Mass Spectrometry* 307, 28-32 (2011). **Invited submission for special issue honoring H. Joachim-Dietze.**
70. L.S. Fenn and **J.A. McLean**, Structural resolution of carbohydrate positional and structural isomers based on gas-phase ion mobility-mass spectrometry, *Physical Chemistry & Chemical Physics* 13(6), 2196-2205 (2011).
69. K. Harkness, B. Hixson, L. S. Fenn, B. Turner, A. Rape, B. Huffman, C. A. Simpson, **J. A. McLean**, D. E. Cliffel, A structural mass spectrometry strategy for the relative quantitation of ligands on mixed monolayer-protected gold nanoparticles, *Analytical Chemistry* 82, 9268-9274 (2010).
68. J. R. Enders, A. Kole, B. Nguyen, S. Sundarapandian, C. C. Marasco, K. T. Seale, J. P. Wikswo, **J. A. McLean**, Monitoring real-time cellular response using a microfluidics-MALDI/nESI-ion mobility-mass spectrometry platform, *IET Systems Biology* 4(6), 416-427 (2010).
67. T. J. Kerr and **J. A. McLean**, Peptide quantitation using primary amine selective metal chelation labels for mass spectrometry, *Chemical Communications* 46, 5479-5481 (2010).
66. M. Kliman, N. Vijayakrishnan, L. Wang, J. T. Tapp, K. Broadie, **J. A. McLean**, Structural mass spectrometry analysis of lipid changes in a drosophila epilepsy model brain, *Molecular BioSystems* 6, 958-966 (2010). **Featured on the cover page.**
65. S. Sundarapandian, J. C. May, **J. A. McLean**, Dual source ion mobility-mass spectrometer for direct comparison of electrospray ionization and MALDI collision cross section measurements, *Analytical Chemistry* 82, 3247-3254 (2010).
64. K. Harkness, L. S. Fenn, D. E. Cliffel, **J. A. McLean**, Analysis of capping structural motifs on thiolate-protected gold nanoparticles by ion mobility-mass spectrometry, *Analytical Chemistry* 82, 3061-3066 (2010).
63. K. Harkness, D. E. Cliffel, **J. A. McLean**, Characterization of thiolate-protected gold nanoparticles by mass spectrometry, *Analyst* 135, 868-874 (2010).
62. R. L. Gant-Branum, J. A. Broussard, A. Mahsut, D. J. Webb, **J. A. McLean**, Identification of phosphorylation sites within the signaling adaptor APPL1 by mass spectrometry, *Journal of Proteome Research* 9, 1541-1548 (2010).
61. W. B. Ridenour, M. Kliman, **J. A. McLean**, R. M. Caprioli, Structural characterization of phospholipids and peptides directly from tissue sections by MALDI traveling-wave ion mobility-mass spectrometry, *Analytical Chemistry* 82, 1881-1889 (2010).
60. J. R. Enders and **J. A. McLean**, Chiral and structural analysis of biomolecules using mass spectrometry and ion mobility-mass spectrometry, *Chirality* 21, S253-S264 (2009).
59. **J. A. McLean**, The mass-mobility correlation redux: the conformational landscape of anhydrous biomolecules, *Journal of the American Society for Mass Spectrometry* 20, 1775-1781 (2009).
58. L. S. Fenn and **J. A. McLean**, Simultaneous glycoproteomics on the basis of structure using ion mobility-mass spectrometry, *Molecular BioSystems* 5, 1298-1302 (2009). **Featured on the cover page.**
57. R. L. Gant-Branum, T. J. Kerr, **J. A. McLean**, Labeling strategies in mass spectrometry-based protein quantitation, *Analyst* 134, 1525-1530 (2009).
56. V. V. Phelan, Y. Du, **J. A. McLean**, B. O. Bachmann, Adenylation enzyme discovery and characterization using  $\gamma$ - $^{18}\text{O}_4$ -ATP – pyrophosphate exchange, *Chemistry & Biology* 16, 473-478 (2009).

55. L. S. Fenn, M. Kliman, A. Mahsut, S. R. Zhao, and **J. A. McLean**, Characterizing ion mobility-mass spectrometry conformation space for the analysis of complex biological samples, *Analytical & Bioanalytical Chemistry* 394, 235-244 (2009).
54. L. S. Fenn and **J. A. McLean**, Enhanced carbohydrate structural selectivity in ion mobility-mass spectrometry analyses by boronic acid derivatization, *Chemical Communications* 43, 5505-5507 (2008).
53. A. P. Gies, M. Kliman, **J. A. McLean**, D. M. Hercules, Characterization of branching in aramid polymers studied by MALDI-ion mobility/mass spectrometry, *Macromolecules* 41, 8299-8301 (2008).
52. L. S. Fenn and **J. A. McLean**, Biomolecular structural separations by ion mobility-mass spectrometry, *Analytical & Bioanalytical Chemistry* 391, 905-909 (2008).
51. **J. A. McLean**, W. B. Ridenour, R. M. Caprioli, Profiling and imaging of tissues by imaging ion mobility-mass spectrometry, *Journal of Mass Spectrometry* 42, 1099-1105 (2007).
50. J. R. McLean, **J. A. McLean**, Z. Wu, C. S. Becker, L. Perez, C. N. Pace, J. M. Scholtz, D. H. Russell, Factors that influence helical preferences for singly-charged gas-phase peptide ions: the effects of multiple potential charge-carrying sites, *Journal of Physical Chemistry B* 114, 809-816 (2010).
49. Y. Huang, J. A. Marini, **J. A. McLean**, S. E. Tichy, D. H. Russell, A mechanistic study of the H/D exchange reactions of protonated arginine and arginine-containing di- and tri-peptides, *Journal of the American Society for Mass Spectrometry* 20, 2049-2057 (2009).
48. L. Tao, J. R. McLean, **J. A. McLean**, D. H. Russell, A collision cross-section database of singly-charged peptide ions, *Journal of the American Society for Mass Spectrometry* 18, 1232-1238 (2007).
47. S. D. Sherrod, E. T. Castellana, **J. A. McLean**, D. H. Russell, Spatially dynamic laser patterning using advanced optics for imaging matrix assisted laser desorption/ionization (MALDI) mass spectrometry, *International Journal of Mass Spectrometry* 262, 256-262 (2007).
46. **J. A. McLean**, K. A. Stumpo, D. H. Russell, Size-selected (2-10 nm) gold nanoparticles for matrix assisted laser desorption ionization of peptides, *Journal of the American Chemical Society* 127, 5304-5305 (2005).
45. **J. A. McLean**, B. T. Ruotolo, K. J. Gillig, D. H. Russell, Ion mobility-mass spectrometry: a new paradigm for proteomics, *International Journal of Mass Spectrometry* 240, 301-315 (2005) invited.
44. **J. A. McLean** and D. H. Russell, New vistas for mass spectrometry based proteomics and biotechnology: rapid two-dimensional separations using gas-phase electrophoresis/ion mobility-mass spectrometry, *American Biotechnology Laboratory* 23, 18-21 (2005) invited.
43. **J. A. McLean** and D. H. Russell, Multiplex data acquisition based on analyte dispersion in two dimensions: more signal more of the time, *International Journal of Ion Mobility Spectrometry* 8, 66-71 (2005).
42. **J. A. McLean**, J. A. Schultz, M. V. Ugarov, T. F. Egan, and D. H. Russell, Ultrafast two-dimensional ion separations based on ion mobility-time-of-flight mass spectrometry: From biotechnology to nanotechnology, *Brazilian Journal of Vacuum Applications* 24, 3-9 (2005) invited.
41. B. T. Ruotolo, **J. A. McLean**, K. J. Gillig, and D. H. Russell, The influence and utility of varying field strength for the separation of tryptic peptides by ion mobility-mass spectrometry, *Journal of the American Society for Mass Spectrometry* 16, 158-165 (2005).
40. B. T. Ruotolo, **J. A. McLean**, K. J. Gillig, and D. H. Russell, Peak capacity of ion mobility mass spectrometry: The utility of varying drift gas polarizability for the separation of tryptic peptides, *Journal of Mass Spectrometry* 39, 361-367 (2004).
39. C. S. Westphal, **J. A. McLean**, S. J. Hakspiel, W. E. Jackson, D. E. McClain, and A. Montaser, Determination of Depleted Uranium in Urine via Isotope Ratio Measurements Using Large-Bore Direct Injection High Efficiency Nebulizer-Inductively Coupled Plasma Mass Spectrometry, *Applied Spectroscopy* 58, 1044-1050 (2004).
38. **J. A. McLean** and D. H. Russell, Sub-Femtomole Peptide Detection in Ion Mobility-Time-of-Flight Mass Spectrometry Measurements, *Journal of Proteome Research* 2, 427-430 (2003).
37. **J. A. McLean**, W. K. Russell, and D. H. Russell, A High Repetition Rate (1 kHz) Micro-Crystal Laser for High Throughput Atmospheric Pressure MALDI-Quadrupole-Time-of-Flight Mass Spectrometry, *Analytical Chemistry* 75, 648-654 (2003).

36. J. M. Koomen, B. T. Ruotolo, K. J. Gillig, **J. A. McLean**, D. H. Russell, M. Kang, K. R. Dunbar, K. Fuhrer, M. Gonin, and J. A. Schultz, Oligonucleotide Analysis with MALDI-Ion Mobility-TOFMS, *Analytical and Bioanalytical Chemistry* 373, 612-617 (2002).
35. S. F. Boulyga, J. L. Matusevich, V. P. Mironov, V. P. Kudrjashov, L. Halicz, I. Segal, **J. A. McLean**, A. Montaser, and J. S. Becker, Determination of  $^{236}\text{U}/^{238}\text{U}$  Isotope Ratio in Contaminated Environmental Samples Using Different ICP-MS Instruments, *Journal of Analytical Atomic Spectroscopy* 17, 958-964 (2002).
34. S-A. E. O'Brien, J. A. McLean, B. W. Acon, B. J. Eshelman, W. F. Bauer, and A. Montaser, Determination of Memory-Prone Elements Using Direct Injection High Efficiency Nebulizer Inductively Coupled Plasma Mass Spectrometry, *Applied Spectroscopy* 56, 1006-1012 (2002).
33. C. S. Westphal, J. A. McLean, B. W. Acon, L. A. Allen, and A. Montaser, Axial Inductively Coupled Plasma Time-of-Flight Mass Spectrometry Using Direct Liquid Sample Introduction, *Journal of Analytical Atomic Spectroscopy* 17, 669-675 (2002).
32. B. W. Acon, J. A. McLean, and A. Montaser, A Direct Injection High Efficiency Nebulizer Interface for Microbore High-Performance Liquid Chromatography-Inductively Coupled Plasma Mass Spectrometry, *Journal of Analytical Atomic Spectroscopy* 16, 852-857 (2001).
31. J. A. McLean, J. S. Becker, S. Boulyga, H.-J. Dietze, and A. Montaser, Ultratrace and Isotopic Analysis of Long-Lived Radionuclides by Double-Focusing Sector Field Inductively Coupled Plasma Mass Spectrometry Using Direct Liquid Sample Introduction, *International Journal of Mass Spectrometry* 208, 193-204 (2001).
30. M. G. Minnich, **J. A. McLean**, and A. Montaser, Rapid Elucidation of Spatial Aerosol Characteristics of a Direct Injection High Efficiency Nebulizer via Optical Patternation, *Spectrochimica Acta* 56B, 1113-1126 (2001).
29. **J. A. McLean**, M. G. Minnich, A. Montaser, J. Su, and W. Lai, Optical Patternation: A Technique for Three Dimensional Aerosol Diagnostics, *Analytical Chemistry* 72, 4796-4804 (2000).
28. B. W. Acon, **J. A. McLean**, and A. Montaser, A Large Bore-Direct Injection High Efficiency Nebulizer for Inductively Coupled Plasma Spectrometry, *Analytical Chemistry* 72, 1885-1893 (2000).
27. **J. A. McLean**, B. W. Acon, A. Montaser, J. Singh, D. E. Pritchard, and S. R. Patierno, Determination of Chromium in Human Lung Fibroblast Cells Using a Large-Bore Direct Injection High Efficiency Nebulizer with Inductively Coupled Plasma Mass Spectrometry, *Applied Spectroscopy* 54, 659-663 (2000).
26. J. Singh, D. E. Pritchard, D. L. Carlisle, **J. A. McLean**, A. Montaser, J. M. Orenstein, and S. R. Patierno, Internalization of Carcinogenic Lead Chromate Particles by Cultured Normal Human Lung Epithelial Cells: Formation of Intracellular Lead-Inclusion Bodies and Induction of Apoptosis, *Toxicology and Applied Pharmacology* 161, 240-248 (1999).
25. **J. A. McLean**, R. A. Huff, and A. Montaser, Fundamental Aerosol Properties in Helium Using a Direct Injection Nebulizer, *Applied Spectroscopy* 53, 1331-1340 (1999).
24. J. S. Becker, H.-J. Dietze, **J. A. McLean**, and A. Montaser, Ultratrace and Isotope Analysis of Long-Lived Radionuclides by Inductively Coupled Plasma Quadrupole Mass Spectrometry Using a Direct Injection High Efficiency Nebulizer, *Analytical Chemistry* 71, 3077-3084 (1999).
23. J. Singh, **J. A. McLean**, D. E. Pritchard, A. Montaser, and S. R. Patierno, Sensitive Quantitation of Chromium-DNA Adducts by Inductively Coupled Plasma Mass Spectrometry with a Direct Injection High Efficiency Nebulizer, *Toxicological Sciences* 46, 260-265 (1998).
22. **J. A. McLean**, M. G. Minnich, L. A. Iacone, H. Liu, and A. Montaser, Nebulizer Diagnostics: Fundamental Parameters, Challenges, and Techniques on the Horizon, *Journal of Analytical Atomic Spectroscopy* 13, 829-842 (1998).
21. **J. A. McLean**, H. Zhang, and A. Montaser, A Direct Injection High-Efficiency Nebulizer for Inductively Coupled Plasma Mass Spectrometry, *Analytical Chemistry* 70, 1012-1020 (1998).

#### PUBLICATIONS – CHAPTERS AND REPORTS (PEER-REVIEWED)

20. B. S. Rose, K. L. Leaptrot, R. A. Harris, S. D. Sherrod, J. C. May, **J. A. McLean**, High confidence shotgun lipidomics using structurally selective ion mobility-mass spectrometry, in *Shotgun Lipidomics: Methods and Protocols* -

*Methods in Molecular Biology*, F.-F. Hsu Ed., Springer Nature Humana Press (2021) pages 11-37. [Book Chapter, reviewed].

19. E. Zlibut, K. L. Leaptrot, J. C. May, **J. A. McLean**, Ion mobility-mass spectrometry in metabolomics studies, in *Ion Mobility – Mass Spectrometry: Fundamentals and Applications in the series New Developments in Mass Spectrometry* (volume 11), Chapter 12, A. Ashcroft and F. Sobott, Eds., Royal Society of Chemistry (2021) pages 307-335. [Book chapter, reviewed]
18. C. B. Morris, J. C. Poland, J. C. May, **J. A. McLean**, Fundamentals of ion mobility-mass spectrometry for the analysis of biomolecules, Invited chapter in *Ion Mobility Mass Spectrometry – Methods and Protocols in the Methods in Molecular Biology*, G. Astarita and G. Paglia, Eds., Springer Nature, pages 1-31 (2020). [Book chapter, reviewed]
17. S. T. Phillips, J. N. Dodds, J. C. May, **J. A. McLean**, Isomeric and conformational analysis of small drug and drug-like molecules by ion mobility-mass spectrometry (IM-MS), Invited chapter in *Bioinformatics and Drug Delivery: Methods and Protocols*, 3rd Ed. in the *Methods in Molecular Biology Series*, Richard S. Larson and Tudor Oprea, Eds., Springer, pages 161-178 (2019). [Book chapter, reviewed]
16. National Science Foundation Report (2018). *Framing the Role of Big Data and Modern Data Science in Chemistry*, Washington DC, J. Hachmann, T. Windus, and **J. A. McLean**. 39 pages.  
*The above is a report following the invitation of the NSF Director of the Chemistry Division to conduct a workshop and working group on the role of data science in Chemistry. This report was submitted to the US Congress as part of the NSF request for budget in April of 2018.*
15. J. N. Dodds, J. C. May, **J. A. McLean**, Chiral analysis in mass spectrometry: applications of chromatography and ion mobility, Invited chapter in *Chiral Analysis: Advances in Spectroscopy, Chromatography, and Emerging Methods*, 2nd Ed., Prasad Polavarapu, Ed., Elsevier, pages 631-646 (2018). [Book chapter, reviewed]
14. K. L. Leaptrot, T. Khayamian, M. T. Jafari, **J. A. McLean**, Ion mobility spectrometry and ion mobility-mass spectrometry, Invited chapter in *Mass Spectrometry with Inductively Coupled Plasmas*, A. Montaser, Ed., John Wiley & Sons (to be published 2019). Accepted – in press.
13. L. W. Sumner, M. Styczynski, **J. A. McLean**, O. Fiehn, G. Jander, J. Liao, S. Sumner, P. Britz-McKibbin, R. Welti, A. D. Jones, P. C. Dorrestein, D. Bearden, R. Kaddurah-Daouk, Introducing the USA Plant, Algae and Microbial Metabolomics Research Coordination Network (PAMM-NET), *Metabolomics* 11, 3-5 (2015).
12. S. M. Stow, N. M. Lareau, K. M. Hines, C. R. McNees, C. R. Goodwin, B. O. Bachmann, and **J. A. McLean**, “Structural separations for natural product characterization by ion mobility-mass spectrometry: Fundamental theory to emerging applications,” Chapter 10 in *Natural Products Analysis: Instrumentation, Methods, and Applications*, V. Havlicek and J. Spizek, Eds., John Wiley & Sons, pages 397-432 (2014). [Book chapter, reviewed]
11. National Research Council Report (2012). *Assessment of Agent Monitoring Strategies for the Blue Grass and Pueblo Chemical Agent Destruction Pilot Plants*, Washington, D.C., National Academy Press. C. E. Kolb (Chair), J. L. Beauchamp, R. A. Beaudet, E. C. Bishop, H. Chen, A. T. Cooper, F. M. Fernandez, R. D. Gibbons, **J. A. McLean**, M. D. Morris, D. W. Murphy, C. S. Reese, L. R. Rhomberg, A. A. Viggiano. 193 Pages.  
*The above is a National Research Council report (National Academy of Sciences reviewed) written by the committee as indicated in alphabetical order with the exception of the committee chair. This was significantly reviewed by members of the National Academy of Sciences.* [Report, reviewed]
10. **J. A. McLean**, B. T. Ruotolo, Review of the 24th Sanibel Conference on Mass Spectrometry: Mass Spectrometry Technologies for Structural Biology, *Journal of the American Society for Mass Spectrometry* 23, 2208-2212 (2012). [Report, reviewed]
9. K. M. Hines, J. R. Enders, and **J. A. McLean**, “Multidimensional separations by ion mobility-mass spectrometry,” in the *Encyclopedia of Analytical Chemistry*, Robert Myers and David C. Muddiman, Eds., John Wiley & Sons (2012). [Book Chapter, reviewed]
8. J. C. May, C. R. Goodwin, and **J. A. McLean**, “Gas-phase ion mobility-mass spectrometry and tandem IM-MS strategies for metabolism studies and metabolomics,” in the *Encyclopedia of Drug Metabolism & Drug Interactions*, Alexander Lyubimov, Ed., John Wiley & Sons, Hoboken, New Jersey, pages 1-29 (2013). [Book Chapter, reviewed]
7. L. S. Fenn and **J. A. McLean**, “Structural separations by ion mobility-mass spectrometry for glycomics and glycoproteomics,” in *Mass Spectrometry of Glycoproteins: Methods and Protocols*, J. J. Kohler and S. M. Patrie, Eds., Humana Press, pages 171-194 (2013). [Book Chapter, reviewed]

6. J. R. Enders, M. Kliman, S. Sundarapandian, and **J. A. McLean**, "Peptide and protein analysis using ion mobility-mass spectrometry," in *Peptide and Protein Mass Spectrometry in Drug Discovery*, M. L. Gross, B. Pramanik, G. Chen Eds., J. Wiley & Sons, Hoboken, New Jersey, pages 139-174 (2011). [Book Chapter, reviewed]
5. J. C. May and **J. A. McLean**, "The conformational landscape of biomolecules in ion mobility-mass spectrometry," in *Ion Mobility Spectrometry: Theory and Applications*, Charles L. Wilkins and Sarah Trimpin Eds., CRC Press, Boca Raton, Florida, pages 321-336 (2010). [Book Chapter, reviewed]
4. **J. A. McLean**, L. S. Fenn, and J. R. Enders, "Structurally Selective Imaging Ion Mobility-Mass Spectrometry," in *Mass Spectrometric Imaging: Principles and Protocols*, Stanislav S. Rubakhin and Jonathan V. Sweedler, Eds., Humana Press, New York, pages 363-383 (2010). [Book Chapter, reviewed]
3. **J. A. McLean**, J. A. Schultz, and A. S. Woods, "Ion Mobility-Mass Spectrometry" in *Electrospray and MALDI Mass Spectrometry: Fundamentals, Instrumentation, Practicabilities, and Biological Applications*, Richard B. Cole, Ed., John Wiley & Sons, Hoboken, New Jersey, pages 411-439 (2010). [Book Chapter, reviewed]
2. A. Montaser, **J.A. McLean**, H. Liu, and J-M. Mermet, "Introduction to ICP Spectrometries for Elemental Analysis", in *Inductively Coupled Plasma Mass Spectrometry*, A. Montaser, Ed., Wiley-VCH, New York , pages 1-31 (1998). [Book Chapter, reviewed]
1. A. Montaser, M. G. Minnich, **J. A. McLean**, H. Liu, J. A. Caruso, and C. W. McLeod "Sample Introduction in ICPMS", in *Inductively Coupled Plasma Mass Spectrometry*, A. Montaser, Ed., Wiley-VCH, New York, pages 83-264 (1998). [Book Chapter, reviewed]

#### PATENTS AND INTELLECTUAL PROPERTY

30. J.C. May and **J.A. McLean**, Resolution calibrant compositions and methods for ion mobility spectrometry, US Provisional Patent Application 63/897,531 filed October 10, 2025 (Atty Docket No. 093386-0096-US01).
29. K. L. Leaptrot, J. C. May, **J. A. McLean**, Methods and systems for ion mobility and mass analysis, U.S. Patent #11,264,227 (March 1<sup>st</sup>, 2022).
28. K. L. Leaptrot, J. C. May, and **J. A. McLean**, Methods and systems for ion mobility and mass analysis. World Patent Application (January 3, 2019).
27. J. P. Wikswow, D. E. Cliffel, D. A. Markov, **J. A. McLean**, L. J. McCawley, P. C. Samson, R. S. Reiserer, F. E. Block, J. R. McKenzie, Integrated organ-on-chip systems and applications of the same, U.S. Patent #10,078,075 (September 18, 2018).
27. J. P. Wikswow, D. E. Cliffel, D. A. Markov, **J. A. McLean**, L. J. McCawley, P. C. Samson, R. S. Reiserer, F. E. Block, J. R. McKenzie, Integrated organ-on-chip systems and applications of the same, U.S. Patent #10,444,223 (October 15, 2019).
26. J. P. Wikswow, D. E. Cliffel, D. A. Markov, **J. A. McLean**, L. J. McCawley, P. C. Samson, R. S. Reiserer, F. E. Block, J. R. McKenzie, Integrated organ-on-chip systems and applications of the same, U.S. Patent Application # 20190064144 (February 28, 2019).
25. R.M. Caprioli, J.P. Wikswow, **J.A. McLean**, E.P. Skaar, and J.L. Norris, High-throughput, mutiomics approach to determine and validate de novo global mechanisms of action for drugs and toxins, US Patent No. 10,607,721 (March 31, 2020).
24. R. M. Caprioli, J. L. Norris, J. P. Wikswow, **J. A. McLean**, E. P. Skaar, Multi-omics analytical platform for rapid evaluation of molecular phenotypes, U.S. Provisional Patent (Appl. #62/221,657, September 22, 2015).
23. J. G. Forsythe, P. Cristov, P. Portonovo, **J. A. McLean**, Molecular strategies for enhanced nanostructure-initiator mass spectrometry, U.S. Provisional Patent (Appl. #61/831,818, June 6, 2013; Appl. #62/166,936, May 27, 2015).
22. J. P. Wikswow, D. E. Cliffel, D. A. Markov, **J. A. McLean**, L. J. McCawley, P. C. Samson, R. S. Reiserer, F. E. Block, J. R. McKenzie, Integrated organ-on-chip systems and applications of the same, International patent #WO 2013/086505 A1 (Designated states: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW) (June 13, 2013).

21. J. P. Wikswow, P. C. Samson, F. E. Block III, R. S. Reiserer, K. K. Parker, **J. A. McLean**, L. J. McCawley, D. Markov, D. Levner, D. E. Ingber, G. A. Hamilton, J. A. Goss, R. Cunningham, D. E. Cliffler, J. R. McKenzie, A. Bahinski, C. D. Hinojosa, Integrated human organ-on-chip microphysiological systems, #WO 2013/086486 A1 (Designated states: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW) (June 13, 2013).
20. J. P. Wikswow, P. C. Samson, R. S. Reiserer, K. Parker, **J. A. McLean**, L. J. McCawley, D. Markov, D. Levner, D. E. Ingber, G. Hamilton, J. A. Goss, R. Cunningham, D. E. Cliffler, A. Bahinski, Integrated human organ-on-a-chip microphysiological systems, U.S. Patent No. 9,725,687 (August 8, 2017)
19. J. P. Wikswow, D. Markov, L. J. McCawley, **J. A. McLean**, D. E. Cliffler, R. S. Reiserer, P. C. Samson, Perfusion controller, microclinical analyzer and applications of the same, U.S. Patent Application (Provisional Appl. #615691145, December 9, 2011; Conversion Appl. #12/68723, December 10, 2012).
18. J. G. Forsythe, J. Broussard, J. Lawrie, M. Kliman, Y. Jiao, S. M. Weiss, D. J. Webb, **J. A. McLean**, Semi-transparent nanostructured films for mass spectrometry and optical microscopy of chemical and biological samples, Invention Disclosure (#12079, October 10, 2011).
17. J. R. Enders, **J. A. McLean**, J. P. Wikswow, C. C. Marasco, A highly sample conservative online liquid chromatography valve arrangement for the processing and analysis of temporally dynamic complex samples by mass spectrometry, Invention Disclosure (April 22, 2011).
16. J. P. Wikswow, A. Zijlstra, and **J. A. McLean**, A method and apparatus for accumulating and collecting biological signaling molecules, U.S. Provisional Patent (Appl. # 61490972, May 27, 2011).
15. **J. A. McLean**, A Universal Absolute Quantitation Strategy for Chemical Biology: Metal AQUA, Invention disclosure (January 3, 2007).
14. **J. A. McLean**, D. H. Russell, T. F. Egan, M. V. Ugarov, and J. A. Schultz, Multiplex Data Acquisition Modes for Ion Mobility-Mass Spectrometry, U.S. patent No. 7,745,780 (June 29, 2010).
13. **J. A. McLean**, D. H. Russell, T. F. Egan, M. V. Ugarov, and J. A. Schultz, Multiplex Data Acquisition Modes for Ion Mobility-Mass Spectrometry, U.S. patent No. 7,388,197 (June 17, 2008).
12. **J. A. McLean**, D. H. Russell, T. F. Egan, M. V. Ugarov, and J. A. Schultz, Multiplex data acquisition modes for ion mobility-mass spectrometry, International patent #WO 2006/014984 A1 (Designated states: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW) (February 9, 2006).
11. **J. A. McLean**, D. H. Russell, T. F. Egan, M. V. Ugarov, and J. A. Schultz, Multiplex Data Acquisition Modes for Ion Mobility-Mass Spectrometry/Modes d'Acquisition de Donnees de Multiplexage pour une Spectrometrie de Masse de la Mobilite des Ions, Canadian patent No. CA 2,574,965 (National entry: January 24, 2007).
10. **J. A. McLean** and D. H. Russell, Advanced Optics for Rapidly Patterned Laser Profiles in Analytical Mass Spectrometry, U.S. patent No. 7,282,706 (October 16, 2007).
9. **J. A. McLean** and D. H. Russell, Advanced optics for rapidly patterned laser profiles in analytical mass spectrometry, International patent #WO 2005/079360 (Designated countries: AT, BE, BG, CH, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR)(September 1, 2005).
8. **J. A. McLean** and D. H. Russell, Advanced Optics for Rapidly Patterned Laser Profiles in Analytical Mass Spectrometry/Optique Avancee Pour Profiles de Lasers Configures Rapidement en Spectrometrie Analytique, Canadian patent No. CA2556187 (National Entry: August 11, 2006)
7. **J. A. McLean**, D. H. Russell, and J. A. Schultz, Gas-Phase Purification of Biomolecules by Ion Mobility for Patterning Microarrays and Protein Crystal Growth, U.S. patent No. 7,081,617 (July 25, 2006).
6. **J. A. McLean**, D. H. Russell, and J. A. Schultz, Gas-phase purification of biomolecules by ion mobility for patterning microarrays and protein crystal growth, International patent #WO2005/069961 A2 (Designated states: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX,

NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW) (August 4, 2005).

5. **J. A. McLean**, D. H. Russell, and J. A. Schultz, Gas-Phase Purification of Biomolecules by Ion Mobility for Patterning Microarrays and Protein Crystal Growth/Purification de Bio-molécules Dans le Phase Gazeuse par Mobilité D'ions Afin de Structurer des Micro-Réseaux et de Promouvoir la Croissance de Cristaux de Protéines, Canadian patent No. CA 2,553,834 (National entry: July 18, 2006).
4. A. Montaser, **J. A. McLean**, and Jerold M. Kacsir, A Direct Injection High Efficiency Nebulizer for Atomic Spectrometry/Nebuliseur à Injection Directe Haute Efficacité Destinée à la Spectrométrie Analytique, Canadian patent No. CA 2,316,825 (National Entry: June 29, 2000).
3. A. Montaser, **J. A. McLean**, and Jerold M. Kacsir, A Direct Injection High Efficiency Nebulizer for Atomic Spectrometry, European patent No. WO9934400 (Designated countries: AT, BE, CH, CY, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE)(July 8, 1999).
2. A. Montaser, **J. A. McLean**, and J. M. Kacsir, Direct Injection High Efficiency Nebulizer for Analytical Spectrometry, Australian patent No. AU-B2 746155 (April 18, 2002).
1. A. Montaser, **J. A. McLean**, and J. M. Kacsir, A Direct Injection High Efficiency Nebulizer for Atomic Spectrometry, U.S. patent No. 6,166,379 (December 26, 2000).

#### INVITED PRESENTATIONS

222. **J.A. McLean**, *Mapping your life and everything else – the promise of high dimensional phenomics*, 35th International Symposium on Chromatography, Prague, Czech Republic (September 2026). **Keynote Lecture.**
221. **J.A. McLean**, *Mapping your life and everything else – the promise of high dimensional phenomics*, 75 Years of Ion Mobility/Mass Spectrometry: From Carbon Clusters to Single-Cell Proteomics, American Chemical Society National Meeting, Atlanta, GA (March 2026).
220. **J.A. McLean**, *Mapping your life and everything else – the promise of high dimensional phenomics*, Advanced MS Technologies and Applications, Advanced Imaging Mass Spectrometry (AIMS) Workshop, Vanderbilt University, Nashville, TN (May 2025).
219. **J.A. McLean**, *Mapping your life and everything else – the promise of high dimensional phenomics*, University of Alberta, Department of Chemistry, Edmonton, Alberta, Canada (October 2025). **Gilead Analytical Science Lecture**
218. **J.A. McLean**, *Mapping your life and everything else – the promise of high dimensional phenomics*, Gilead Sciences, Edmonton, Alberta, Canada (October 2025).
217. **J.A. McLean**, *Mapping your life and everything else – the promise of high dimensional phenomics*, Analytica USA, Columbus, OH (September 2025). **Plenary lecture.**
216. **J.A. McLean**, *Strategies for enantiomer separations with high resolving power ion mobility-mass spectrometry*, Analytical Science Summit, SelectScience (September 2025).
215. **J.A. McLean**, *Strategies for enantiomer separations with high resolving power ion mobility-mass spectrometry*, Drug Discovery News, on-line lecture (July 2025).
214. **J.A. McLean**, *Mapping your life and everything else – the promise of high dimensional phenomics*, Boston University, Boston, MA (April 2025).
213. **J.A. McLean**, *Mapping your life and everything else: The promise of high dimensional phenomics*, Herty Medalist Undergraduate Research Symposium, Georgia Gwinnett College, Lawrenceville, GA (November 15, 2024). **Plenary Lecture**
212. **J.A. McLean**, *Mapping your life and everything else: The promise of high dimensional phenomics*, 90th Annual Herty Medalist Reception, Atlanta, GA (November 14, 2024). **Plenary Lecture**
211. **J.A. McLean** and S.D. Sherrod, *Mass Spectrometry Capabilities of the Center for Innovative Technology at Vanderbilt: From Intact Proteins to Small Molecule Omics*, Vanderbilt Ingram Cancer Center, Nashville, TN (October 28, 2024).
210. **J.A. McLean**, *Mapping your life and everything else: The promise of high dimensional phenomics*, 75th Southeastern Regional Meeting of the American Chemical Society (SERMACS), Atlanta, GA (October 24, 2024). **Special invited symposium for historical Herty medal recipients.**

209. **J.A. McLean** and S.J. Valentine, Computational and experimental strategies for large datasets: Fundamental considerations and advanced techniques, 2nd International School on Mass Spectrometry, Erice, Italy (September 9-14, 2024).
208. **J.A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, West Coast Metabolomics Center, University of California - Davis, Davis, CA (May 15, 2024).
207. **J.A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, University of California - Davis, Davis, CA (April 23, 2024).
206. **J.A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, Michigan State University, East Lansing, MI (March 29, 2024).
205. **J.A. McLean**, *Accelerating phenotyping with structural mass spectrometry in drug discovery and synthetic biology*, Analytical Science Summit 2024 – Select Science, United Kingdom (March 19, 2024).
204. **J.A. McLean**, *Advanced molecular phenomics in systems, synthetic, and chemical biology*, Eastern Analytical Symposium & Exposition, Princeton, NJ (November 14<sup>th</sup>, 2023). **Award Lecture for Outstanding Achievements in Mass Spectrometry.**
203. **J.A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, Ohio Mass Spectrometry Symposium – The Ohio State University, Columbus, OH (October 18<sup>th</sup>, 2023). **Keynote lecture.**
202. **J. A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, 51<sup>st</sup> International Symposium on High Performance Liquid Phase Separations and Related Techniques, Düsseldorf, Germany (June 18<sup>th</sup>, 2023). **Plenary lecture.**
201. **J. A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, Mass Spectrometry and Advances in the Clinical Laboratory, Monterey, CA (April 5<sup>th</sup>, 2023). **Plenary lecture.**
200. **J.A. McLean**, *Advanced phenomics with structural mass spectrometry*, 34th International Workshop on Tandem Mass Spectrometry, Lake Louise, Alberta, Canada (November 30th-December 3rd, 2022).
199. **J.A. McLean**, *Ion mobility-mass spectrometry: Fundamentals and instrumentation for structural separations*, LCGC Virtual Mass Spectrometry Symposium (November 8th, 2022).
198. **J.A. McLean**, *Accelerating phenotyping in drug discovery and synthetic biology with imaging ion mobility-mass spectrometry*, American Chemical Society Fall 2022 National Meeting & Exposition, Chicago, IL (August 21-25th, 2022).
197. **J.A. McLean**, *Refining the landscape of high dimensional molecular phenomics with high resolving power ion mobility-mass spectrometry*, American Chemical Society Fall 2022 National Meeting & Exposition, Chicago, IL (August 21-25th, 2022).
196. **J.A. McLean**, *Lipidomics data dimensions and biological interpretation*, Gordon Research Conference – Lipidomics and Decoding Life: From the Technology and Biology Landscapes to Clinical Adaptation, Newry, ME (August 7-12, 2022).
195. **J. A. McLean**, *High-dimensional molecular phenomics in systems, synthetic, and chemical biology*, the XXVII National Congress of the Italian Chemical Society, Italian Mass Spectrometry Division (September 15<sup>th</sup>, 2021). **Keynote lecture.**
194. **J. A. McLean**, *Mapping your life and everything else – the promise of high dimensional phenomics*, 82<sup>nd</sup> Annual Summer Conference of The New England Association of Chemistry Teachers (NEACT), virtual event (August 2, 2021). **Plenary lecture.**
193. **J. A. McLean**, *High dimensional molecular phenomics in systems, synthetic, and chemical biology: mapping your life and everything else*, University of Tennessee, Knoxville, TN (August 19, 2021).
192. **J. A. McLean**, *High dimensional molecular phenomics in systems, synthetic, and chemical biology: peering into the unknown*, ACS Publications Symposium – Innovations in measurement science, virtual event (June 22-25, 2021). **Keynote lecture.**
191. **J. A. McLean**, *Molecular Phenomics – Metabolomic and Lipidomics*, Indiana University–Purdue University Indianapolis, Indianapolis, IN (April 6, 2021).
190. **J. A. McLean**, *High-dimensional molecular phenomics and lipidomics in systems, synthetic, and chemical biology*, iSLS 9 – 9th International Singapore Lipid Symposium: Clinical Mass Spectrometry, Singapore (March 1-5, 2021).

189. **J. A. McLean**, *Mapping biology at high resolution: molecular phenomics in systems, synthetic, and chemical biology*, Select Science Virtual Summit, Bath UK (May 13<sup>th</sup>, 2021).
188. **J. A. McLean**, *High-dimensional molecular phenomics: Mapping your life and everything else*, Select Science Virtual Analytical Summit, Bath, UK (March 2-4, 2021).
187. **J. A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, National Meeting of the American Association of Clinical Chemistry (December 14th, 2020).
186. **J. A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, Mass Spectrometry & Advances in the Clinical Laboratory - Connect presentation (December 3rd, 2020).
185. **J. A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, Southern California Science@Home Lollapalooza, Mass Spectrometry Symposium (December 1st, 2020).
184. **J. A. McLean**, *High-dimensional molecular phenomics in systems, synthetic, and chemical biology*, Symposium in honor of Dajana Vucokovic award, 2020 Eastern Analytical Symposium and Exposition (November 2020).
183. **J. A. McLean**, *The Regulatory Landscape of the FDA*, Student Affiliates for Public Health, Vanderbilt University (November 10th, 2020).
182. **J. A. McLean**, *Advancing biomedical research opportunities through equipment microgrants*, Workshop on Modernization of Biomedical Research Facilities, National Institutes of Health – Office of the NIH Director/Office of Research Infrastructure Programs, Bethesda, MD (August 25th, 2020).
181. **J. A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, Select science - Virtual Analytical Summit (July 22nd, 2020)
180. **J. A. McLean**, *Revealing what others leave unseen - welcome to the future of Ion mobility*, MOBILion Systems, Philadelphia, PA (June 2, 2020).
179. **J. A. McLean**, *High-dimensional molecular phenomics in precision medicine : mapping your life and everything else*, Belgian Royal Academy of Medicine, Brussels, Belgium (February 29<sup>th</sup>, 2020).
178. **J. A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology: Mapping your life and everything else*, Ion Mobility Spectrometry - Great Minds summit, Indianapolis, IN (December 2, 2019).
177. **J. A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology: Mapping your life and everything else*, US Food and Drug Administration, Pharmaceutical analysis and characterization center of excellence, White Oak Campus, Silver Spring, MD (November 5<sup>th</sup>, 2019).
176. **J. A. McLean**, *Advanced structural mass spectrometry strategies in systems, synthetic, and chemical biology*, Southeast Regional Meeting of the American Chemical Society, Savannah, GA (October 21<sup>st</sup>, 2019).
175. **J. A. McLean**, *Advanced structural mass spectrometry strategies in systems, synthetic, and chemical biology*, The University of the South, Sewanee, TN (September 18<sup>th</sup>, 2019).
174. **J. A. McLean**, *High-dimensional molecular phenomics in systems, synthetic, and chemical biology*, Annual Meeting of the American Society for Mass Spectrometry – Waters Corporation Meeting, Atlanta, GA (June 1<sup>st</sup>, 2019). Keynote Lecture.
173. A. Montaser and **J. A. McLean**, *The importance of atomic spectrometry in life and the significance of spray quality*, Institute for Liquid Atomization and Spray Systems - Americas 30th Annual Conference, Tempe, AZ (May 13, 2019).
172. **J. A. McLean**, *Advanced structural mass spectrometry strategies in systems, synthetic, and chemical biology*, Analytica Vietnam – 6<sup>th</sup> International Trade Fair for Laboratory Technology, Analysis, Biotechnology, and Diagnostics, Ho Chi Minh City, Vietnam (April 4, 2019).
171. **J. A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology: New strategies enabled by IM-MS*, 5<sup>th</sup> European ion mobility seminar – expanding capabilities and applications, Institute for European Chemistry and Biology – the University of Bordeaux, Pessac, France (March 21, 2019).
170. **J. A. McLean** and J. Fjeldsted, *New possibilities to resolving old challenges*, 5<sup>th</sup> European ion mobility seminar – expanding capabilities and applications, Institute for European Chemistry and Biology – the University of Bordeaux, Pessac, France (March 20, 2019).
169. J. A. Picache and **J. A. McLean**, *Achieving a consistent and unified community-wide molecular database: The collision cross section compendium*, 5<sup>th</sup> European ion mobility seminar – expanding capabilities and applications, Institute for European Chemistry and Biology – the University of Bordeaux, Pessac, France (March 20, 2019).

168. **J. A. McLean**, *High dimensional molecular phenomics in systems, synthetic, and chemical biology (or...mapping your life and everything else)*, Lake Louise Conference on Tandem Mass Spectrometry, Lake Louise, Alberta, Canada (November 29th, 2018).
167. **J. A. McLean**, *High dimensional molecular phenomics in systems, synthetic, and chemical biology (or...mapping your life and everything else)*, Delaware Valley Mass Spectrometry Discussion Group, Villanova University, Villanova, PA (October 8th, 2018).
166. **J. A. McLean**, *Mapping your life and everything else*, University of Florida, Gainesville, FL (July 18th, 2018).
165. **J. A. McLean**, *Mapping your life and everything else*, Waters Corporation Innovation Summit 2018 – The Jim Waters Society, Milford, MA (June 2018). Plenary Lecture.
164. J.C. May, J.N. Dodds, K.L. Leaptrot, R.A. Harris, C.M. Nichols, J.A. Picache, B.S. Rose, and **J.A. McLean**, *Bioanalytical Applications of Ion Mobility-Mass Spectrometry*, 12th Annual Agilent University Research Fair, Santa Clara, CA (May 2018). – Award for first place.
163. **J. A. McLean**, *Big data meets big medicine: molecular phenomics in systems, synthetic, and chemical biology*, Analytica Conference, München, Germany (April 10th, 2018).
162. **J. A. McLean**, *Mapping your life and everything else*, TEDx Vanderbilt, Vanderbilt University, Nashville, TN (November 12th, 2017).
161. **J. A. McLean**, *High dimensional molecular phenomics in systems, synthetic, and chemical biology*, Weill-Cornell Medicine, New York, NY (October 5th, 2017).
160. **J. A. McLean**, *Targeting the untargeted: structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, Weill Cornell Medicine (October 4th, 2017).
159. **J. A. McLean**, *High Dimensional molecular phenomics in systems, synthetic, and chemical biology*, Duke Center for Applied Genomics and Precision Medicine, Duke University School of Medicine, Durham, NC (September 21st, 2017).
158. **J. A. McLean**, *High Dimensional molecular phenomics in systems, synthetic, and chemical biology*, Georgetown University Medical Center, Washington DC (July 25th, 2017).
157. **J. A. McLean**, *Scientific Frontiers in Bioanalytical Chemistry*, Mass Spectrometry Enabled Science and Engineering Workshop, Toronto, Canada (May 27th, 2017).
156. **J. A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, Michigan State University, East Lansing, MI (April 15th, 2017).
155. **J. A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, Renal Research Interest Group, Vanderbilt University, Nashville, TN (February 22nd, 2017).
154. **J. A. McLean**, *Data Science in Chemistry and Chemical Engineering*, Board on Chemical Sciences and Technology, The National Academies of Sciences, Engineering, and Medicine, Washington, DC (March 3rd, 2017).
153. **J. A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, Vanderbilt Institute of Chemical Biology, Vanderbilt University, Nashville, TN (February 8th, 2017).
152. **J.A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, XXIX Lake Louise Conference on Tandem Mass Spectrometry, Lake Louise, Canada (December 3<sup>rd</sup>, 2016).
151. **J.A. McLean**, *Untargeted strategies in molecular phenomics – engaging student scientists in the clinical research enterprise*, Waters Core Facility Summit, Beverly, MA (November 29<sup>th</sup>, 2016).
150. **J.A. McLean**, *Molecular phenomics in systems, synthetic, and chemical biology*, Eastern Analytical Symposium and Exposition – EAS Award Symposium Honoring Richard D. Smith, Somerset, NJ (November 16<sup>th</sup>, 2016).
149. **J.A. McLean**, *High dimensional molecular phenomics in systems, synthetic, and chemical biology*, Medical University of South Carolina, Charleston, SC (September 22<sup>nd</sup>, 2016).
148. **J.A. McLean**, *Advanced structural mass spectrometry in systems, synthetic, and chemical biology*, Waters Technology Review, Nashville, TN (September 13<sup>th</sup>, 2016).
147. **J.A. McLean**, *Structural mass spectrometry for molecular phenomics in systems, synthetic, and chemical biology*, 21<sup>st</sup> Annual International Mass Spectrometry Conference, Toronto, Canada (August 24<sup>th</sup>, 2016).
146. **J.A. McLean**, *Conformational atlas of lipid structure for directed characterization in lipidomics and molecular phenomics*, 21<sup>st</sup> Annual International Mass Spectrometry Conference, Toronto, Canada (August 23<sup>rd</sup>, 2016).

145. **J.A. McLean**, *High dimensional molecular phenomics in systems, synthetic, and chemical biology*, 10<sup>th</sup> Annual q-Bio Conference, Nashville, TN (July 29<sup>th</sup>, 2016).
144. **J.A. McLean**, *High dimensional molecular phenomics in complex samples in systems, synthetic, and chemical biology*, Agilent Technologies Thought Leader Lecture, Agilent Technologies, Santa Clara, CA (July 19<sup>th</sup>, 2016).
143. **J.A. McLean**, *Deep metabolomics in systems, synthetic, and chemical biology with structural mass spectrometry*, 44<sup>th</sup> International Symposium on High Performance Liquid Phase Separations and Related Techniques (HPLC 2016), San Francisco, CA (June 22<sup>nd</sup>, 2016).
142. **J.A. McLean**, *High dimensional molecular phenomics in systems, synthetic, and chemical biology*, Chicago Mass Spectrometry Discussion Group and Northwestern University, Chicago, IL (May 17-18<sup>th</sup>, 2016).
141. **J.A. McLean**, *High dimensional molecular phenomics in complex samples in systems, synthetic, and chemical biology*, University of Illinois – Chicago, Chicago, IL (May 5<sup>th</sup>, 2016)
140. **J.A. McLean**, *High dimensional molecular phenomics in systems, synthetic, and chemical biology*, Waters Thought Leader Forum, Waters Wilmslow, Cheshire, United Kingdom (April 12<sup>th</sup>, 2016).
139. **J.A. McLean**, *Speed and Scale of Molecular Phenomics Measurements*, Vanderbilt – Agilent Technologies Collaborative Workshop, Nashville, TN (March 18<sup>th</sup>, 2016).
138. **J.A. McLean**, *Structural mass spectrometry for systems, synthetic, and chemical biology*, 65<sup>th</sup> Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta, GA (March 9<sup>th</sup>, 2016).
137. **J.A. McLean**, *Structural mass spectrometry strategies for the analysis of complex samples in systems, synthetic and chemical biology*, Austin Peay State University, Clarksville, TN (February 26<sup>th</sup>, 2016).
136. **J.A. McLean**, *Structural mass spectrometry strategies for the analysis of complex samples in systems, synthetic and chemical biology*, High Performance Mass Spectrometry Workshop: Ion Mobility, Waters Corporation, Beverly, MA (February 16<sup>th</sup>, 2016).
135. **J.A. McLean**, *Structural mass spectrometry strategies for the analysis of complex samples in systems, synthetic and chemical biology*, University of California – Davis, Davis, CA (February 10<sup>th</sup>, 2016).
134. **J.A. McLean**, *Structural mass spectrometry strategies for the analysis of complex samples in systems, synthetic and chemical biology*, Indiana University, Bloomington, IN (January 21<sup>th</sup>, 2016)
133. **J.A. McLean**, *Targeting the untargeted in systems, synthetic, and chemical biology*, Purdue University, West Lafayette, IN (January 20<sup>th</sup>, 2016).
132. **J. A. McLean**, *Structural mass spectrometry strategies for comprehensive metabolomics – surface, electron, and collision dissociation information*, The International Chemical Congress of Pacific Basin Societies: Pacifichem 2015, Honolulu, HI (December 20<sup>th</sup>, 2015).
131. **J. A. McLean**, *Navigating stormy biological seas with a high dimensional schooner and a big data sextant*, R&D 100 Awards and Technology Forum, Las Vegas, NV (November 12<sup>th</sup>, 2015).
130. **J. A. McLean**, *Targeting the untargeted: Structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, University of California Los Angeles, Los Angeles, CA (October 28<sup>th</sup>, 2015).
129. **J. A. McLean**, *Targeting the untargeted: Structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, University of Florida, Gainesville, FL (October 20<sup>th</sup>, 2015).
128. **J. A. McLean**, *Targeting the untargeted: Structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, University of Massachusetts, Amherst, MA (October 15<sup>th</sup>, 2015).
127. **J. A. McLean**, *Targeting the untargeted: Structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, Connecticut Mass Spectrometry Discussion Group, Yale University, New Haven, CT (October 14<sup>th</sup>, 2015).
126. **J. A. McLean**, *Targeting the untargeted: Structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, Weill-Cornell Medical College, New York, NY (October 14<sup>th</sup>, 2015).
125. **J. A. McLean** and P. C. Dorrestein (UCSD), *Grand challenges: dissecting the temporal and spatial distribution of metabolites*, Grand Challenges in Metabolomics sponsored by the International Metabolomics Society – Webinar (October 7<sup>th</sup>, 2015).
124. **J. A. McLean**, *Structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, Turkey Run Conference on Analytical Chemistry (joint conference of Notre Dame, Indiana

University, Purdue University, and University of Illinois – Urbana Champaign), Turkey Run State Park, IN (October 3, 2015). Keynote lecture.

123. **J. A. McLean**, *Advanced informatics using high dimensional untargeted data and data mining to inform what are the important molecules for subsequent analysis*, Centre de Recherche du CHU de Quebec, Quebec City, Canada (September 25<sup>th</sup>, 2015).
122. **J. A. McLean**, *Structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, St. Louis University, St. Louis, MO (September 17<sup>th</sup>, 2015).
121. **J. A. McLean**, *Biome mining for natural product discovery using structural mass spectrometry and big data strategies*, The Conference on Small Molecule Science (CoSMoS), San Diego, CA (August 18<sup>th</sup>, 2015).
120. **J. A. McLean**, *Targeting the untargeted: Structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, 11<sup>th</sup> Annual International Conference of the Metabolomics Society, Burlingame, CA (July 2<sup>nd</sup>, 2015).
119. **J. A. McLean**, *Targeting the untargeted: Structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, 1<sup>st</sup> Annual Symposium on Metabolomics in Mexico, Guadalajara, Mexico (June 26<sup>th</sup>, 2015).
118. **J. A. McLean**, *Advanced structural mass spectrometry strategies for systems, synthetic, and chemical biology*, Merck, Rahway, NJ (April 15<sup>th</sup>, 2015).
117. **J. A. McLean**, *Advanced structural mass spectrometry strategies for systems, synthetic, and chemical biology*, Novartis, East Hanover, NJ (April 15<sup>th</sup>, 2015).
116. **J. A. McLean**, *Advanced structural mass spectrometry strategies for systems, synthetic, and chemical biology*, Bristol-Myers Squibb, New Brunswick, NJ (April 14<sup>th</sup>, 2015).
115. **J. A. McLean**, *Advanced structural mass spectrometry strategies for systems, synthetic, and chemical biology*, New Jersey Mass Spectrometry Discussion Group, Somerset, NJ (April 14<sup>th</sup>, 2015).
114. **J. A. McLean**, *Advanced structural mass spectrometry strategies for systems, synthetic, and chemical biology*, Greater Boston Mass Spectrometry Discussion Group Cambridge, MA (April 13<sup>th</sup>, 2015).
113. **J. A. McLean**, *Advanced structural mass spectrometry strategies for systems, synthetic, and chemical biology*, Iowa State University, Ames, IA (April 3<sup>rd</sup>, 2015).
112. **J. A. McLean**, *Targeting the untargeted: Structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, Waters Corporation – Center of Innovation Highlight, 64<sup>th</sup> Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans (March 9<sup>th</sup>, 2015).
111. **J. A. McLean**, *Integrated omics using untargeted structural mass spectrometry strategies to decipher complex biology*, 64<sup>th</sup> Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans (March 8<sup>th</sup>, 2015).
110. **J. A. McLean**, *Targeting the untargeted: Structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, National Institutes of Health – Mass Spectrometry Applications in the Biomedical Sciences, Bethesda, MD (February 25<sup>th</sup>, 2015).
109. **J. A. McLean**, *Targeting the untargeted: Structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, Johns Hopkins University, Baltimore, MD (February 24<sup>th</sup>, 2015).
108. **J. A. McLean**, *Structural mass spectrometry strategies in systems, synthetic, and systems biology*, Wayne State University, Detroit, MI (January 20<sup>th</sup>, 2015).
107. **J. A. McLean**, *Structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, Annual Lake Louise Tandem Mass Spectrometry Conference, Lake Louise, Alberta, Canada (December 4<sup>th</sup>, 2014).
106. **J. A. McLean**, *Advanced structural mass spectrometry strategies for systems, synthetic, and chemical biology*, Montreal Mass Spectrometry Discussion Group, Montreal, Quebec, Canada (December 2<sup>nd</sup>, 2014).
105. **J. A. McLean**, *Targeting the untargeted in translational research*, Core Facilities Technology Summit, Columbia, MD (November 11<sup>th</sup>, 2014).
104. **J. A. McLean**, *Systems, synthetic, and chemical biology – strategies and applications*, American Society for Mass Spectrometry Fall Workshop – Ion Mobility-Mass Spectrometry, Seattle, WA (November 7<sup>th</sup>, 2014).

103. **J. A. McLean**, *Advanced structural mass spectrometry strategies for systems, synthetic, and chemical biology*, 66<sup>th</sup> Southeastern Regional Meeting of the American Chemical Society, Nashville, TN (October 16-19, 2014).
102. **J. A. McLean**, *Targeting the untargeted: Structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, Advances in Omics Research – Next Generation Sequencing to Ion Mobility, Washington University, St. Louis, MO (October 8<sup>th</sup>, 2014).
101. **J. A. McLean**, *Targeting the untargeted: structural mass spectrometry for the analysis of complex samples in systems, synthetic, and chemical biology*, Texas A&M University, College Station, TX (September 30<sup>th</sup>, 2014).
100. **J. A. McLean**, *Mass spectrometry innovations in translational medicine*, Webinar - American Pharmaceutical Review (September 17, 2014).
99. **J. A. McLean**, *Targeting the untargeted in translational research: High-dimensional data strategies with ion mobility-mass spectrometry*, Webinar - Nature Publishing Group - *Nature* and *Scientific American* (September 11<sup>th</sup>, 2014)
98. **J. A. McLean**, *Session 5: Measurement of engineered organisms, pathways, systems*, Industrialization of Biology: A Roadmap to Accelerate Advanced Manufacturing of Chemicals, Summit briefing for NAS committee, National Academy of Sciences, Washington, DC (May 29<sup>th</sup>, 2014).
97. **J. A. McLean**, *Structural mass spectrometry for the analysis of complex biological samples: ion mobility-mass spectrometry for broad-scale systems and synthetic biology*, Webinar – Genetic Engineering and Biotechnology News (March 25<sup>th</sup>, 2014).
96. **J. A. McLean**, *Advanced structural mass spectrometry strategies for systems, synthetic, and chemical biology*, Florida State University, Tallahassee, FL (March 20<sup>th</sup>, 2014).
95. **J. A. McLean**, *Structural mass spectrometry: Advanced designs for structural biology*, Annual Conference of the German Society for Mass Spectrometry, Johannes Wolfgang Goethe Universität, Frankfurt, Germany (March 3, 2014).
94. **J. A. McLean**, *Advanced structural mass spectrometry strategies for systems, synthetic, and chemical biology*, Annual Conference of the German Society for Mass Spectrometry, Johannes Wolfgang Goethe Universität, Frankfurt, Germany (March 2, 2014).
93. **J. A. McLean**, *Advanced structural mass spectrometry strategies for systems, synthetic, and chemical biology*, Triangle Area Mass Spectrometry Discussion Group, Chapel Hill, NC (January 8<sup>th</sup>, 2014).
92. **John A. McLean**, *Structural mass spectrometry: Advanced instrumental designs for structural biology*, The University of North Carolina, Chapel Hill, NC (January 8<sup>th</sup>, 2014).
91. **J. A. McLean**, *Advanced structural mass spectrometry strategies for systems, synthetic, and chemical biology*, Symposium on innovations in biological mass spectrometry, The University of Utah, Salt Lake City, UT (September 20<sup>th</sup>, 2013).
90. **J. A. McLean**, *Advanced structural mass spectrometry strategies for systems, synthetic, and chemical biology*, The University of Arizona, Tucson, AZ (September 5<sup>th</sup>, 2013).
89. **J. A. McLean**, *Structural mass spectrometry strategies for systems, synthetic, and chemical biology*, Washington University, St. Louis, MO (April 25<sup>th</sup>, 2013).
88. **J. A. McLean**, *Theory, design, and construction of ion mobility-mass spectrometers: Opportunities and challenges for structural mass spectrometry*, Midwest Mass Spectrometry Discussion Group, St. Louis, MO (April 24<sup>th</sup>, 2013).
87. **J. A. McLean**, *Structural mass spectrometry strategies for systems, synthetic, and chemical biology*, Kentucky Wesleyan College, Owensboro, KY (April 24<sup>th</sup>, 2013).
86. **J. A. McLean**, *Structural mass spectrometry strategies in systems, synthetic, and chemical biology*, 245<sup>th</sup> American Chemical Society National Meeting, Frank H. Field and Joe L. Franklin Award for Outstanding Achievement in Mass Spectrometry: Symposium in Honor of David H. Russell, New Orleans, LA (March 7<sup>th</sup>-11<sup>th</sup>, 2013).
85. **J. A. McLean**, *Structural mass spectrometry strategies for systems, synthetic, and chemical biology*, The University of Washington, Seattle, WA (March 4<sup>th</sup>, 2013).
84. **J. A. McLean**, *Advanced structural mass spectrometry in life sciences and nanotechnology: Deciphering the codes of complex systems*, The University of Illinois, Urbana-Champaign, IL (December 7<sup>th</sup>, 2012).
83. **J. A. McLean**, *Automated structural mass spectrometry for systems biology*, 64<sup>th</sup> Southeastern Regional Meeting of the American Chemical Society, Raleigh, NC (November 14-17, 2012).

82. **J. A. McLean.** *Structural mass spectrometry for spatiotemporal measurements in systems biology*, Agilent Technologies, Santa Clara, CA (November 6<sup>th</sup>, 2012).
81. **J. A. McLean.** New frontiers in structural mass spectrometry: Unraveling dynamic metabolomics, International Exposition and Conference on Analytrix, Chicago, IL (October 22<sup>nd</sup> -24<sup>th</sup>, 2012). **Keynote address.**
80. **J. A. McLean.** *Structural Mass Spectrometry for Spatiotemporal Measurements in Systems Biology*, International Exposition and Conference on Analytrix, Chicago, IL (October 22<sup>nd</sup> -24<sup>th</sup>, 2012).
79. **J. A. McLean**, K. T. Seale, and J. P. Wikswow. *Structural mass spectrometry and bioinformatics strategies for studies of organismal biochemical memory*, Intelligence Advanced Research Project Agency (IARPA) workshop on Bio-Intelligence Chips, Mitre Corporation, Bedford, MA (October 10, 2012).
78. **J. A. McLean.** *Structural mass spectrometry strategies for systems biology*, Fisk University, Nashville, TN (September 24<sup>th</sup>, 2012).
77. **J. A. McLean.** *Advanced structural mass spectrometry in life sciences and nanotechnology: Deciphering the codes of complex systems*, The University of Michigan, Ann Arbor, MI (September 13<sup>th</sup>, 2012).
76. **J. A. McLean.** *A conformational atlas for dynamic systems biology.* 244<sup>th</sup> American Chemical Society National Meeting, Philadelphia, PA (August 19<sup>th</sup> -23<sup>rd</sup>, 2012).
75. J. P. Wikswow and **J. A. McLean.** *Beyond pathogen genomics and the host immune memory response: Can dynamic omni-omic challenge/response experiments inform exposure status?* JASON 2012 Exposure Status Summer Study, Mitre Corporation, La Jolla, CA (June 19-20, 2012).
74. **J. A. McLean.** *Advanced structural mass spectrometry in life sciences and nanotechnology: Deciphering the codes of complex systems*, The University of Gothenburg, Gothenburg, Sweden (February 29, 2012).
73. **J. A. McLean.** *Advanced structural mass spectrometry in life sciences and nanotechnology: Deciphering the codes of complex systems*, Uppsala University, Uppsala, Sweden (February 28, 2012).
72. **J. A. McLean.** *Advanced structural mass spectrometry in life sciences and nanotechnology: Deciphering the codes of complex systems*, The University of Stockholm, Stockholm, Sweden (February 27, 2012).
71. **J. A. McLean.** *Structurally-based discovery strategies for complex biological systems.* 24<sup>th</sup> ASMS Sanibel Conference on Mass Spectrometry, St. Pete Beach, FL (January 2012).
70. **J. A. McLean,** *Structural Mass Spectrometry for presymptomatic diagnosis of threat exposure: strategies towards comprehensive systems biology*, 2011 Chemical and Biological Defense Science and Technology Conference, Las Vegas, NV (November 2011).
69. **J. A. McLean,** *Advanced structural mass spectrometry for systems biology – deciphering complex systems*, North Carolina State University, Raleigh, NC (November 4<sup>th</sup>, 2011).
68. **J. A. McLean,** *Structural mass spectrometry for spanning spatial and temporal scales of complex systems*, 27<sup>th</sup> Asilomar Conference on Mass Spectrometry, Pacific Grove, CA (October 2011).
67. **J. A. McLean,** *Advances in structural mass spectrometry for integrated omics and systems biology*, Leipzig University, Leipzig, Germany (May 26<sup>th</sup>, 2011).
66. **J. A. McLean,** *Advanced structural mass spectrometry for characterizing real-time cellular dynamics*, US HUPO Annual Conference, Raleigh, NC (March 2011).
65. **J. A. McLean,** C. R. Goodwin, R. McNeese, L. S. Fenn, D. K. Derewacz, N. M. Lareau, and B. O. Bachmann, *Accelerating natural product discovery with structural mass spectrometry*, 60<sup>th</sup> Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta, GA (March 2011).
64. **J. A. McLean,** *Advanced structural mass spectrometry for systems biology – pulling the needles from haystacks*, 60<sup>th</sup> Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta, GA (March 2011).
63. **J. A. McLean,** *Advanced structural mass spectrometry for systems biology – pulling the needles from haystacks*, Kentucky Lakes section of the American Chemical Society, Paris, TN (February 17<sup>th</sup>, 2011).
62. **J. A. McLean,** *Advanced structural mass spectrometry for systems biology – pulling the needles from haystacks*, Colby College, Waterville, ME (February 10<sup>th</sup>, 2011).
61. **J. A. McLean,** *Advanced structural mass spectrometry for systems biology – pulling the needles from haystacks*, The University of Maine, Orono, ME (February 10<sup>th</sup>, 2011).
60. **J. A. McLean,** *Advances in structural mass spectrometry for integrated omics and systems biology*, Pacifichem, Honolulu, HI (December 2010).

59. J. R. Enders, C. R. Goodwin, C. C. Marasco, K. T. Seale, J. P. Wikswo, and **J. A. McLean**, *Direct analysis of cell culture secretomics from cell trapping microfluidics using ion mobility-mass spectrometry detection*, Pacifichem, Honolulu, HI (December 2010). **Awarded best presentation in the series of symposia entitled: Recent advances in bioanalysis: ultra-small volumes, global metabolite profiling, and single cells.**
58. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry*, The University of Alabama, Tuscaloosa, AL (December 2<sup>nd</sup>, 2010).
57. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: 'Oming in on systems biology*, The University of Mississippi, Oxford, MS (October 28<sup>th</sup>, 2010).
56. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, The University of California at Riverside, Riverside, CA (September 23<sup>rd</sup>, 2010).
55. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, Spectroscopy Societies of Pittsburgh, Pittsburgh, PA (September 15<sup>th</sup>, 2010).
54. **J. A. McLean**, *Advances in the temporal and structural measurements of cellular secretomes*, 240th ACS National Meeting & Exposition, Boston, MA (August 2010). Division of Physical Chemistry, Ion Structure Symposium.
53. **J. A. McLean**, *Advanced structural mass spectrometry for systems biology – pulling the needles from haystacks*, Beckman Scholars Symposium, Arnold and Mabel Beckman Center, Irvine, CA (July 23<sup>rd</sup> 2010). **Distinguished lecture.**
52. **J. A. McLean**, J. R. Enders, S. Sundarapandian, K. T. Seale, J. P. Wikswo, *On-line measurements of the secretoome: 'Oming in on systems biology*, 36<sup>th</sup> Annual Federation of Analytical Chemistry and Spectroscopy Societies, Louisville, KY (October 2009).
51. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, University of the South, Sewanee, TN (September 18, 2009).
50. **J. A. McLean**, *New Avenues in Imaging MALDI-Ion Mobility-Mass Spectrometry*, 18<sup>th</sup> Annual International Mass Spectrometry Conference, Bremen, Germany (August 2009). **Keynote Lecture**
49. **J. A. McLean**, *Structural Imaging by MALDI-Ion Mobility-MS: New Prospects for Complex Biological Samples*, 18<sup>th</sup> Annual International Mass Spectrometry Conference, Bremen, Germany (August 2009).
48. **J. A. McLean**, *New Avenues in Imaging MALDI-Ion Mobility-Mass Spectrometry*, Research Center Jülich, Jülich, Germany (August 28, 2009).
47. **J. A. McLean**, *Structural separations in conformation space: 'Oming in on systems biology*, 18<sup>th</sup> Annual Meeting of the International Society for Ion Mobility Spectrometry, Thun, Switzerland (July 2009).
46. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, Union College, Jackson, TN (May 8, 2009).
45. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, University of North Texas, Denton, TX (May 1, 2009).
44. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, University of Central Arkansas, Conway, AR (April 24, 2009).
43. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, University of Wisconsin, Madison, WI (April 9, 2009).
42. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, University of Melbourne, Melbourne, Australia (March 16, 2009).
41. **J. A. McLean**, *Advances in structural mass spectrometry for systems biology*, 60<sup>th</sup> Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, IL (March 2009).
40. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems* Western Kentucky University, Bowling Green, KY (February 27, 2009).
39. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, Eastern Kentucky University, Richmond, KY (November 11, 2008).
38. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, Ohio University, OH (October 20<sup>th</sup>, 2008).
37. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, University of Dayton, OH (October 17<sup>th</sup>, 2008).

36. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, University of Tennessee, Knoxville, TN (October 7<sup>th</sup>, 2008).
35. **J. A. McLean**, *Emerging directions for the structural analysis of complex biological samples using ion mobility-mass spectrometry*, 35<sup>th</sup> Annual Meeting of the Federation of the Analytical Chemistry and Spectroscopy Societies Conference, Reno, NV (October 2008).
34. **J. A. McLean**, M. Kliman, L. S. Fenn, R. L. Gant, T. J. Kerr, A. Mahsut, J. Enders, and S. Sundarapandian, *Nanoelectrospray and MALDI Combined with Ion Mobility (Plasma Chromatography)-Mass Spectrometry: Structural Insights from Liquid and Solid Phases*, 35<sup>th</sup> Annual Meeting of the Federation of the Analytical Chemistry and Spectroscopy Societies Conference, Reno, NV (October 2008).
33. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, University of Arkansas, Fayetteville, AR (September 5<sup>th</sup>, 2008).
32. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, Amgen Inc., Thousand Oaks, CA (August 27, 2008).
31. **J. A. McLean**, *Structural separations by ion mobility-mass spectrometry: New prospects for complex biological systems*, 22<sup>nd</sup> Annual Meeting of the Protein Society, San Diego, CA (July 2008).
30. **J.A. McLean**, L.S. Fenn, R.L. Gant, T.J. Kerr, A. Mahsut, S. Sundarapandian, *New structural measurement strategies using ion mobility-mass spectrometry*. Proceedings of the 56<sup>th</sup> American Society for Mass Spectrometry Conference on Mass Spectrometry and Allied Topics, Denver, CO (June 2008).
29. **J. A. McLean**, *Enhancing Imaging Data Dimensionality with Multidimensional Separations- Imaging Ion Mobility-MS of Complex Biological Samples*, The Bio Imaging Mass Spectrometry Initiative, Georgia Institute of Technology, Atlanta, GA (July 8, 2008).
28. **J. A. McLean**, T. J. Kerr, R. L. Gant, L. S. Fenn, J. R. Enders, *Functionally-selective Ion Mobility Shift Reagents for Structural Mass Spectrometry*, to be presented at the 59<sup>th</sup> Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, New Orleans, LA (March 2-6, 2008).
27. **J. A. McLean**, *Functionally-selective IM-MS shift strategies for proteomics and glycomics*, to be presented at the 20<sup>th</sup> Annual ASMS Sanibel Conference on Mass Spectrometry, Daytona, FL (January 18-21, 2008).
26. **J. A. McLean**, *Ultrafast Two-Dimensional Gas-phase Separations: New Avenues for Systems Biology*, presented at Clark Atlanta University, Atlanta, GA (October 23, 2007).
25. **J. A. McLean**, *Biomolecular MS Imaging with Ion Mobility-Mass Spectrometry: MSI-IMMS Strategies*, presented at the 34<sup>th</sup> Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, Memphis, TN (October 14-18, 2007).
24. **J. A. McLean**, *Gas-Phase Electrophoresis/Ion Mobility-Mass Spectrometry: A New Paradigm for Systems Biology*, presented at the University of Memphis, Memphis, TN (September 28, 2007).
23. **J. A. McLean**, *Gas-phase Ion Mobility: The Next Dimension in Mass Spectrometry*, presented at Eckerd College, St. Petersburg, FL (September 12, 2007).
22. **J. A. McLean**, *Gas-Phase Ion Mobility: The Next Dimension in Structural Mass Spectrometry*, presented at the 3<sup>rd</sup> Annual Vanderbilt Institute of Chemical Biology Retreat, Nashville, TN (August 9, 2007).
21. **J. A. McLean**, *Advanced Structural Mass Spectrometry Strategies for Chemical Biology and Biophysics*, presented at the Massachusetts Institute of Technology, Boston, MA (July 24<sup>th</sup>, 2007).
20. **J. A. McLean**, *Advanced Structural Mass Spectrometry Strategies for Biotechnology and Nanotechnology*, presented at the Richard E. Smalley Institute for Nanoscale Science and Technology, Rice University, Houston, TX (August 2, 2007).
19. **J. A. McLean**, *New Strategies in Structural Mass Spectrometry for Chemical Biology: A First Year Progress Report*, presented at a symposium in honor of the 60<sup>th</sup> Birthday of Prof. David H. Russell, Texas A&M University, College Station, TX (June 29, 2007).
18. W. B. Ridenour, R. M. Caprioli, and **J. A. McLean**, *Enhancing Imaging Mass Spectrometry with Ion Mobility*, presented at the 55<sup>th</sup> Annual ASMS Conference on Mass Spectrometry and Allied Topics, Indianapolis, IN (June 3-7, 2007).
17. **J. A. McLean**, *Advanced Structural Mass Spectrometry Strategies for Chemical Biology*, presented at the External Advisory Board Meeting of the Vanderbilt Institute of Chemical Biology, Nashville, TN (May 31, 2007).

16. **J. A. McLean**, *Structural Mass Spectrometry in Chemical Biology: Multidimensional Separation Strategies*, presented at Jacksonville State University, Jacksonville, MS (March 23, 2007).
15. **J. A. McLean**, *Advanced Structural Mass Spectrometry Strategies for Proteomics and Biophysics*, presented at the University of Alabama in Huntsville, Huntsville, AL (November 10, 2006).
14. **J. A. McLean**, *Advanced Structural Mass Spectrometry Strategies for Chemical Biology and Biophysics*, presented at the University of South Alabama, Mobile, AL (October 6, 2006).
13. **J. A. McLean** and D. H. Russell, *Multidimensional Identification and Structural Characterization of Peptides and Proteins – Imaging Ion Mobility-Mass Spectrometry*, the 33<sup>rd</sup> Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, Lake Buena Vista, FL (September 25, 2006).
12. **J. A. McLean**, S. D. Sherrod, K. A. Stumpo, and D. H. Russell, *Multidimensional Analysis of Protein Microarrays: Simultaneous Top-down/Bottom-up Proteomics Using Imaging Mass Spectrometry*, Gordon Research Conference, Graduate Research Seminar: Analytical Chemistry, Roscoff, France (June 2005).
11. **J. A. McLean**, B. T. Ruotolo, K. J. Gillig, S. D. Sherrod, and D. H. Russell, *New Dimensions for Proteomics: Ion Mobility-MS, Imaging MS, and Imaging Ion Mobility-MS*, the 25<sup>th</sup> Brazilian Conference of Vacuum Applications in Industry and Science, Rio de Janeiro, Brazil (July 2004).
10. **J. A. McLean**, S. D. Sherrod, and D. H. Russell, *Dynamic MALDI Patterning and Multidimensional Separations for Imaging MS: New Avenues for the Biomolecular Microscope*, the 228<sup>th</sup> American Chemical Society National Meeting, Philadelphia, PA (August 2004).
9. **J. A. McLean**, S. D. Sherrod, and D. H. Russell, *Advanced Laser and Optical Technology for Optimizing MALDI: Fast, Selective, and Adaptable*, presented at the 52nd ASMS Conference on Mass Spectrometry and Allied Topics, Nashville, TN (May 2004).
8. **J. A. McLean**, K. J. Gillig, J. A. Schultz, and D. H. Russell, *Development of Advanced Time-of-Flight Mass Spectrometry for Optimum Utilization of High Repetition Rate MALDI*, presented at the the 2004 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Chicago, IL (March 2004).
7. **J. A. McLean** and A. Montaser, *Atomic Plasma Source Spectrometry for Microsample Analysis - Advantages, Challenges, and the Future*, Research Center Jülich, Jülich, Germany, (April 26, 2001).
6. **J. A. McLean**, *New Avenues in Plasma Source Atomic Spectrometry: Looking Towards the Future*, presented at CANAS 2001, Freiberg, Germany (March 2001). **Bunsen-Kirchhoff Prize Award Symposium.**
5. **J. A. McLean**, M. G. Minnich, and A. Montaser, *Optical Patterning: A Technique for Three-Dimensional Aerosol Diagnostics*, presented at the 27th Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, Memphis, TN (September 2000).
4. **J. A. McLean** and A. Montaser, *New Horizons in Plasma Source Mass Spectrometries – Tackling Challenges with Novel Solutions*, Research Center Jülich, Jülich, Germany, (April 18, 2000).
3. **J. A. McLean**, M. G. Minnich, and A. Montaser, *Three-Dimensional Aerosol Diagnostics Based on Optical Patterning*, presented at the 26th Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, Vancouver, Canada (October 1999).
2. **J. A. McLean** and A. Montaser, *Micronebulization in Plasma Source Spectrometries- How Low Can We Go?*, Central Department of Analytical Chemistry, Research Center Jülich, Jülich, Germany (January 1999).
1. **J. A. McLean**, M. G. Minnich, and A. Montaser, *Fundamental Investigation of the Direct Injection High Efficiency Nebulizer*, presented at the 25th Annual Meeting of the Federation of Analytical Chemistry and Spectroscopy Societies, Austin, TX (October 1998).

#### CONTRIBUTED PRESENTATIONS

Author or co-author of over 650 contributed presentations at national and international meetings.  
Listing available upon request.

RESEARCH DIRECTOR FOR DEGREES CONFERRED

**Doctorates in Philosophy (26):**

- 2025 **Hawkins S. Shepard, Ph.D.**  
Dissertation title: *Advancing the characterization of biological systems via desorption electrospray ionization mass spectrometry*
- 2025 **David C. Koomen, Ph.D.**  
Dissertations title: *Advancing integration of multidimensional separations and high-resolution ion mobility to benefit untargeted small molecule analyses for clinical and biological applications*  
Present position: Sanofi, Cambridge, MA
- 2025 **Nadjali A. Cheung, Ph.D.**  
Dissertation title: *Mass spectrometry-based approaches to improve small molecule annotation and analysis*  
Present position: AbbVie Inc., Chicago, IL
- 2023 **Emanuel Zlibut, Ph.D.**  
Dissertation title: *Structural mass spectrometry approaches for the study of complexed small molecules*  
Present position: MOBILion Systems Incorporated, Chadds Ford, PA
- 2022 **Bailey S. Rose, Ph.D.**  
Dissertation title: *Multidimensional analyses for high-confidence untargeted molecular annotation using structurally specific ion mobility-mass spectrometry*  
Present position: Waters Corporation, Milford, MA
- 2021 **Don E. Davis, Jr., Ph.D.**  
Dissertation title: *Multidimensional separations in complex biological matrices utilizing chromatography, ion mobility, and mass spectrometry*  
Present position: Janssen Pharmaceutical Companies of Johnson & Johnson, San Diego, CA
- 2021 **Rachel A. Harris, Ph.D.**  
Dissertation title: *Analysis of biopolymers using structurally selective analytical techniques in combination with mass spectrometry*  
Present position: Waters Inc., Cambridge, MA
- 2021 **Berkley M. Ellis, Ph.D.**  
Dissertation title: *Accelerating natural product discovery and synthetic biology workflows using multidimensional molecular phenotyping*
- 2020 **James C. Poland, Ph.D.**  
Dissertation title: *Method development towards probing the gut metabolome using reverse phase liquid chromatography-ion mobility-mass spectrometry*  
Present position: Vanderbilt University Medical Center, Nashville, TN
- 2020 **Jaqueline A. Picache, Ph.D.**  
Dissertation title: *Strategies for improving multiomic metabolite identifications using compound libraries, machine learning, and structural mass spectrometry*  
Present position: National Institutes of Health, Bethesda, MD
- 2019 **Caleb B. Morris, Ph.D.**  
Dissertation title: *Molecular descriptor on the basis of structural analysis in ion mobility-mass spectrometry*  
Present position: Murray State University, Murray, KY (**Assistant Professor**)
- 2019 **Tiffany M. Crescentini, Ph.D.**

Dissertation title: *Mass spectrometry: an approach to characterizing polyurethane polymers*  
Present position: Nike Air, Beaverton, OR

- 2018 **Katrina L. Leaptrot, Ph.D.**  
Dissertation title: *Development of a spatially multiplexed ion mobility spectrometer and utilization of ion mobility-mass spectrometry for conformational analyses of lipids and other biomolecules*  
Present position: Vanderbilt University, Nashville, TN (**Research Assistant Professor**)
- 2018 **James N. Dodds, Ph.D.**  
Dissertation title: *Investigation of separation strategies for bioanalytical methods: chromatography, ion mobility, and mass spectrometry*  
Present position: University of North Carolina, Chapel Hill, NC (**Research Professor**)
- 2016 **Nichole M. Lareau, Ph.D.**  
Dissertation title: *Development of ion mobility and mass spectrometry strategies in support of integrated omics and systems biology*  
Present position: Merck & Co., Inc., Rahway, NJ
- 2016 **J. Rafael Montenegro, Ph.D.**  
Dissertation title: *Enhanced separations strategies for complex sample characterization using ion mobility – mass spectrometry*  
Present position: University of Toronto – Donnelly Centre, Toronto, Canada (**Assistant Professor and Canada Chair**)
- 2015 **Sarah M. Stow, Ph.D.**  
Dissertation title: *Strategies for selecting computational protocols in support of small molecule structural analysis by ion mobility – mass spectrometry*  
Present position: Agilent Technologies Incorporated, Santa Clara, CA
- 2014 **Jay G. Forsythe, Ph.D.**  
Dissertation title: *Advanced strategies for imaging mass spectrometry and ion mobility-mass spectrometry*  
Present position: The College of Charleston, Charleston, SC (**Associate Professor**)
- 2014 **Kelly M. Hines, Ph.D.**  
Dissertation title: *Biomolecular signatures of disease via ion mobility and mass spectrometry techniques*  
Present position: University of Georgia, Athens, GA (**Associate Professor**)
- 2013 **Cody R. Goodwin, Ph.D.**  
Dissertation title: *Advanced structural mass spectrometry for metabolomics*  
Present position: Mariana Health, Nashville, TN
- 2013 **Jeffrey R. Enders, Ph.D.**  
Dissertation title: *Structural mass spectrometry strategies for systems biology*  
Present position: North Carolina State University, Raleigh, NC (**Research Professor**)
- 2012 **Michal Kliman, Ph.D.**  
Dissertation title: *Advanced structural and spatial analysis of lipids using ion mobility-mass spectrometry*  
Present position: Waters Corporation, Irvine, CA
- 2011 **Randi L. Gant-Branum, Ph.D.**  
Dissertation title: *Characterization of post-translationally modified peptides and proteins using lanthanide-based labeling strategies*  
Present position: Air Force Drug Testing Laboratory, Lackland Air Force Base, Lackland, TX
- 2011 **Kellen Harness, Ph.D.** (Co-Director jointly with D.E. Clifffel)

Dissertation title: *Structural characterization of monolayer protected metal nanoparticles by ion mobility-mass spectrometry*

Present position: ChampionX Corporation, Houston, TX

2011 **Thomas J. Kerr, Ph.D.**

Dissertation title: *Development of novel ion mobility-mass spectrometry shift reagents for proteomic applications*

Present position: Optima Chemical Group, Douglas, GA

2010 **Larissa S. Fenn, Ph.D.**

Dissertation title: *Detection and characterization of glycans and glycoconjugates using ion mobility-mass spectrometry*

Present position: Rayonier Advanced Materials, Jesup, GA

### **Master's degrees (4):**

2023 Alex E. Toler, M.S.

2022 Madelyn F. James, M.S.

2013 Seth Byers, M.S.

2009 Ablatt Mahsut, M.S.

### **CURRENT RESEARCH TEAM**

Research Associate Professors: Jody C. May, Ph.D.  
Stacy D. Sherrod, Ph.D.

Research Assistant Professors: Simona Codreanu, Ph.D.  
Alexandra C. Schrimpe-Rutledge, Ph.D.  
Katrina L. Leaptrot, Ph.D.

Doctoral Candidates: Allison R. Reardon (F'21)  
Benjamin K. Blakley (F'22)  
Kyle E. Lira (F'22 – NSF/GRFP)

Pre-Doctoral Candidates: Siya Deng (F'23)  
Emma R. Remish (F'23)  
Karly B. Serrano (F'24)  
Nina A. Metzger (F'24)  
Walker N. Hodges (F'24)  
Joshua L. Soto (F'24)

Undergraduate Scholars: Justin F. Chen  
Rashi M. Gupta

## SERVICE

### To UNIVERSITY:

*Innovation Catalyst Fund reviewer 2023-present*

|                |                                                                                                                                                                                                                               |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2023 - present | Dean of Graduate Education and Research                                                                                                                                                                                       |
| 2022 - present | University Committee, Vanderbilt University Research Committee                                                                                                                                                                |
| 2023 - present | University Committee, Vanderbilt University Research Integrity and Compliance Committee                                                                                                                                       |
| 2025 - present | University Committee, Vanderbilt University Federal Agency Sponsored R&D Working Group                                                                                                                                        |
| 2014 - present | Director, Center for Innovative Technology - Vanderbilt University                                                                                                                                                            |
| 2023 – 2024    | Provost’s Sciences Space Planning Committee                                                                                                                                                                                   |
| 2022 - 2023    | Associate Provost for Graduate Education                                                                                                                                                                                      |
| 2025, 2026     | University Scientific Advisor to W.M. Keck Research Program                                                                                                                                                                   |
| 2023 – present | Reviewer, Vanderbilt University Innovation Catalyst Fund                                                                                                                                                                      |
| 2022 - 2023    | Parliamentarian, Faculty Senate, Vanderbilt University                                                                                                                                                                        |
| 2021 - 2022    | Member, Faculty Council – College of Arts & Sciences                                                                                                                                                                          |
| 2020 - 2021    | Co-Chair, University Continuity Working Group – Vanderbilt University – an 80-person committee providing recommendations to the university for continuity of operations, teaching, and research through the COVID-19 pandemic |
| 2020 - 2021    | Past-Chair, Faculty Senate – Vanderbilt University                                                                                                                                                                            |
| 2019 – 2023    | Chair, Department of Chemistry – Vanderbilt University                                                                                                                                                                        |
| 2019 - 2020    | Chair, Faculty Senate – Vanderbilt University                                                                                                                                                                                 |
| 2019 - 2020    | Chair, Faculty Senate Nominating Committee - Vanderbilt University                                                                                                                                                            |
| 2019 - 2020    | Faculty Representative, the Provost’s Women’s Advancement and Equity (WAVE) Council                                                                                                                                           |
| 2019 - 2020    | Faculty Representative, Limited Submission Opportunity Committee                                                                                                                                                              |
| 2019 - 2020    | Faculty Representative, Business of Vanderbilt University Selection Committee                                                                                                                                                 |
| 2019 - 2020    | Faculty Representative, University Commodore Award Selection Committee                                                                                                                                                        |
| 2019 - 2020    | Faculty Representative, University Police Department CORES Committee                                                                                                                                                          |
| 2019 - 2020    | Faculty Representative, ANCORA Technical Advisory Committee                                                                                                                                                                   |
| 2019 - 2020    | Faculty Representative, University Bookstore RFP Committee                                                                                                                                                                    |
| 2019 - 2020    | Faculty Representative, Oak-Ridge National Laboratory-Vanderbilt Partnership                                                                                                                                                  |
| 2018 - 2019    | Elected Chair, Faculty Senate – Vanderbilt University                                                                                                                                                                         |
| 2018 - 2021    | Provost Committee, Women in Science Steering Committee                                                                                                                                                                        |
| 2018 - 2021    | Provost committee, Limited Submission Opportunity Committee                                                                                                                                                                   |
| 2018 - 2022    | Vanderbilt Institute of Chemical Biology - Operating Committee and Executive Committee                                                                                                                                        |
| 2017 - 2020    | Senator, Faculty Senate – Vanderbilt University                                                                                                                                                                               |
| 2017 - 2018    | Chair, Faculty Council – College of Arts & Sciences                                                                                                                                                                           |
| 2016 - 2017    | Secretary, Faculty Council – College of Arts & Sciences                                                                                                                                                                       |
| 2016 - 2019    | Member, Administrative Committee – College of Arts and Sciences                                                                                                                                                               |
| 2015 - 2016    | Member, College of Arts & Sciences Senior Advisory Review Committee                                                                                                                                                           |
| 2014 - 2015    | Member, College of Arts & Sciences Program in Career Development (PCD) Advisory Committee                                                                                                                                     |
| 2013 - 2014    | Member, College of Arts & Sciences Junior Advisory Review Committee                                                                                                                                                           |
| 2013 - 2014    | Member, Vanderbilt University Blavatnik Awards Committee                                                                                                                                                                      |
| 2011 - 2018    | Member, Vanderbilt University Machine Shop Committee                                                                                                                                                                          |
| 2012 - 2018    | Instructor, University Central Responsible Conduct in Research                                                                                                                                                                |
| November 2013  | Participant/presenter, The Leipzig University-Vanderbilt University Partnership, Nashville, TN                                                                                                                                |
| October 2013   | Panelist, Vanderbilt University Program in Career Development                                                                                                                                                                 |
| October 2013   | Panelist, Vanderbilt University Chemical Biology Association of Students, “CBAS Perspective: The path to academic tenure”                                                                                                     |
| April 2011     | Participant/presenter, The University of Melbourne-Vanderbilt University Partnership, Nashville, TN                                                                                                                           |
| May 2011       | Participant/presenter, The Leipzig University-Vanderbilt University Partnership, Leipzig, Germany                                                                                                                             |
| June 2012      | Participant/presenter, The Scripps Research Institute-Vanderbilt University Human Chemical Sciences Institute, Dallas, Texas                                                                                                  |

|               |                                                                                                                                                   |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| 2009-2010     | Faculty advisor for the Vanderbilt University Scientists in the Classroom (SCP) Science Teaching Fellowship (STF) program (Ms. Randi Gant-Branum) |
| March 2009    | Participant/presenter, The University of Melbourne-Vanderbilt University Partnership, Melbourne, Australia                                        |
| February 2008 | Vanderbilt Visions student VUceptor faculty interviewer                                                                                           |

**To DEPARTMENT:**

|               |                                                                                                                                                                                                                                                       |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2019 - 2023   | Chair, Department of Chemistry                                                                                                                                                                                                                        |
| 2014 - 2019   | Member, Executive advisory committee                                                                                                                                                                                                                  |
| 2014 - 2019   | Member, Strategic planning committee                                                                                                                                                                                                                  |
| July 2007     | Organizer, on behalf of the Vanderbilt Institute of Chemical Biology and Department of Chemistry, for participation in the Graduate Recruitment Fair held in conjunction with the 21 <sup>st</sup> Annual Meeting of the Protein Society, Boston, MA. |
| July 2008     | Organizer, on behalf of the Vanderbilt Institute of Chemical Biology and Department of Chemistry, Participation in the Graduate Recruitment Fair held in conjunction with the 22 <sup>nd</sup> Annual Meeting of the Protein Society, San Diego, CA.  |
| November 2006 | Participant, Graduate student recruitment reception held in conjunction with the 58 <sup>th</sup> Southeast Regional Meeting of the American Chemical Society, Augusta, GA.                                                                           |
| 2016 - 2019   | Chair, Advisory Committee, Department of Chemistry                                                                                                                                                                                                    |
| 2016 - 2019   | Chair, Diversity Committee, Department of Chemistry                                                                                                                                                                                                   |
| 2016 - 2019   | Chair, Associate Professor Mentoring Committee, Department of Chemistry for Associate Professor Rena Robinson                                                                                                                                         |

**To PROFESSION:**

*Scientific Advisory Boards:*

|                |                               |
|----------------|-------------------------------|
| 2019 - present | MOBILion Systems Incorporated |
|----------------|-------------------------------|

*Editorial Boards:*

|             |                                                                               |
|-------------|-------------------------------------------------------------------------------|
| 2016 - 2018 | Associate Editor, <i>Nature Molecular Phenomics</i>                           |
| 2017 - 2022 | Editorial Board, <i>Journal of the American Society for Mass Spectrometry</i> |

*Professional Society Positions:*

|                |                                                                                                             |
|----------------|-------------------------------------------------------------------------------------------------------------|
| 2026 – present | American Chemical Society – Committee on Science (COMSCI)                                                   |
| 2024 – present | Executive Board, American Chemical Society – Division of Analytical Chemistry (Elected)                     |
| 2016 – 2018    | Board of Directors, American Society for Mass Spectrometry (ASMS) - Member at Large for Education (Elected) |
| 2008 – 2010    | International Delegate to the Society of Applied Spectroscopy Governing Board (Elected)                     |
| 2008 – 2010    | Interest group coordinator (Ion Mobility), American Society for Mass Spectrometry (Elected)                 |
| 2007 – 2010    | Member, Career and Networking Committee of the Protein Society                                              |

*National Report Committees:*

|           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2017-2018 | National Science Foundation Report (2018). <i>Framing the Role of Big Data and Modern Data Science in Chemistry</i> , Washington DC, J. Hachmann, T. Windus, and <b>J. A. McLean</b> . 39 pages. The is a report following the invitation of the NSF Director of the Chemistry Division to conduct a workshop and working group on the role of data science in Chemistry. This report was submitted to the US Congress as part of the NSF request for budget in April of 2018. |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- 2010-2012 National Academy of Sciences, National Research Council, *Committee on Assessment of Agent Monitoring Strategies for the Blue Grass and Pueblo Chemical Agent Destruction Pilot Plants*. Four on-site meetings were necessary for briefings, facility tours, and report writing tasks: (i) Aberdeen, Maryland (February 2011), (ii) Pueblo, Colorado (June 2011), (iii) Washington, DC (August 2011), and Irvine, California (October 2011).
- June 19, 2012 Joint presentation by J. P. Wikswo and J. A. McLean. *Beyond pathogen genomics and the host immune memory response: Can dynamic omni-omic challenge/response experiments inform exposure status?* For the JASON 2012 Exposure Status Summer Study, Mitre Corporation, La Jolla, CA. The JASON Exposure report was commissioned by the Federal Bureau of Investigation.

*Professional National and International Conferences:*

- 2007 - 2023 Organized and chaired symposia at over 20 national and international conferences. *List available upon request.*

*International Doctoral Committee:*

- January 2013 Opponent for Ms. Thuy Tran (Ph.D. Advisor: Professor Gunnar Thorsen) The University of Stockholm, Stockholm, Sweden. Dissertation Defense January 18, 2013 requiring on-site participation. Travel costs and honorarium were provided by the University of Stockholm.