*Updated July 13, 2022*

Curriculum Vitae



Timothy J Garrett, Ph.D.

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##### Established Scientist with experience in Industry and Academia looking for new opportunities that will lead to the development of novel approaches in health science and technology

##### EDUCATION

**Ph.D. Analytical Chemistry May 2006**

* Dissertation: “Imaging small molecules in tissue by matrix-assisted laser desorption/ionization tandem mass spectrometry”
* University of Florida, Gainesville, Florida, GPA 3.88
* Ph.D. mentor: Richard A. Yost, Ph.D.

**B.S. Chemistry with Highest Honors, Summa cum Laude, May 1999**

* University of Georgia, Athens, GA, GPA 3.92
* Honors thesis: “Improved Methods for On-Probe Cleanup of Unpurified Protein Samples for MALDI Time-of-Flight Mass Spectrometry”.
* Undergraduate mentor: I. Jonathan Amster, Ph.D.

# Employment

*Department of Pathology, Immunology, and Laboratory Medicine, University of Florida, Gainesville, FL*

**Journal of Mass Spectrometry and Advances in the Clinical Lab (JMSACL)**

**Co-Editor-in-Chief,** March 2022-present

* Promote the journal for publications
* Manage article submissions, coordinate reviews and decide of manuscript acceptance

**Genable Biosciences, LLC**

**Co-Founder, September 2021-present**

* Translate research discoveries related to biomarkers at the University of Florida to clinical diagnostics assays

**Garrett Analytical Consulting, LLC**

**President and Owner**, November 2009-present

* Consultant to nutraceutical, biotechnology, and pharmaceutical companies for analytical method development, troubleshooting, and technology application
* [garrettanalytical@gmail.com](mailto:garrettanalytical@gmail.com)

**Juno Metabolomics**

**Chief Scientific Officer,** June 2019-present

Direct the scientific operations of Juno Metabolomics

* Development of a home collection kit for therapeutic drug monitoring
* Development of a saliva mass spectrometry-based test for COVID-19
* Development of metabolomic assays and informatics for Military performance and recovery

**Associate Professor with Tenure,** *July 2017-present*

* Translational roles of metabolomics in clinical diagnostics
* Application of LC-MS to microbiome studies
* Biomarker discover in cancer (prostate and breast cancer)
* Understanding the influence of *Oxalobacter formigenes* on oxalate metabolism
* Direct research of graduate and undergraduate students
* Direct the High-throughput metabolomics core for SECIM and Associate Director
* Aid the clinical diagnostic lab in developing new mass spectrometry based assays

**Chief of Experimental Pathology;** *September 2019-present*

* Oversee the research division of the department
* Work with faculty to improve collaboration, research and work environment
* Advise faculty on grant opportunities and work objectives
* Mentor postdoctoral students within the department

**Co-Director of the Southeast Center for Integrated Metabolomics**, (July 2017-present)

* Manage the high throughput metabolomics core
* Manage the Pilot and Feasibility grant program
* Meet with faculty to help design experiments and research studies
* Assist faculty in obtaining grants through preliminary data generation, data analysis and grant writing
* Manage 10 instruments in operation for the core

**Assistant Professor**, *February 2014-June 2017*

* Develop imaging mass spectrometric approaches to pathological specimens
* Directed high-throughput metabolomics core for the Southeast Center for Integrated Metabolomics
* Lead efforts at UF to translate global metabolomics from research to clinical diagnostics
* Direct the research of graduate students
* Worked with UF Pathlabs on clinical mass spectrometry applications and implementation of new technology platforms in clinical diagnostics

*Department of Pathology, Immunology, and Laboratory Medicine, University of Florida, Gainesville, FL*

**Research Assistant Professor**, *May 2012-January 2014*

* Developed new applications in clinical mass spectrometry
* Translated new biomarkers to high-throughput clinical assays
* Developed assays for the Clinical Toxicology lab for UF Path labs
* Helped to manage the CLIA certified Clinical Toxicology lab from as an instrumentation and method development resource
* Developed Global Metabolomic assays for the Southeast Center for Integrated Metabolomics (SECIM)
* Directed of Core 1 (high-throughput metabolomics) in SECIM

*Department of Medicine, University of Florida, Gainesville, FL*

**Research Assistant Professor**, *July 2006-2012*

**Core Laboratory Director***, General Clinical Research Center*

* Applied and theoretical research in the area of biomedical mass spectrometry
* Quantitative analysis of small molecules in plasma, urine, serum
* Managed the operations of the Biomedical Mass Spectrometry
* Managed operations of the CLIA certified Sample Processing/Diagnostic laboratory of the Clinical and Translation Science Institute’s Clinical Research Center

## Department of Chemistry, Richard A. Yost Research Group, University of Florida, Gainesville, FL

**Graduate Research Assistant*,*** *Fall 2001 – Spring 2006*

* Applied and theoretical research in the area of imaging mass spectrometry
* Development of AP/MALDI/MS and AP/MALDI/FAIMS/MS ion and laser optics for tissue analysis
* Development of methods for analysis of tissue specimens at vacuum (10-6 Torr), atmospheric, and intermediate pressure (170 mTorr) MALDI
* Application of these methods for analyzing lipids implicated in demyelinated neuropathic disease
* Investigated the ion fragility of phospholipids by ESI and MALDI for quadrupole ion trap MS
* Development of coating processes for applying MALDI matrix to tissue specimens

### Microcoating Technologies, Atlanta, GA

**Research Technician**, *Spring 2000-Summer 2001*

* Developed novel methods for applications of anti-reflective and conductive coatings to glass substrates using Combustion Chemical Vapor Deposition, CCVD

#### Department of Chemistry, University of Georgia, Athens, GA

**Undergraduate Research Assistant,** *Fall 1997-Spring 1999*

* Conducted research in the analysis of unpurified bacteria by MALDI TOF-MS with identification by peptide mass fingerprinting under the direction of Dr. I. Jonathan Amster

# TEACHING EXPERIENCE

### Department of Chemistry, University of Florida, Gainesville, FL

* **Teaching Assistant**, *Fall 2001-Fall 2002,* CHM 2046, CHM 3120L, CHM 4130L

**Lecturer** on “Imaging Mass Spectrometry” for CHM 6159 Mass Spectrometric Methods, University of Florida, fall **2006**, **2009, 2011-2018**

**Lecturer** on **“Global Metabolomics”** for CHM 6159 Mass Spectrometry Methods, University of Florida, **Fall 2015-2021**

**Lecturer on “Applied Metabolomics”** for Pharmacogenetics

Spring 2022

**Lecturer** on “Application in Imaging” for BCH 6107 Biophysical Techniques in Proteomics and Protein Science, University of Florida, spring **2010**

**Lecturer** on “The Search for Post-Translation Modifications” for BCH 6107Biophysical Techniques in Proteomics and Protein Science, University of Florida, spring **2010**

**EDITORIAL POSTIONS**

Associate Editor PLOSOne 2018-present

Associate Editor for the Journal of Mass Spectrometry Advances to the Clinical Lab 2018-present

**INSTRUMENT PROFICIENCY**

Expert in the application of all ionization sources

* Electrospray ionization (ESI)
* Matrix-assisted laser desorption/ionization (MALDI)
* Atmospheric pressure chemical ionization (APCI)
* Electron ionization and Chemical ionization (EI/CI)
* Desorption electrospray ionization (DESI)
* Liquid microjunction surface analysis (LMJSS)
* Paperspray ionization (PSI)

Expert in mass spectrometry instrumentation and maintenance (over 15 years of experience)

* Thermo TSQ series (7000, Quantum, Ultra) (LC/MS/MS)
* Thermo Ion trap series (LCQ, LCQ Deca, LTQ, Velos) (LC/MSn)
* Thermo Orbitrap Series (accurate mass)
* Bruker ToF
* Agilent 5973 (GC/MS)
* Agilent Q-ToF Series
* Thermo DSQ and GCQ (GC/MS)
* Thermo Q-Exactive High resolution mass spectrometer
* Sciex Q-TOF and triple quadrupoles
* Waters triple quadrupoles

**PRESENTATIONS (presenting author)**

* **Garrett, TJ**; Guo, X; Stacpoole, PW; Yost, RA. Characterization of Lipid Content in Peripheral Nerve Tissue from Rats Exposed to Dichloroacetate. Poster presentation, *51st Annual ASMS Conference*, June **2003**, Montreal, CN.
* **Garrett, TJ**; Merves, MH; Yost, RA. Controlling the Degree of Head Group Fragmentation of Phospholipids in Electrospray Ionization Mass Spectrometry. Poster presentation, *52nd Annual ASMS Conference*, May **2004**, Nashville, TN.
* **Garrett, TJ**; Yost, RA. Mapping Small Molecules in Intact Tissue by Laser Microprobe Ion Trap Tandem Mass Spectrometry. Invited lecture, *Symposium on Chemical and Pharmaceutical Structural Analysis (*[*CPSA*](http://www.milestonedevelopment.com/)), October 18-21, **2004**.
* **Garrett, TJ**; Kovtoun, V; Bui, H; Conaway, MCP; Miller, K; Stafford, G; Yost, RA. Imaging Mass Spectrometry with LD-MSn at Different Pressure Regimes. Poster presentation, *53rd Annual ASMS Conference*, June **2005**, San Antonio, TX.
* **Garrett, TJ**; Yost, RA. Laser Microprobe Analysis: The Role of MS/MS. Invited lecture, *Thermo proteomics seminar series presented in Boston*, MA; New Brunswick, NJ; Philadelphia, PA; Bethesda, MD, May 2-5, **2005**.
* **Garrett, TJ**; Yost, RA. Imaging Phospholipids in Brain Tissue by Intermediate-Pressure MALDI/MSn on a linear ion trap. Invited lecture, *54th Annual ASMS Conference*, May **2006**, Seattle, WA.
* **Garrett, TJ**; Dawson, WW; Yost, RA. Imaging Tandem Mass Spectrometry for the Elucidation of Chemical Species Related to Age-related Macular Degeneration (AMD), poster, *55th Annual ASMS Conference*, June **2007**, Indianapolis, IN.
* **Garrett, TJ**. Imaging Tandem Mass Spectrometry for the Analysis of Small Molecules from Tissue, Invited lecture, Pharmacology & Toxicology Seminar Series and Center for Nutrient Gene-Interaction In Cancer Prevention, *University of Alabama at Birmingham*, March 13, **2007**.
* **Garrett, TJ**; Dawson, WW; Gu, M; Powell, DP; Yost, RA. Identifying Lipids and Other Small Molecules from Imaging Mass Spectrometry Experiments Using Tandem Mass Spectrometry and Exact Mass, poster, *56th Annual ASMS Conference*, June **2008**, Denver, CO.
* **Garrett, TJ**; Dawson, WW; Yost, RA. Imaging Small Molecules in Eyes with Mass Spectrometry, Invited lecture, *Imaging of the Eye for Clinical and Research Applications symposium*, University of Florida, December **2008**, Gainesville, FL.
* **Garrett, TJ**; Dawson, WW, Yost, RA. The Localization of Lipids in Eye Flat-Mounts from Human Donors Poster presentation, *57th Annual ASMS Conference*, May **2009**, Philadelphia, PA.
* **Garrett, TJ**. Imaging Small Molecules in Eyes with Mass Spectrometry, invited lecture at Vanderbilt University, August **2009**.
* **Garrett, TJ**; Mounfield, WP; Yost, RA. Imaging MS by MALDI: A focus on eye tissue, invited lecture at *Applied Pharmaceutical Analysis-India*, February **2012**.
* **Garrett, TJ**; Stutts, WL; Menger, RF; Tsai, Y-H; Mounfield, WP; Yost, RA. Unraveling identity with imaging mass spectrometry: The role of tandem mass spectrometry, invited lecture at *Pittcon Conference and Expo*, Orlando, FL, March **2012**.
* **Garrett, TJ**; Stutts, WL; Mounfield; WP; Menger, RF; Yost, RA. Imaging mass spectrometry in eye research: localization and identification of small molecules. *Oral presentation, XX Biennial meeting of the International Society for Eye Research (ISER),* July **2012**, Berlin, Germany.
* **Garrett, TJ**. Clinical Metabolomics: Translating Metabolomics from Research to Clinical Testing. Invited lecture *Pittcon Conference and Expo*, Philadelphia, PA, March **2013**.
* **Garrett, TJ**. Opportunities for Education in Clinical Sciences. Oral presentation, *Clinical and Pharmaceutical Solutions through Analysis*, October **2013**, Langhorne, PA.
* **Garrett, TJ**. Metabolomics and Isotopic Ratio Outlier Analysis in Metabolomics. Invited Symposium presentation, *Pittcon Conference and Expo,* March **2014**, Chicago, Il.
* **Garrett, TJ**; Tsai, Y-H; Menger, R; Yost, RA. Recent Advances in Metabolomics at the Southeast Center for Integrated Metabolomics. Oral presentation, *Florida Mass Spectrometry Discussion Group,* April **2014**, Lake Nona, FL.
* **Garrett, TJ**. Imaging MS, IROA and Metabolomic Profiling at the Southeast Center for Integrated Metabolomics (SECIM). Invited lecture, *Thermo Scientific Bethesda Users Meeting*, November 18th, **2014**, Bethesda, MD.
* **Garrett, TJ**, Tsai, Y-H, Yost, RA. Imaging MS: Painting Pictures of Disease with Ions. Oral presentation, *Clinical and Pharmaceutical Solutions through Analysis*, October **2014**, Langhorne, PA.
* **Garrett, TJ**. History and Innovation in the Analysis of Thyroglobulin by Mass Spectrometry, Oral presentation, *Pittcon Conference and Expo,* March **2015**, New Orleans, LA.
* **Garrett, TJ**; Lee, D; Goldberger, BA. Robustness of the EVOQ Elite in Clinical Analysis. Oral presentation, *7th Annual MSACL US Conference and Exhibits*, March **2015**, San Diego, CA.
* **Garrett, TJ**. Translating Global Metabolomic profiling by LC-HRMS to a clinical diagnostic assay. *Clinical and Pharmaceutical Solutions through Analysis, CPSA*, October **2015**, Langhorne, PA.
* **Garrett, TJ**. Isotopic labeling strategies for biomarker discovery in metabolomics. *Clinical and Pharmaceutical Solutions through Analysis, CPSA*, October **2015**, Langhorne, PA.
* **Garrett, TJ**; Gill, EL; Vedam-Mai, V; Okun, MS. Imaging mass spectrometry and metabolomics in Parkinson ’s disease, Oral presentation, *8th Annual MSACL US Conference and Exhibits*, February **2016**, Palm Springs.
* **Garrett, TJ**. Opportunities for Clinical Metabolomics Analysis of Tissue Using Liquid Microjunction Surface Analysis. *9th Annual MSACL US Conference and Exhibits*, January 22-26 **2017**, Palm Springs, CA.
* **Garrett, TJ**; Patterson, RE; Ubhi, B; Cusi, K. Dysregulated Lipid Profiles of Non-Alcoholic Fatty Liver Disease (NAFLD). Poster Presentation, *65th Annual ASMS Conference*, **June 4-8 2017**, Indianapolis, IN.
* **Garrett, TJ**. Metabolomics: Discovery, Innovation, and Diagnostics Potential. Invited Lecture, National Taiwan Medical University, **October 11, 2017**.
* **Garrett, TJ**. Clinical Metabolomics Explored from Traditional LC-HRMS to Direct Tissue Analysis Using Liquid Microjunction Surface Sampling. Plenary Lecture, *2017 Mass Spectrometry for Clinical Diagnosis Conference*, Kaohsiung, Taiwan, October 12-14, **2017**.
* **Garrett, TJ**. Metabolomics at SECIM: Past, Present and Future. Oral Presentation, SECIM 2018 workshop and conference, **April 25-26, 2018**, University of Florida, Gainesville, FL.
* **Garrett, TJ**. Metabolomics applications and tools for clinical research. Oral presentation, Sciex breakfast seminar, 66th Annual ASMS Conference on Mass Spectrometry and Allied Topics, **June 3-7, 2018**, San Diego, CA.
* **Garrett, TJ**. Quantitation and profiling metabolomics and translation to clinical diagnostics. Webinar, www.Labroots.com, **June 29th, 2018**.
* **Garrett, TJ**; Kennedy, JH; Perera, R. Paperspray metabolomics of urine for diagnostic potential in prostate cancer. Poster Presentation, 66th Annual ASMS Conference on Mass Spectrometry and Allied Topics, **June 3-7, 2018**, San Diego, CA.
* **Garrett, TJ**. Advances in Metabolomic science for clinical research and diagnostics. RH Barron RBP seminar, University of Florida, **October 2018**, Gainesville, FL.
* **Garrett, TJ**. Advances in Metabolomic science for clinical research and diagnostics. Invited Lecture, Vanderbilt University, **November 2018**, Nashville, TN.
* **Garrett, TJ**. Advances in metabolomics science for translational research. Invited lecture, Tulane University, **February 2019**, New Orleans, LA.
* **Garrett, TJ**; Koelmel, JP; Yost, RA. Innovations in ion mobility and tissue analysis for next-gen lipidomics. Pittcon 2019 Conference & Expo, **March 17-21, 2019**, Philadelphia, PA.
* **Garrett, TJ**. Analytical innovations applied to clinical research. Invited lecture, University of Tennessee Health Science Center, **February 2019**, Memphis, TN.
* **Garrett, TJ**. Metabolomic Innovations applied to Basic and Clinical Research. Invited lecture, University of Wisconsin, **December 2019**, Madison, WS.
* **Garrett, TJ**. Digging into the Cancer Metabolome with LC-HRMS. Invited Lecture, Elucidata User Meeting, **November 2020**, Google Online Platform.
* **Garrett, TJ**. Lost in translation: a research mass spectrometrist in clinical pathology. Invited lecture, International Lipid Society Online workshop, **November 2020**, Zoom presentation.
* **Garrett, TJ**. Experimental Design and Evaluating Performance in Metabolomics, ThermoFisher Metabolomics Essentials sponsored workshop, online, invited lecture, **July 13, 2021**.
* **Garrett, TJ; Yazd, HS; Fitzpatrick, G; Yost, RA; Clapp, W; Kresak, J.** Lipidomics and Metabolomics in Clinical Pathology of Tissue Biopsies: Perspectives in Meningioma and Fabry Disease, Online, Invited Lecture, American Chemical Society, **August 2021**.
* **Garrett, TJ; Yazd, HS; Fitzpatrick, G; Yost, RA; Clapp, W; Kresak, J.** Use of lipidomics and metabolomics in clinical pathology in the diagnosis of Fabry Disease and Meningioma, invited lecture, AACC, **September 26-30, 2021,** Atlanta, GA.
* **Garrett, TJ and Clapp, W.** Lipidomics developments to aid Fabry Diagnosis, UF Pathology Grand Rounds, **October 6, 2021**.
* **Garrett, TJ.** Advances in lipidomics & metabolomics to provide mechanistic insight into infectious disease, UF Infectious Disease Program Invited Lecture, **October 19, 2021**.
* **Garrett, TJ.** Metabolomics for Molecular Diagnostics in Urinary Cancers, invited online workshop Sponsored by Cambridge Isotopes, **November, 17, 2021**.
* **Garrett, TJ.** Advances in metabolomics and lipidomics for disease diagnostics, invited lecture, John’s Hopkins University All Children’s Hospital, St Petersburg, FL, **December 1, 2021**.
* **Garrett TJ.** Advances in metabolomics and lipidomics for insight into disease mechanisms. Argentine Society for Mass Spectrometry, invited lecture, online, **December 16, 2021**.
* **Garrett, TJ.** Advances in mass spectrometry metabolomics and lipidomics for translational research, UF Department of Chemistry invited lecture, **February 23, 2022**.
* **Garrett, TJ; Yazd, HS; Yost, RA.** Lipidomics in clinical pathology diagnostics, Invited Lecture, International Singapore Lipid Symposium (iSLS), Online, **March 8-10, 2022**.
* **Garett, TJ**. Advances in lipidomics for insight into infectious disease, invited lecture, March Malaria Madness **April 1-2,** **2022,** St Petersburg, FL.
* **Garrett, TJ**. Why we fail at biomarker discovery, workshop MSACL **April 5-8, 2022**, Monterrey, CA.

**PRESENTATIONS (co-author)**

* Baluya, DL; **Garrett, TJ**; Yost, RA. Computer-controlled Multi-channel Inkjet Printing of MALDI Matrices for Imaging Mass Spectrometry. Poster presentation, *54th Annual ASMS* *Conference*, May **2006**, Seattle, WA.
* Drexler, D; **Garrett, TJ**; Cantone, J; Diters, R; Mitroka, J; Conaway, MCP; Adams, S; Yost, RA; Sanders, M. Utility of Multistage Mass Spectrometric Imaging by MALDI Ion-Trap MS in the Analysis of Drugs and Metabolites in Biological Tissue. Lecture, *54th Annual ASMS Conference*, May **2006**, Seattle, WA.
* Napolitano, MP; **Garrett, TJ**; Moroz, LL; Yost, RA. Lipid Profiling of Aplysia californica using Intermediate-Pressure MALDI with a Linear Ion Trap. Poster presentation, *54th Annual ASMS Conference*, May **2006**, Seattle, WA.
* Malayappan B, **Garrett TJ**, Leeuwenburgh C. Analysis of 8-oxoguanine, Fapy-Guanine, 8-oxoguanosine and 8-oxo-2’-deoxyguanosine in Human Urine by High-Performance Liquid Chromatography Electrospray Tandem Mass Spectrometry. Poster presentation, *55th Annual ASMS conference*, May **2007**, Indianapolis, IN.
* Landgraf RR, **Garrett TJ,** Stacpoole PW, Yost RA. Identifying Lipid Changes in Nerve Tissue as a result of Dichloroacetate Treatment using IP-MALDI Coupled to a Linear Ion Trap. Poster presentation, *55th Annual ASMS conference*, May **2007**, Indianapolis, IN.
* Yost RA, **Garrett TJ,** Magparangalan DP, Baluya DL, Landgraf RR, Napolitano MP. Perspectives for Quantitative Tissue Imaging by Intermediate-Pressure MALDI/Linear Ion Trap Tandem Mass Spectrometry. Oral presentation, *55th Annual ASMS conference*, May **2007**, Indianapolis, IN.
* Dawson WW, **Garrett TJ**. Primate Fundus Lipid Geography by Imaging Mass Spectrometry. Poster presentation, *ARVO 2008 Annual Meeting*, April **2008**, Fort Lauderdale, FL.
* Cerutti S, **Garrett TJ,** Borum PR, Johnson JV, Yost RA, Powell DH. Metabolic Profiling of Carnitine, Acylcarnitines, Amino Acids, and other Metabolites in Plasma Samples by Monolithic and HILIC HPLC-ESI-TOF-MS. Poster presentation, *56th Annual ASMS Conference*, June **2008**, Denver, CO.
* Pirman DA, Borum PR, **Garrett TJ,** Yost RA. Localization of Endogenous Acetylcarnitine in Piglet Brain Tissue by Imaging Mass Spectrometry with Porphyrins as a MALDI Matrix. Poster presentation, *56th Annual ASMS Conference*, June **2008**, Denver, CO.
* Bowden JA, Colosi DM, **Garrett TJ,** Yost RA. Evaluation of Microwave-Accelerated Derivatization (MAD) for the Comprehensive Analysis of Steroids using Gas Chromatography-Mass Spectrometry. Poster presentation, *56th Annual ASMS Conference*, June **2008**, Denver, CO.
* Landgraf RR, **Garrett TJ,** Stacpoole PW, Yost RA. Quantitation of Lipids in Nerve Tissue using IP-MALDI-LIT-MS: Strategies for Applying Internal Standards. Poster presentation, *56th Annual ASMS Conference*, June **2008**, Denver, CO.
* Palii SP, **Garrett TJ,** Leeuwenburgh C, Calcutt NA, Stacpoole PW. LC-APCI-MS/MS Analysis of Redox Status of Coenzymes CoQ9 and CoQ10 in Biological Samples as a Biomarker of Oxidative Stress. Poster presentation, *57th Annual ASMS Conference*, May **2009**, Philadelphia, PA.
* Landgraf RR, Stutts W, Prieto-Conaway MC, **Garrett, TJ,** Stacpoole PW, Yost RA. The Use of MSn and High Resolution MS for the Identification and Imaging of Lipids in Nerve Tissue. Poster presentation, *57th Annual ASMS Conference*, May **2009**, Philadelphia, PA.
* Magparangalan DP, **Garrett TJ,** Drexler DM, Yost RA. Analysis of Large Peptides by MALDI using a Linear Quadrupole Ion Trap. Poster presentation, *57th Annual ASMS Conference*, May **2009**, Philadelphia, PA.
* Stutts WL, Valente KS, **Garrett TJ,** Di Mascio P, Yost RA. Tandem Mass Spectrometric Analysis of Oxidized Glycerophospholipids by MALDI using a Linear Ion Trap. Poster presentation, *58th Annual ASMS Conference*, May **2010**, Salt Lake City, UT.
* Menger RF, Stutts WL, Bowden JA, Anubukumar D, Ford DA, Dawson WW, **Garrett TJ,** Yost RA. Mass Spectrometric Imaging of Lysophosphatidylcholines in Various Tissue Types. Poster presentation, *58th Annual ASMS conference*, May **2010**, Salt Lake City, UT.
* Magparangalan DP, **Garrett TJ,** Drexler DM, Yost RA. Analysis of Intact and in situ Trypsin-digested Amyloid Beta Peptides by MALDI-LIT-MSn for Mass Spectrometric Imaging. Poster presentation, *58th Annual ASMS conference*, May **2010**, Salt Lake City, UT.
* Stutts, WL; Valente, KS; **Garrett, TJ**; Di Mascio, P; Yost, RA. Characterization and identification of long-chain and short-chain phospholipid oxidation products by MALDI-MSn. Poster presentation, *59th Annual ASMS conference*, June **2011**, Denver, CO.
* Mounfield, W and **Garrett, TJ**. Automated MALDI matrix spraying system for coating multiple tissue samples in imaging mass spectrometry analysis. Poster presentation, *59th Annual ASMS conference*, June **2011**, Denver, CO.
* Menger RF, Verma A, Li Q, **Garrett TJ,** Yost RA. A tandem mass spectrometric imaging methodology for angiotensin 107 peptides. Poster presentation, *59th Annual ASMS conference*, June **2011**, Denver, CO.
* Mounfield, WP; Garrett, TJ; Hattan, SJ; Vestal, M. Rapid MALDI imaging, sample preparation, and sample analysis for high throughput discovery. Poster presentation, *60th Annual ASMS conference*, May **2012**, Vancouver, Canada.
* Tsai, Y-H; Carter, C; **Garrett, TJ**; Yost, RA. LC/MS/MS and mass spectrometric imaging of lipids in skeletal muscle of aged rats. Poster presentation, *60th Annual ASMS conference*, May **2012**, Vancouver, Canada.
* da Silva VR, Rios-Avila L, Lamers Y, Ralat MA, Midttun Ø, Quinlivan EP, **Garrett** **TG,** Chi Y-Y, Muller KE, Ueland PM, Stacpoole PW, Gregory III JF. Vitamin B-6 restriction in healthy men and women affects metabolite profiles reflecting altered one-carbon metabolism and tryptophan catabolism. Metabolomics Society July **2013**, Glasgow, Scotland.
* Tsai, Y-H; **Garrett, TJ**; Carter, C; Yost, RA. Lipidomic analysis and comparison of young and old rat skeletal muscles using UHPLC-HRMS. Poster presentation, *62nd Annual ASMS conference*, May **2014**, Baltimore, MD.
* Patterson, R; Yost, RA, **Garrett, TJ**. Comparison of extraction methods for untargeted lipid analysis by liquid chromatography - mass spectrometry (LC-MS). Poster presentation, *62nd Annual ASMS conference*, May **2014**, Baltimore, MD.
* Ulmer, C; Chen, J; **Garrett, TJ**; Mathews, C; Yost, RA. Evaluation of Electrospray Ionization Effects on Jurkat-T Human Leukemia Cell Washing Buffers & Lipid Extraction Methods by LC-MS. Poster presentation, *62nd Annual ASMS conference*, May **2014**, Baltimore, MD.
* Shahin MH, Rotroff DM, Gong Y, Langaee T, McDonough CW, Beitelshees AL, **Garrett TJ,** Chapman AB, Gums JG, Turner ST, Motsinger-Reif A, Frye RF, Scherer SE, Sadee, W, Fiehn O, Cooper-DeHoff RM, Kaddurah-Daouk R, Johnson JA. Integrating Metabolomics and Genomics Reveals Novel Biomakers of Hydrochlorothiazide Response in Pharmacogenomic Evaluation of Antihypertensive Responses (PEAR) Study. Poster presentation, *American Society for Clinical Pharmacology and Therapeutics (ASCPT) annual meeting*, March **2015**, New Orleans, LA.
* Koelmel, JP; Boweden, J; Ulmer, C; Patterson, R; **Garrett, TJ**; Beecher, C; Yost, RA. Novel Strategies for Analysis of High Resolution Data-Independent MS/MS Spectra for Rapid and Accurate Structural Conformation of Lipids. Poster presentation, 63rd *Annual ASMS conference*, June **2015**, St. Louis, MO.
* Williams, M; Guggisberg, A; Beecher, C; Odom, A; **Garrett, TJ**. An Optimized Method for Extraction of Red Blood Cell Metabolites. Poster presentation, 63rd *Annual ASMS conference*, June **2015**, St. Louis, MO.
* McDougall, D; Patterson, R; Tsai, Yu-Hsuan; **Garrett, RJ**; Yost, RA. Tissue Sample Preparation Optimized for Global Lipidomics by LC-MS. Poster presentation, 63rd *Annual ASAMS conference*, June **2015**, St. Louis, MO.
* Ulmer, C; Chen, J; **Garrett, TJ**; Matthews, C; Yost, RA. Metabolic and Lipidomic Biomarker Discovery for Type 1 Diabetes using LC-MS Analysis of Primary T Cells. Poster presentation, 63rd *Annual ASAMS conference*, June **2015**, St. Louis, MO.
* Tsai, Yu-Hsuan; **Garrett, TJ**; Qiu, Y; Moir, R; Willis, I; Beecher, C; Yost, RA; Kurland, I. Untargeted Metabolomic Analysis of the Yeast Lipin Phosphatidate Phosphatase (Pah1p) Deletion using Isotopic Ratio Outlier Analysis (IROA) and LC-HRMS. Poster presentation, 63rd *Annual ASAMS conference*, June **2015**, St. Louis, MO.
* Patterson, R; Kalavalapalli, S; Sunny, NE; **Garrett, TJ**; Yost, RA. Lipidomics of Nonalcoholic Fatty Liver Disease and Nonalcoholic Statohepatitis in a Mouse Model via LC-HRMS. Poster presentation, 63rd *Annual ASMS conference*, June **2015**, St. Louis, MO.
* Vedam-Mai, V; Sternberg, S; William, M; **Garrett, TJ**; Okun, MS. A metabolomic study of post-mortem DBS human tissue, *Movement disorders*, **2015**, Meeting abstract: 734.
* Dhummakupt, E; Chamberlain, D; Beecher, C; **Garrett, TJ**. Study of Untargeted Metabolite Degradation in Plasma using Isotopic Ratio Outlier Analysis by uHPLC-HRMS. Poster Presentation, *64th Annual ASMS conference*, **June 5-9** **2016**, San Antonio, TX.
* Beecher, C; **Garrett, TJ**; Dhummakupt, E; Rubio, VY. Using Isotopic Ratio Outlier Analysis (IROA) and non-negative Matrix Factorization (NMF) to Sort Mixtures in Metabolomic Analyses. Poster Presentation, *64th Annual ASMS conference*, **June 5-9** **2016**, San Antonio, TX.
* Koelmel, JP; Sommerville, SE; **Garrett, TJ**; Yost, RA; Chapman, R; Guillette, L. Environmental Lipidomics: Examining the Case of Pansteatitis in Mozambque Tilapia. Poster Presentation, *64th Annual ASMS conference*, **June 5-9** **2016**, San Antonio, TX.
* Koelmel, JP; Kroeger, JM; Ulmer, C; Patterson, RE; Bowden, JA; **Garrett, TJ**; Yost, RA. LipidMatch Software: Identification of lipids and Their Oxidation Products using Data-Dependent and Data-Independent LC-MS/MS data. Poster Presentation, *64th Annual ASMS conference*, **June 5-9** **2016**, San Antonio, TX.
* Levy, AJ; Patterson, RE; Koelmel, JP; Kalavalapalli, S; Sunny, N; Brill, F; Cusi, K; **Garrett, TJ**; Yost, RA. Global Metabolomics and Lipidomics of Non-Alcoholic Fatty Liver Disease and Non-Alcoholic Steatoheptatitis in Human Plasma by LC-HRMS. Poster Presentation, *64th Annual ASMS conference*, **June 5-9** **2016**, San Antonio, TX.
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* Du X, Aristizabal-Henao JJ, **Garrett TJ**, Brochhausen M, Hogan WR, Lemas DJ. A Checklist for Reproducible Computational Analysis in Clinical Metabolomics Research. Metabolites. **2022** Jan 17;12(1):87. doi: 10.3390/metabo12010087. PMID: 35050209
* Pinto FG, Mahmud I, Rubio VY, Máquina ADV, Furtado Durans AF, Neto WB, **Garrett TJ**. Data-Driven Soft Independent Modeling of Class Analogy in Paper Spray Ionization Mass Spectrometry-Based Metabolomics for Rapid Detection of Prostate Cancer. Anal Chem. **2022** Feb 1;94(4):1925-1931. doi: 10.1021/acs.analchem.1c04004. Epub 2022 Jan 21. PMID: 35060703
* Tikunov AP, Tipton JD, **Garrett TJ**, Shinde SV, Kim HJ, Gerber DA, Herring LE, Graves LM, Macdonald JM. Green Chemistry Preservation and Extraction of Biospecimens for Multi-omic Analyses. Methods Mol Biol. **2022** ;2394:267-298. doi: 10.1007/978-1-0716-1811-0\_17. PMID: 35094334

**Service**

* Short course co-organizer and co-instructor for new course entitled “Basic Tools and Techniques for MALDI Imaging: at the *58th Annual ASMS Conference*, May 22-23, **2010**. Other instructors were Michelle Reyzer of Vanderbilt University and Dale (Shannon) Cornett of Bruker Daltronics.
* Short course co-organizer and co-instructor for new course entitled “Basic Tools and Techniques for MALDI Imaging: at the *59th Annual ASMS Conference*, May 22-23, **2011**.
* Short course co-organizer and co-instructor for new course entitled “Basic Tools and Techniques for MALDI Imaging: at the *60th Annual ASMS Conference*, May 20-24, **2012**.
* Short course co-organizer and co-instructor for new course entitled “Basic Tools and Techniques for MALDI Imaging: at the *61th Annual ASMS Conference*, June 8-13, **2013**.
* Reviewer for Analytical Chemistry, Proteomics, Journal of the American Society for Mass Spectrometry, Analytical Bioanalytical Chemistry, Lipids, PLOSone.
* Panel Reviewer for NSF SBIR program
* Panel Reviewer for NSF Chemical Analysis and Imaging program
* Symposium co-coordinator and oral presider, Pittcon Conference & Expo, Orlando, FL **2012**.
* Contributed session co-organizer, Pittcon Conference & Expo, Philadelphia, PA, **2013**.
* Workshop co-organizer entitled “Building a better clinical mass spectrometry lab” for CPSA USA conference October **2014**.
* Session Chair for Clinical Mass Spectrometry at the *63rd Annual ASMS Conference*, June **2014**.
* Workshop co-organizer entitled “Building a better clinical mass spectrometry lab” for CPSA USA conference October **2015**.
* Session Chair for Imaging Mass spectrometry at the *8th Annual MSACL Conference*, February **2016**, Palm Springs, CA.
* Short course co-organizer entitled “Application of High Resolution Mass Spectrometry and Metabolomics in Clinical Analysis, 9th Annual MSACL Conference, January **2016**, Palm Springs, CA.
* Short course co-organizer entitled “Application of High Resolution Mass Spectrometry and Metabolomics in Clinical Analysis, 10th Annual MSACL Conference, January **2017**, Palm Springs, CA.
* Co-Organizer for the ASMS Asilomar Meeting “Impact of Metabolomics in Translational and Clinical Research, **2017**.
* Workshop co-organizer entitled “Reporting of Multi-Analyte Assays in Clinical Diagnostics. 66th Annual ASMS Conference on Mass Spectrometry and Allied Topics, **June 3-7, 2018**, San Diego, CA.
* Short course co-organizer entitled “Application of High Resolution Mass Spectrometry and Metabolomics in Clinical Analysis, 12th Annual MSACL Conference, March **2019**, Palm Springs, CA.
* Workshop organizer entitled “Why we fail at biomarker discovery” for the Mass Spectrometry and Advances in the Clinical Lab conference, **April 5-8, 2022**, Monterrey, CA
* Planning and land use committee member, University of Florida, **2018**-**2022**
* Graduation committee member, University of Florida, **2018**-**2022**
* Co-Editor-in-Chief, Journal of Mass Spectrometry and Advances in the Clinical Lab, March 2022-present.

# AWARDS

* Most accessed paper of 2020 for the Journal of the American Society for Mass Spectrometry, Mahmud I, **Garrett TJ**. Mass Spectrometry Techniques in Emerging Pathogens Studies: COVID-19 Perspectives. J Am Soc Mass Spectrom. **2020**
* College of Medicine Exemplary Teacher award 2019
* 2016 UF/IFAS high impact research publication. Liu, H; **Garrett, TJ**; Tayyari, F; Gu, L. Profiling the metabolome changes caused by cranberry procyanidins in plasma of female rats using (1) NMR and UHPLC-Q-Orbitrap-HRMS global metabolomics approaches, *Mol. Nutr. Food Res.,* **2015**, 59(11), 2107-2118, PMID:26264887.
* Best applied graduate student paper, International Journal of Mass spectrometry (2007)
* Crow-Stasch award for excellence in publication (2007 and 2008)
* Baties-Laitnen award (2006)
* Proctor & Gamble award for excellence in graduate research (2005)
* Grinter fellowship for graduate research (2001-2002)
* Howard Hughes fellowship (HHMI) for undergraduate research (1998)

**GRANTS FUNDED**

* University of Florida Clinical and Translation Institute, Analytical Technologies Pilot project award, **2008**, “Development of a MALDI hybrid linear ion trap/time-of-flight imaging mass spectrometer”, $24,800, Co-PI.
* University of Florida/Moffit Cancer Center Collaborative Award, **2008**, “Analysis of kynurenine plasma levels and indeolamine-2,3-dioxygenase (IDO) expression levels in patients with invasive breast cancer”, $25,000, Co-PI
* National Institutes of Health, National Eye Institute, **2011**, “Arrestin migration in photoreceptors: Mechanism/Function”, 10% FTE, 4 years.
* Juvenile Diabetes Research Foundation International (JDRF), **2012**, Lymphocyte Mitochondrial Dysfunction in Type 1 Diabetes, Funded, 3 years, $150,000/year, Key personnel.
* University of Florida Clinical and Translation Science Institute Pilot project award, **2013**, Targeted Metabolomics to Probe Glycolysis, “Tricarboxyclic Acid (TCA) cycle and Acyl-CoA Metabolism in Mitochondrial Dysfunction”, $25,000, PI, 1 year.
* University of Florida Research Opportunity Seed Fund, **2013**, Mitochondrial Dysfunction in Nonalcoholic Fatty Liver Disease (NAFLD): Mechanisms and Role of Insulin Resistance and Oxidative Stress, Funded, $85,836, Co-PI.
* National Institutes of Health, NIDDK, U24, Southeastern Center for Integrated Metabolomics, Core 1 director, key personnel, 20% FTE, $9.999,524, re-submitted **2013**, Funded, Core 1 Director.
* National Institutes of Health, R21, regulation of tryptophan metabolism and anxiety by gut microbiota, 10% FTE, Co-I, **2015**.
* National Institutes of Health, R01, Genetics and physiology of oral biofilms, 5% FTE,Co-I, **2015**.
* National Institutes of Health, U54, Together Transforming and Translating Discovery to improve Health, PI Clinical Metabolomics Module, 15% FTE, **2015**.
* Xtradordinary Joy! Foundation, Using Metabolomics to investigate treatments for rare X-chromosome deletion disorders, **2018-2020**.

**CURRENT RESEARCH SUPPORT**

U2 COD026483 Yost (PI) 9/1/2018 - 6/30/2022

NIH

Metabolomics Consortium Coordinating Center (M3C)

The overarching goal of the M3C will be the promotion of metabolomics as a key component of biomedical research (basic, clinical, and translational) and clinical care.

Role: Co-Investigator

R01 DK088892 Hatch (PI) 09/01/16-05/31/20 (extended)

NIH

An integrated, functional, molecular, and metabolomic approach to understand Oxalobacter-induced

elimination of oxalate

These studies will evaluate the bacteria–host physiological interactions in the setting of the genetic disease of

Primary Hyperoxaluria, type 1. This discovery process should provide significant mechanistic information

towards the development of a more effective probiotic therapy to treat hyperoxaluria.

Role: Co-Investigator

1-PAR-2018-688-M-R Garrett(PI) 10/1/2018-9/30/2019

JDRF

Quantitative analysis of insulin activity in the cold supply chain

The goal of this project is to provide an independent validation of the ability of the United States cold supply chain to provide insulin to pharmacies and thereby, to patients.

OR-DRPD-ROF2017 Bulitta (PI) 06/01/17-05/31/19 (extended)

UF DSR Oppor. Fund

Combating resistant Gram-negative bacterial superbugs via omics techniques

The goal of this project is to determine, for the first time, receptor binding by β-lactam antibiotics in intact

bacteria.

8BC04 Gillies (PI) 3/21/2018 - 3/31/2021

Moffitt Cancer Ctr/FL BHC

Targeting the lipogenic phenotype induced by extracellular acidosis in breast cancer

UF Subaward will perform LC-MS and LC-MS/MS analyses for lipids from all cell lines and adiposomes covering hundreds of lipids.

Role: Co-Investigator

R01 AI143313 Morel (PI) 01/11/2019-12/31/2023

NIH

Gut dysbiosis and tryptophan metabolism in lupus

The goals of this proposal are to use a mouse model as well as samples collected from lupus patients to test the hypothesis that gut bacteria contribute to lupus by their utilization of tryptophan, an essential amino acid whose derivative metabolites activate immune cells.

R21 AT010192 Zubcevic (PI) 12/1/2018-11/30/2020

NIH

Gut-brain axis: functional link between microbial metabolites and neurogenic hypertension

The proposed studies will validate metabolite biomarkers predictive of severity of hypertension, and will contribute to the improvement and/or development of novel therapeutic approaches for the treatment of neurogenic hypertension.

Role:Co-Investigator

**Patents**

* Submitted 2 patent disclosures to the University of Florida in **2010**
  + Rapid MALDI matrix coating apparatus for mass spectrometric imaging (patented)
  + Fragmenting proteins and peptides in ion traps with reagent gas

**TRAINEES**

* Michael Williams (Post-doctoral trainee, 2014-2015), currently a Staff Scientist at Alturas Analytics
* Elizabeth Dhummakupt (Post-doctoral trainee, 2015-2016), currently on a post-doctoral associate at Edgewood Chemical Biological Center
* Iqbal Mahmud (Post-doctoral trainee, 2018-present)
* Michelle Reid (PhD 2018), currently a post-doctoral student at the ETH Zurich
* Emily Gill (PhD 2018), currently a post-doctoral student at Children’s Hospital in Philadelphia
* Jeremy Koelmel (PhD 2017), Currently a Staff Scientist at the University of Florida
* Rainey Patterson (PhD 2016), Currently a Staff Scientist at Eastman Chemical
* Candice Ulmer (PhD 2016), Currently a Clinical Chemistry trainee at the CDC
* Yu-Hsuan Tsai (PhD 2015), Currently at Staff Scientist at Croda International
* Whitney Stutts (PhD 2013), Currently a Senior Research Scholar at North Carolina State University
* Rob Menger (PhD 2013), Currently at Scientist II at Celgene
* Dan Magparangalan (PhD 2010), Currently a Staff Scientist at Covidien
* Casey Chamberlain (PhD 2019), Currently postdoctoral student at WUSTL
* Iqbal Mahmud (PhD 2018), postdoctoral trainee
* Vanessa Rubio (PhD 2020)
* Hamzah Ahmed (PhD 2021)
* Hoda Safari (PhD 2022)
* Taylor Harmon (PhD 2022)
* Sina Feizbakhsh (current PhD student)
* Michael Christopher (current PhD student)
* Wenqian Li (current PhD student)
* Abdulkarim Alfaez (current PhD student)



Signed and Updated April 19, 2022