

Curriculum Vitae



Timothy J Garrett, Ph.D.

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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

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

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

Associate Professor, 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 student
- Direct the High-throughput metabolomics core for SECIM
- Aid the clinical diagnostic lab in developing new mass spectrometry based assays

Assistant Professor, February 2014-present

- Develop imaging mass spectrometric approaches to pathological specimens
- Direct high-throughput metabolomics core for the Southeast Center for Integrated Metabolomics
- Leading efforts at UF to translate global metabolomics from research to clinical diagnostics
- Direct the research of graduate students
- Work 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
- Translate 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**

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 6107 Biophysical Techniques in Proteomics and Protein Science, University of Florida, spring **2010**

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)

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)
- Thermo DSQ and GCQ (GC/MS)
- Thermo Q-Exactive High resolution mass spectrometer

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)*, 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**.

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, Langae T, McDonough CW, Beitelshes 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 Biomarkers 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 ASMS 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 ASMS 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 ASMS conference*, June **2015**, St. Louis, MO.
- Patterson, R; Kalavalapalli, S; Sunny, NE; **Garrett, TJ**; Yost, RA. Lipidomics of Nonalcoholic Fatty Liver Disease and Nonalcoholic Steatohepatitis 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 Mozambique 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 Steatohepatitis in Human Plasma by LC-HRMS. Poster Presentation, *64th Annual ASMS conference*, **June 5-9 2016**, San Antonio, TX.
- Mahmud, I; **Garrett, TJ**; Liao, D. Death Domain Associated Protein DAXX May Regulate a Distinct Lipid Metabolism Signature in Breast Cancer. Poster Presentation, *64th Annual ASMS conference*, **June 5-9 2016**, San Antonio, TX
- Gill, EL; Yost, RA; **Garrett, TJ**; Vedam-Mai, V. A New Embedding Method for Mouse Brain Tissue in Preparation for Matrix-Assisted Laser Desorption Ionization Mass Spectrometry Imaging (MALDI-MSI). Poster Presentation, *64th Annual ASMS conference*, **June 5-9 2016**, San Antonio, TX
- Ulmer, C; Ransom, EU; Beecher, C; **Garrett, TJ**; Chen, J; Matthews, C; Yost, RA. Metabolic Profiling of Type 1 Diabetes from Primary and Established T Cells using Isotopic Ratio Outlier Analysis by LC-MS. Poster Presentation, *64th Annual ASMS conference*, **June 5-9 2016**, San Antonio, TX
- Rubio, VY; Beecher, C; Yost, RA; **Garrett, TJ**. Quantification of Amino Acids using Isotopic Ratio Outlier Analysis (IROA) and LC-MS/MS. Poster Presentation, *65th Annual ASMS Conference*, **June 4-8 2017**, Indianapolis, IN.
- Domenick, TM; Beecher, C; Searcy, L; Kanetsky, PA; Yost, RA; Taylor, N; **Garrett, TJ**. Global Metabolomic Investigation of Tissues from Melanoma Patients with HRMS Using a Yeast Standard for Isotopic Ratio Outlier Analysis (IROA). Poster Presentation, *65th Annual ASMS Conference*, **June 4-8 2017**, Indianapolis, IN.
- Chamberlain, C; Beecher, C; **Garrett, TJ**. Biomarkers for Human Plasma Sample Quality Using an IROA-Labeled Universal Internal Standard. Poster Presentation, *65th Annual ASMS Conference*, **June 4-8 2017**, Indianapolis, IN.
- Searcy, L; Wanchoo, A; Nguyen, C; **Garrett, TJ**; Yost, RA. Innovations in Liquid Microjunction Surface Sampling Probe Mass Spectrometry. Poster Presentation, *65th Annual ASMS Conference*, **June 4-8 2017**, Indianapolis, IN.
- Gill, EL; Marks, M; Yost, RA, Vedam-Mai, V; **Garrett, TJ**. Methodologies for Investigating Neurodegenerative Disorders using a Liquid-Microjunction Surface Sampling Probe. Poster Presentation, *65th Annual ASMS Conference*, **June 4-8 2017**, Indianapolis, IN.
- Reid, ME; Kurland, IJ; Qiu, Y; **Garrett, TJ**; Yost, RA. U13C Glucose Tracing of Exercise Induced Metabolism using UHPLC-HRMS. Poster Presentation, *65th Annual ASMS Conference*, **June 4-8 2017**, Indianapolis, IN.
- Koelmel, JP; Kroeger, NM; Cochran, JA; Gill, EL; Bowden, JA; Ulmer, CZ; Yost, RA; **Garrett, TJ**. Increasing Lipid Identifications in LC-HRMS/MS using Automated Exclusion List Generation from Previous Injections. Poster Presentation, *65th Annual ASMS Conference*, **June 4-8 2017**, Indianapolis, IN.
- Lewis, R; Koelmel, JP; Kemperman, RHJ; Bowden, JA; **Garrett, TJ**; Yost, RA. Instrumental and Software Developments for Enhancing Coverage of the Lipidome. Poster Presentation, *65th Annual ASMS Conference*, **June 4-8 2017**, Indianapolis, IN.

- Oliveria, P; Fang, B; Guingab, JD; Meads, M; Liu, M; Welsh, EA; Eschrich, S; Shain, K; **Garrett, TJ**; Koomen, J. Proteometabolomics of Drug Resistance in Multiple Myeloma. Poster Presentation, *65th Annual ASMS Conference*, **June 4-8 2017**, Indianapolis, IN.
- Beecher, C; **Garrett, TJ**; Chamberlain, CA; Guingab, JD; Yost, RA; Raskind, A; de Jong, F. Just How Many Unknowns are there in a Metabolomics Data Set? Really?. Poster Presentation, *65th Annual ASMS Conference*, **June 4-8 2017**, Indianapolis, IN.
- Cochran, JA; Koelmel, JP; Bowden, JA; Yost, RA; **Garrett, TJ**. Open-source Lipidomics Software for Rapid Semi-Quantitation and Visualization. Poster Presentation, *65th Annual ASMS Conference*, **June 4-8 2017**, Indianapolis, IN.
- Mahmud, I; Tian, G; Zhao, L; **Garrett, TJ**; Liao, D. Systematic Approach for Understanding Regulatory Mechanisms Underlying Cancer Metabolism. Poster Presentation, *65th Annual ASMS Conference*, **June 4-8 2017**, Indianapolis, IN.
- Ubhi, B; Perera, R; Skaley, M; **Garrett, TJ**. A Simplified, Integrated Solution for Untargeted Metabolomics. Poster Presentation, *65th Annual ASMS Conference*, **June 4-8 2017**, Indianapolis, IN.

PUBLICATIONS

- **Garrett, TJ** and Yost, RA. Analysis of intact tissue by intermediate-pressure MALDI on a linear ion trap mass spectrometer. *Anal. Chem.*, **2006**, 78, 7, 2465-2469.
- **Garrett TJ**; Kovtoun, VV; Buy, H.; Izgarian, N; Prieto-Conaway, MC; Stafford, G. and Yost, RA. Imaging mass spectrometry with a new intermediate-pressure MALDI linear ion trap mass spectrometer. *Int. J. Mass Spectrom.*, **2007**, 260, 2-3, 166-176.
- Drexler, DM; **Garrett, TJ**; Cantone, JL; Diters, RW; Mitroka, JG; Prieto-Conaway, MC; Adams, SP; Yost, RA; Sanders, M. Utility of imaging mass spectrometry by matrix-assisted laser desorption ionization (MALDI) on an ion trap mass spectrometer in the analysis of drugs and metabolites in biological tissues. *J. Pharm. And Toxicol. Methods*, **2007**, 55, 279-288.
- Malayappan, B; **Garrett, TJ**; Segal, M; Leeuwenburgh, C. Urinary analysis of 8-oxoguanine, 8-oxoguanosine, fapy-guanine and 8-oxo-2'-deoxyguanosine by high performance liquid chromatography-electrospray tandem mass spectrometry as a measure of oxidative stress. *J. Chromatogr. A*, **2007**, 1167, 1, 54-62.
- Baluya, DL; **Garrett, TJ**; Yost, RA. Automated MALDI matrix deposition method with inkjet printing for imaging mass spectrometry. *Anal. Chem.*, **2007**, 79, 17, 6862-6867.
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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.
- Workshop co-organizer entitled “Application of High Resolution Mass Spectrometry and Metabolomics in Clinical Analysis, 9th Annual MSACL Conference, January **2017**, Palm Springs, CA.
- Workshop co-organizer entitled “Application of High Resolution Mass Spectrometry and Metabolomics in Clinical Analysis, 10th Annual MSACL Conference, January **2018**, Palm Springs, CA.
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AWARDS

- 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 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, “Tricarboxylic 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**.

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
-