The Scientific Association Dedicated to Analytical Excellence®

MEMORANDUM

DATE: **May 29, 2015**

TO: **AOAC OFFICIAL METHODS BOARD**

FROM: **DAWN FRAZIER, AOAC EXECUTIVE FOR SCIENTIFIC BUSINESS DEVELOPMENT**
CHRISTOPHER DENT, AOAC STANDARDS DEVELOPMENT COORDINATOR

SUBJECT: **AOAC Stakeholder Panel on Dietary Supplements (SPDS):**
Expert Review Panel Applications for Set 1 Ingredients

BACKGROUND:
As per AOAC's contract with the National Institutes of Health Office of Dietary Supplements (NIH-ODS Contract No. HHSN263201300015C), AOAC will convene an expert review panel to review methods submitted purporting to meet the Standard Method Performance Requirements® developed by the SPDS Working Groups and approved by the SPDS Stakeholder Panel. The contract calls for one joint ERP for each set of ingredients. Fifteen (15) applications have been submitted to review methods submitted to be weighed against the SMPRs for Set 1 ingredients, with some demonstrating expertise in multiple ingredients.

- Anthocyanins (10 experts)
- Chondroitin (10 experts)
- PDE5 Inhibitors (8 experts)

The approved ERP will consider the candidate methods for potential First Action Official Methods® Status.

RECOMMENDATION FOR ACTION BY THE AOAC OFFICIAL METHODS BOARD:

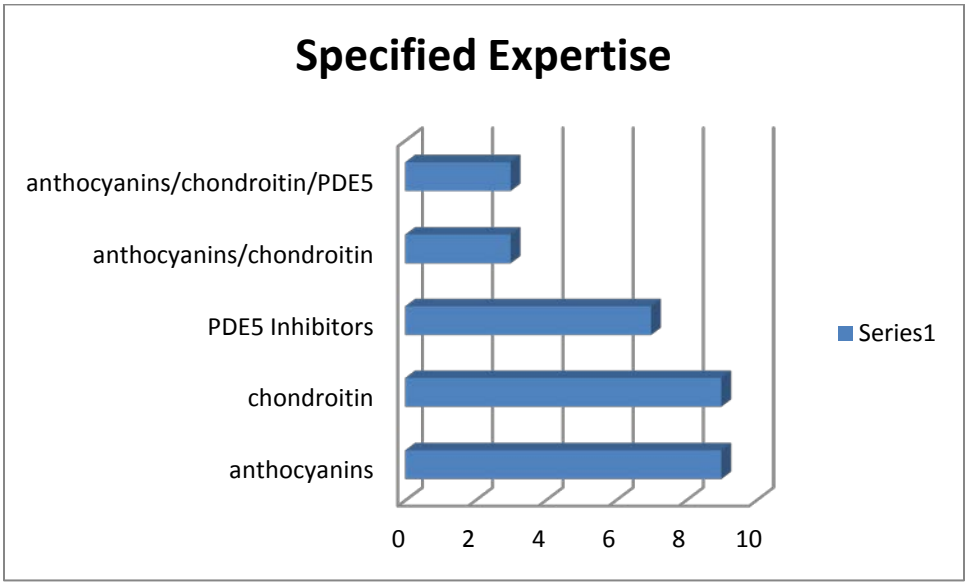
Review the attached applications and consider the appropriate membership for the SPDS Set 1 Expert Review Panel.

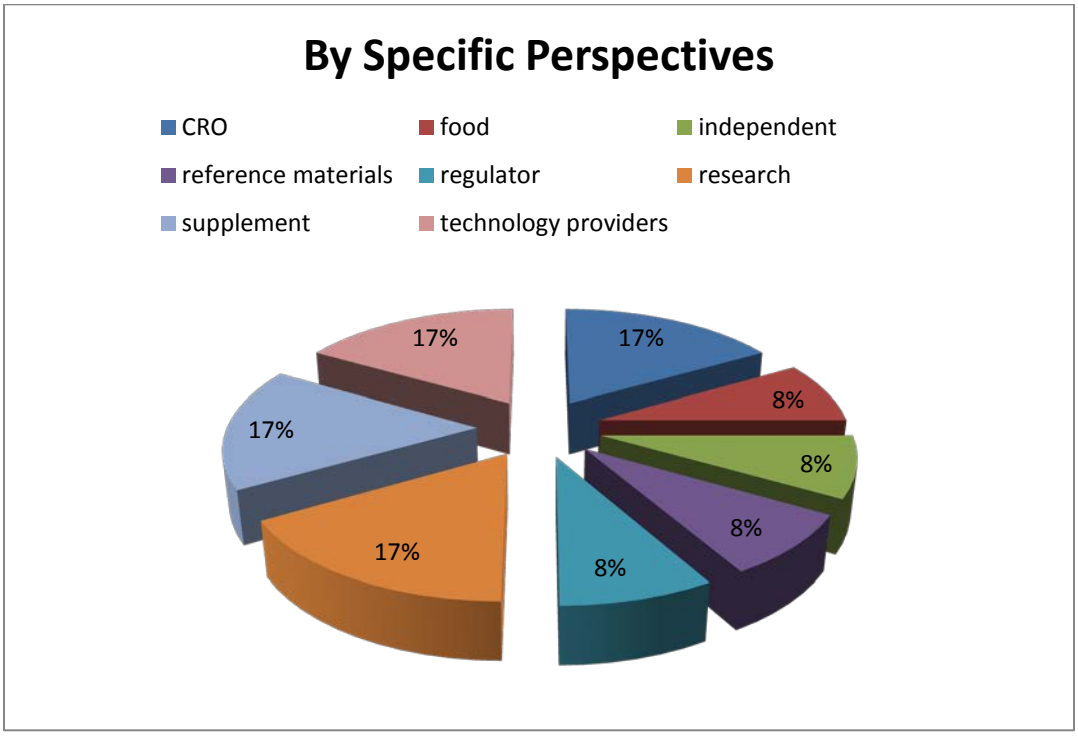
ATTACHMENTS:
1. Completed Set 1 ERP Applications with attached CVs

First and Last Name:	Organization:	E-mail address:	I am interested in participating on one of the following	AOAC INTERNATIONAL is seeking experts for the following Expert Review Panels. Please select the ERP of interest and submit your contact information.
Liton Roy	Sancilio and Company	lroy@sancilio.com	SPDS Expert Review Panel(s)	Anthocyanins; Chondroitin; PDE5 Inhibitors
Martha Jennens	Covance	martha.jennens@covance.com	SPDS Expert Review Panel(s)	Anthocyanins; Chondroitin
Philip Koerner	Phenomenex	PhilK@phenomenex.com	SPDS Expert Review Panel(s)	Anthocyanins; Chondroitin; PDE5 Inhibitors
Fenhong Song	FDA	Fenhong.song@fda.hhs.gov	SPDS Expert Review Panel(s)	PDE5 Inhibitors
Jana Hildreth	Synutra	Jhildreth@synutrapure.com	SPDS Expert Review Panel(s)	Chondroitin
Kelly Reins	Independent Consultant	kelly.reins@gmail.com	SPDS Expert Review Panel(s)	Chondroitin
Nour Eddine ES-SAFI	Mohammed V University, Rabat	nouressafi@yahoo.fr	SPDS Expert Review Panel(s)	Anthocyanins; Chondroitin

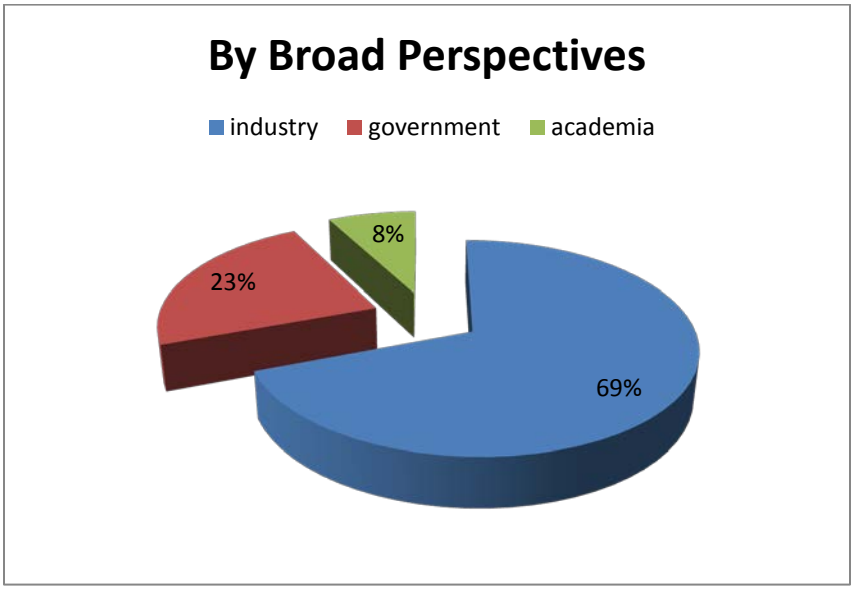
First and Last Name:	Organization:	E-mail address:	I am interested in participating on one of the following groups:	AOAC INTERNATIONAL is seeking experts for the following Expert Review Panels. Please select the ERP of interest and submit your contact information.
Teresa Cain	FDA	teresa.cain@fda.hhs.gov	SPDS Expert Review Panel(s)	PDE5 Inhibitors
Aniko Solyom	GAAS Analytical	asolyom@gaasanalytical.com	SPDS Expert Review Panel(s)	Anthocyanins; Chondroitin
Curtis Phinney	Curtis S.Phinney, CNS	Curtis789@comcast.net	SPDS Expert Review Panel(s)	Chondroitin
Katerina Mastovska	Covance Laboratories	katerina.mastovska@covance.com	SPDS Expert Review Panel(s)	PDE5 Inhibitors
Jerry Zweigenbaum	Agilent Technologies, Inc.	j_zweigenbaum@agilent.com	SPDS Expert Review Panel(s)	Anthocyanins; PDE5 Inhibitors
Jungmin Lee	USDA	jungmin.lee@ars.usda.gov	SPDS Expert Review Panel(s)	Anthocyanins
Melissa Phillips	NIST	melissa.phillips@nist.gov	SPDS Expert Review Panel(s)	Anthocyanins
Brian Schaneberg	Starbucks	bschaneb@starbucks.com'	SPDS Expert Review Panel(s)	Anthocyanins; Chondroitin; PDE5 Inhibitors
Darryl Sullivan	Covance	Darryl.Sullivan@covance.com	SPDS Expert Review Panel (s)	Anthocyanins, Chondroitin, PDE5 Inhibitors

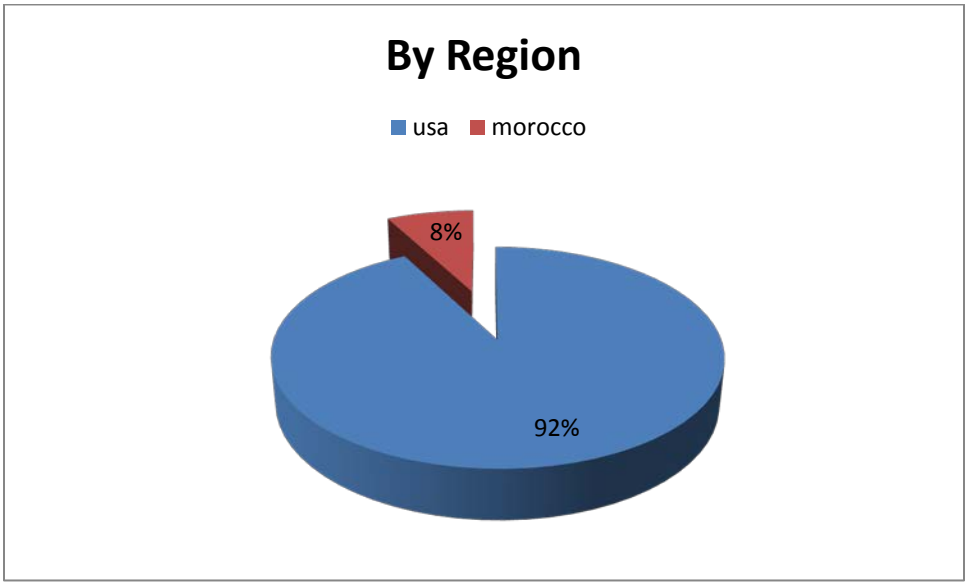
FOR ALL ERP CANDIDATES



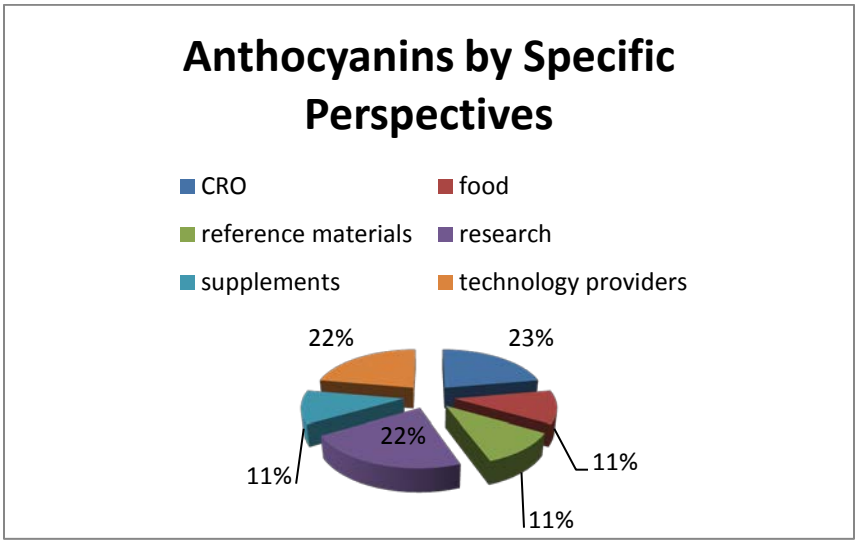


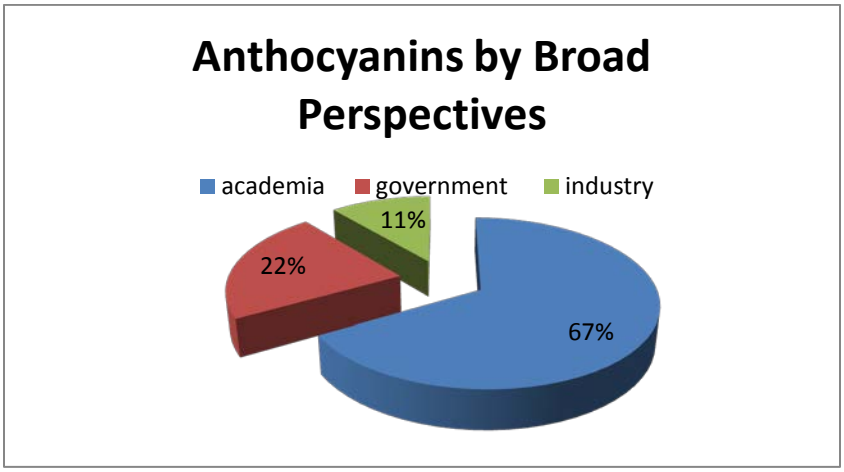
FOR ALL ERP CANDIDATES

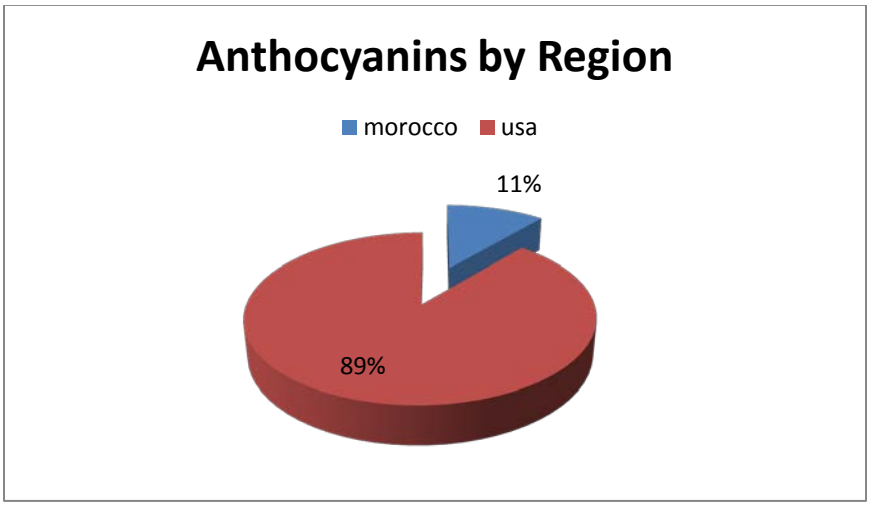




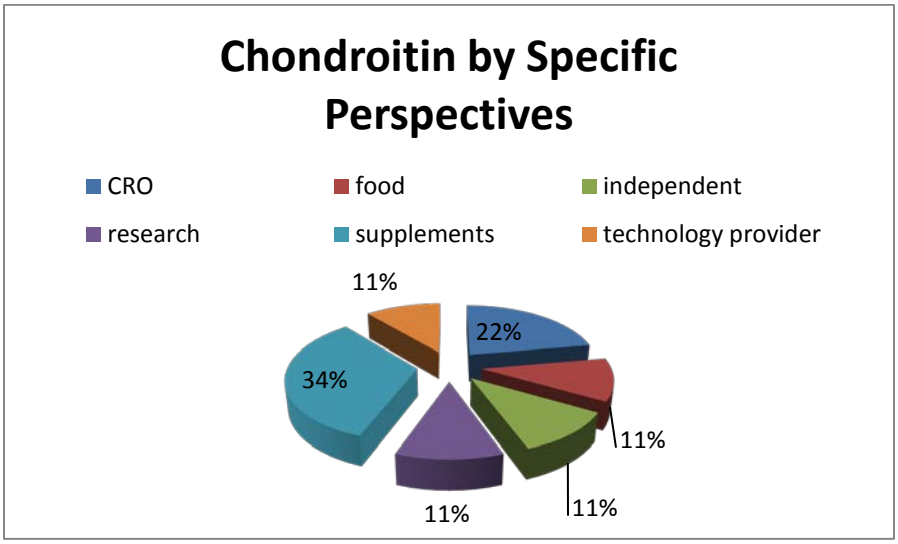
CANDIDATES FOR ANTHOCYANINS METHODS

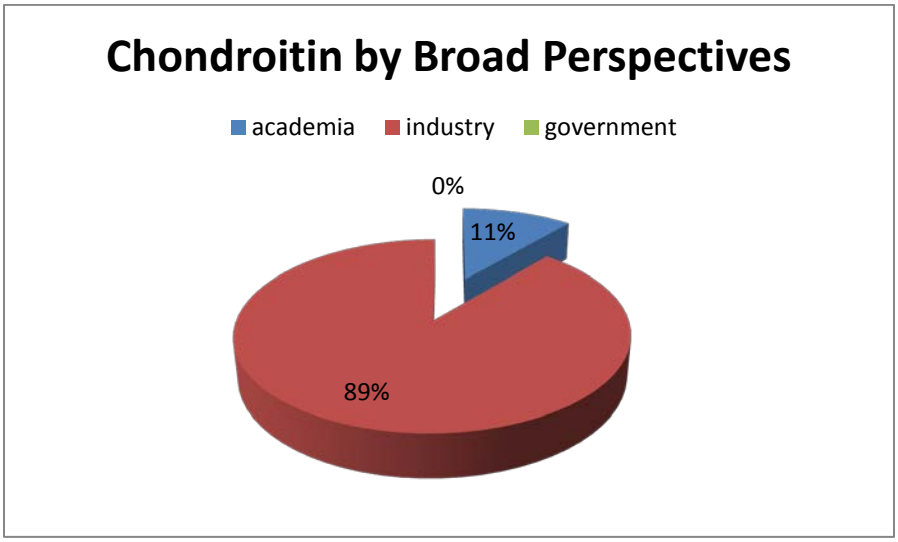


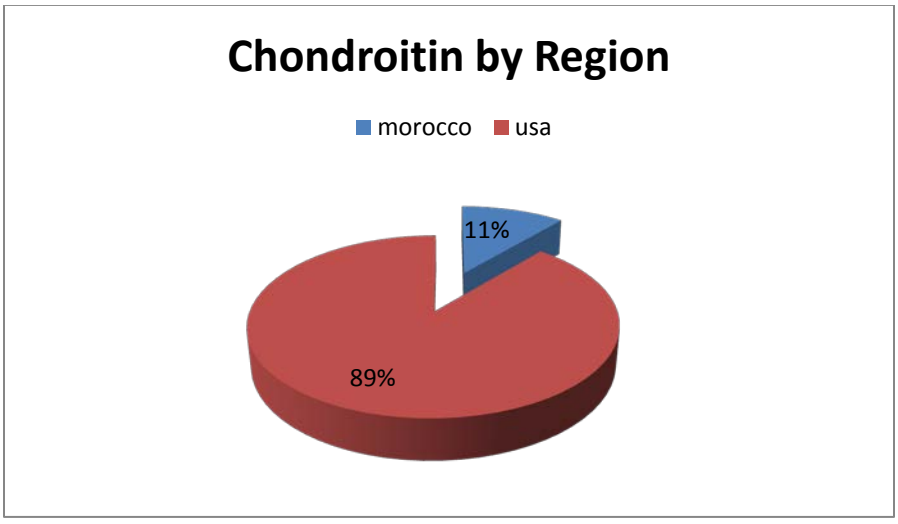




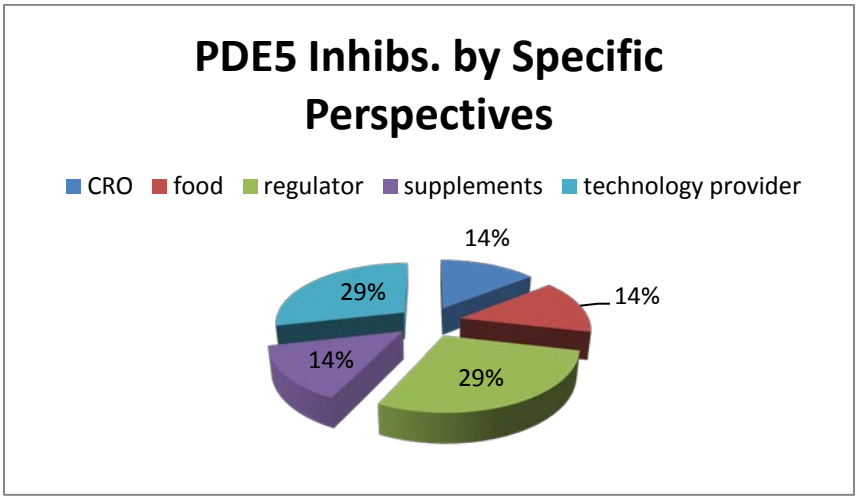
CANDIDATES FOR CHONDROITIN METHODS

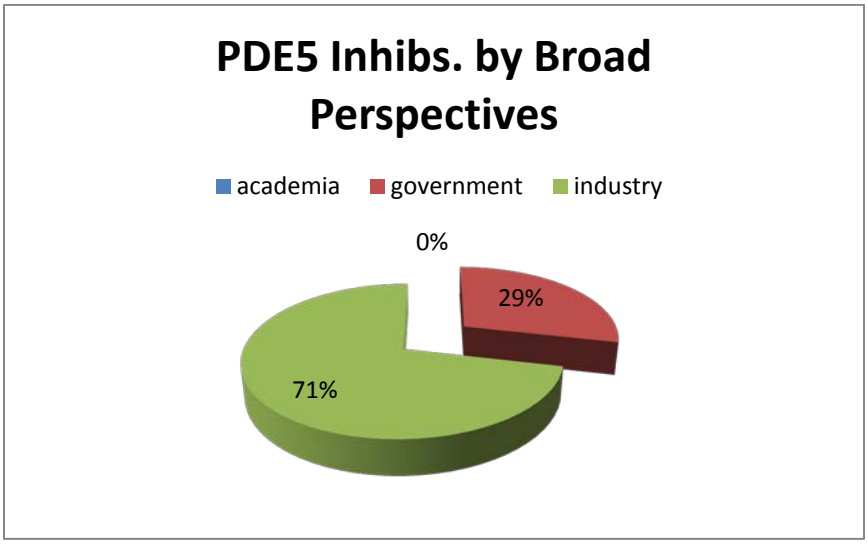


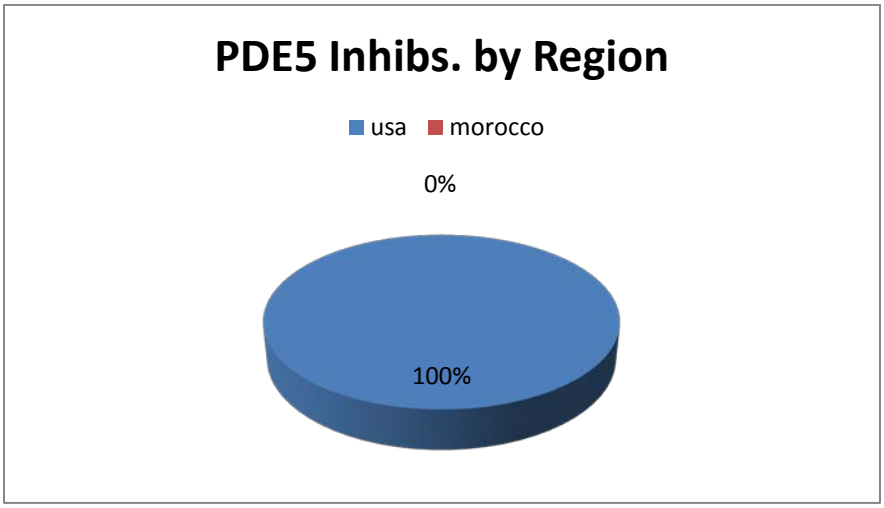




CANDIDATES FOR PDE5 INHIBITORS METHODS







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Irvine, CA 92606 US
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Day Phone: 949-608-3483
Email: teresa_cain@yahoo.com

Work Experience:

Food & Drug Administration **06/2003 - Present**
ORA/Pacific Regional Laboratory Southwest
19701 Fairchild
Irvine, CA 92612 United States
Chemist(Technology Based Expert-Mass Spectrometry)
Supervisor: Kim Thomas-Cruse (949-608-2928)
•Technical expert in mass spectrometry
•Review of compliance programs and assignments for issuance and implementation
•Method Development - caffeine in alcoholic beverages, DMAA in dietary supplements, melatonin in brownies, levomethorphan contaminant in dextromethorphan
•Maintenance and qualification of instrumentation and peripheral equipment
•LC/MS and DART/MS screening of dietary supplements for drugs
•HPLC and LC/MS analysis of components of dietary supplements, such as unapproved drugs, aristolochic acid, weight loss and erectile dysfunction drugs and analogues
•LC/MS analysis of drugs and medical devices
•LC/MS screening of food samples as part of the Food Emergency Response Network for counter-terrorism
•Presentations at AOAC and ASMS National meetings
•Review of private laboratory packages for technical merit and evidence of compliance
•Participation in national calls for work coordination with headquarters divisions and other field offices
•Training of personnel in laboratory analyses and quality control
•Member of Course Advisory Group for Basic Mass Spectrometry
•Inspection of regulated industry for GMP compliance

Quality Control
•Review of Analytical Worksheets for quality and technical merit
•Review and trending of data for quality control
•Writing Lab-wide SOPs for Method Validation, Quality Assurance and Instrumentation and QA instrument qualification for HPLC and LC/MS.

Details:
•Acting Import Compliance Manager
•Acting Import Compliance Officer – Non-Foods (cosmetics, dietary supplements, devices)
•Acting Chemistry Branch Director

Ribapharm (ICN Pharmaceuticals) **10/2001 - 06/2003**
3300 Hyland Ave
Costa Mesa, CA 92626 United States
Scientist
•High throughput parallel purification for combinatorial chemistry libraries.
•Method development purifications of challenging compounds
•Quality assurance LC/MS analysis of novel drugs in support of synthetic chemistry department.
•Supervision of associate level chemists/scientists

Cortex Pharmaceuticals **08/1999 - 10/2001**
7700 Irvine Center Drive
Suite 750
Irvine, CA 92618 United States

Scientist
•Pharmacokinetic LC/MS analysis of plasma samples.
•Quality assurance LC/MS analysis of novel drugs in support of synthetic chemistry department.
•Drug product stability analyses

Magellan Laboratories **04/1997 - 12/1998**
Research Triangle Park, NC 27709 United States
Chemist
•Conducted LC/MS and GC/MS studies for structural elucidation of drug product impurities and quantification of drug substances in a GLP/cGMP environment.
•Characterized and quantified trace level extractables from plastic and rubber componentry of drug delivery devices using GC/MS and HPLC/MS.
•In vitro screening and quantification of compounds for discovery support.
Wrote GLP reports for FDA filings.
•Peer reviewed and quality assurance audited laboratory notebooks and study reports.

Education:

The University of Michigan Ann Arbor, MI United States
Doctorate 12/1997

Major: Analytical Chemistry
Relevant Coursework, Licenses and Certifications:
Ph.D. in Analytical Chemistry with Professor David M. Lubman, Department of Chemistry, and Professor Walter J. Weber, Department of Civil and Environmental Engineering, THE UNIVERSITY OF MICHIGAN, 1997
•Developed a rapid identification technique analyzing bacterial components by mass spectrometry using matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS) and liquid chromatography/electrospray ionization mass spectrometry (ESI MS).

The University of Michigan Ann Arbor, MI United States
Master's Degree 12/1996

Major: Environmental Engineering
Relevant Coursework, Licenses and Certifications:
M.S. in Environmental Engineering, THE UNIVERSITY OF MICHIGAN, 1996
• Investigated the degradation of polychlorinated biphenyls using ultraviolet lamps and lasers with analysis by GC, HPLC, and GC/MS.

Florida International University Miami, FL United States
Bachelor's Degree 06/1990

Relevant Coursework, Licenses and Certifications:
B.S. in Chemistry, FLORIDA INTERNATIONAL UNIVERSITY, High Honors, 1990
•Studied the degradation of chlorendic acid (a water-soluble model for the pesticide dieldrin) using a high energy electron beam pilot-scale facility, Drinking Water Research Center, Florida International University, Miami, Florida
•Determined the presence of radon in soil and water samples from Miami-Dade County, Florida: sample preparation, transfer of gases to cell for analysis by scintillation counter and data collection.

Professional Publications:

Haejung An, Mark Henry, Teresa Cain, Bichsa Tran, Han Chol Paek and Dennis Farley. “Determination of Total Nitrofuran Metabolites in Shrimp Muscle Using Liquid Chromatography-Tandem Mass Spectrometry in APCI Mode”, submitted to JAOAC.

Mark Henry, Haijung An, Teresa Cain, Bichsa Tran, John Cheng, Han Chol Paek and Dennis Farley “Validation of Liquid Chromatography-Tandex Mass Spectrometry Method for Determination of Total Nitrofuran Metabolites in Shrimp in APCI Mode” poster presented at the 59th American Society for Mass Spectrometry Conference on Mass Spectrometry & Allied Topics, Denver, Colorado, June 5 – 9, 2011

Norwood, D. L., Feinberg, T. N., Cain, T. C., Lennon, J. D. “Applications of Chloride Ion Attachment LC/MS in Pharmaceutical Development” presented at the 50th Southeastern Regional Meeting of the American Chemical Society, Research Triangle Park, November 4-7, 1998

Jian Bai, Yan-Hui Liu, Teresa C. Cain, and David M. Lubman “Matrix-Assisted Laser Desorption/Ionization Using an Active Perfluorosulfonated Ionomer Film Substrate” Analytical Chemistry, 1994, 66, 3423-3430.

Teresa C. Cain, David M. Lubman, and Walter J. Weber, Jr. “Differentiation of Bacteria Using Protein Profiles from Matrix-Assisted Laser Desorption/Ionization Time-of-Flight Mass Spectrometry” Rapid Communications in Mass Spectrometry, 1994, 8, 1026-1030.

Teresa C. Taylor, W. J. Cooper, M. Nickelson “Factors Affecting the Removal of Chlorendic Acid from Aqueous Solutions Using High Energy Electron Irradiation” Poster presented at the 199th ACS National Meeting, Boston, Massachusetts, April 22-27, 1990.

Curriculum Vitae

Nour-Eddine ES-SAFI

Date of birth: 04/20/1962

Place of birth: Morocco.

ADDRESS

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Ecole Normale Supérieure
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Mobile: +212 6 72 64 30 86.
Fax.: +212 5 37 75 90 63.
E-mail: nouressafi@yahoo.fr

ACADEMIC EDUCATION

1997 : Ph.D in Organic Chemistry. Mohammed V University in Rabat, Morocco. Thesis entitled "**Phenolic compounds of red vine (*Vitis vinifera* L.) cultivated in Morocco: Structure, reactivity and pharmacological properties**".

1990 : Master of Science in Organic Chemistry. Ecole Normale Supérieure, Rabat, Morocco. Thesis entitled "**Contribution to the study of essential oils and tanins of Eucalyptus trees cultivated in Morocco**"

1986 : Certificate for teaching chemistry in training centers frames. Ecole Normale Supérieure Rabat, Morocco.

1984 : Graduate of the Ecole Normale Supérieure, Option Physique – Chimie, Rabat, Morocco.

EMPLOYMENT

Jan 2001-Present:		Professor at Mohammed V University in Rabat. Ecole Normale Supérieure, Rabat – Morocco (Chemisty department).
Jan 1997- 2001:		Associate Professor at the same department.
1986-1997	:	Assistant Professor at the same department.
1984-1986	:	Assistant at the same department.

PROFESSIONAL EXPERIENCE

Research Competence:

- Expertise in synthesis of natural bioactive molecules.
- Dexterous in isolation and characterization of natural bioactive molecules.
- Endured in minor natural products purification.
- Familiar with HPLC and related chromatographic techniques.
- Adept in analyzing spectral data like ^{1}H, ^{13}C, 2D NMR (COSY, NOESY, HMBC and HMQC), IR and MS (ESI-MS, Tandem MS-MS, Maldi-Tof MS).
- Design and synthesis of biologically active compounds.
- Development of synthetic methodologies for natural/modified compounds synthesis.
- Isolation and characterization of naturally occurring bio-active compounds, hemisynthesis of isolated natural products for the confirmation of their chemical structures, transformations of natural products into their novel derivatives.
- Isolation of novel compounds (polyphenols, iridoids, phenylethanoids) from Moroccan plants.
- Development of regio- and stereoselective methodologies for modified polyphenols synthesis.
- Development of thioacidolysis method for structural elucidation of bridged flavanols.
- Capable of both collaborative and independent research.
- Possession of good communication and management skills.

Research Conducted or Supervised

- *Natural Products:*
  - Essential oils, polyphenols, iridoids
  - Eucalyptus trees: Extraction, quantitative and qualitative analysis of essential oils (leaves) and condensed tannins (bark).
  - Vine leaves polyphenols (proanthocyanidins, flavonols, anthocyanidins): Extraction, quantitative analysis, isolation and identification by spectroscopic tools (mass and 1D and 2D NMR spectroscopy).
  - Phytochemical investigations of various Moroccan medicinal plants used in traditional pharmacopeae.

- *Analytical methods:*
  - Chromatography: HPLC/DAD, HPLC/ESI-MS. Application to the study of the condensation of flavanols and anthocyanins in model solution systems.
  - Spectroscopy: ESI/MS, MS/MS, ICD MS, 1D (^{1}H, ^{13}C) and 2D (COSY, HSQC, HMBC, NOESY, ROESY) NMR techniques. Application to the structural elucidation of natural and synthesized compounds.

- *Composition of foods:*
  - Grape proanthocyanidins: Extraction from different parts (seeds, stems and skins), quantitative and qualitative analysis by HPLC and cleavage methods (thiolacidoysis).
  - Grape anthocyanins: Extraction, quantitative and qualitative analysis.
  - Food polyphenols and their role in human health
  - Polyphenols and their role in food technology

- *Flavor and aroma:*
  - Essential oils: extraction, analysis by GC/MS techniques, antibacterial and antifungal properties.

- *Chemical changes during processing:*
  - Chemical transformations which contribute to the organoleptic properties alterations (de-astringency, browning, darkening, etc …) of foods during

processing, maturation, storage and aging.

- Evolution of phenolic compounds during processing, maturation, storage and aging of foods in model solution systems.
- Evolution of phenolic compounds in model solution systems. Detection, isolation and identification of the new formed compounds and confirmation of their presence in in foods.
- Role of the new formed compounds in food organoleptic properties and huaman health.

➢ *Pharmacological activity:*

- Antibacterial and antifungal activity of natural and synthesized compounds.
- Mollusciscidal activity of proanthocyanidols and flavonols isolated from grapes and vine leaves.
- Antioxydant and free radical scavenging properties of natural and synthesized compounds.
- Strucure-activity relationships.

Teaching Experience

- Organic Chemistry: Stereochemistry, reactions, mechanisms and structures.
- Natural Products.
- Spectral Analysis: IR, MS, NMR.
- Chromatography: PC, GPC, HPLC.
- Polyphenols chemistry.

Scientific stays in foreign laboratories:

- Unité de Phytopharmacie et Médiateurs Chimiques. Team: Chemistry of Natural Products. National Institute for Agricultural Research, Versailles, France.
- UMR Sciences for Enology. Polyphenols team. National Institute for Agricultural Research, Montpellier, France.
- Laboratory of Polyphenols. National Institute for Agricultural Research, Narbonne, France.
- Materia Medica and Pharmacognosy Laboratory, School of Pharmacy,

Montpellier, France..

LANGUAGES

- English, French and Arabic (Native Language): Writing, Speaking and Reading.

MICROCOMPUTER USE

- Operating systems : WINDOWS
- MS OFFICE
- Others: Chemdraw, Chemsketch, … etc.

OTHERS

- **Deputy Director** of Ecole Normale Supérieure, Rabat, Morocco. Since July 2014.
- **Head of the Chemistry department** at Ecole Normale Supérieure, Rabat, Morocco. 2011-2014.
- **Professor** at Ecole Normale Supérieure, Mohammed V University of Rabat. Since 2001.
- **Responsible of the research team** "Organic Chemistry and Physical and Chemical Studies".
- **Responsible of the Research Master** "Valorization of the natural resources plant".
- **Responsible of the professional bachelor's degree** "university course teaching in physics and chemistry".
- **Expert Review Panel** for the AOAC Stakeholder Panel on Strategic Food Analytical Methods (flavanols and St. John's Wort)
- **Member** of various scientific associations.
- **Post-doc** at the French National Agricultural Research Institute. Montpellier & Versailles INRA centers.
- **Supervisor** of PhD students.
- **Editor in Chief** of *Green and Sustainable Chemistry* journal
- **Regional Editor** of the *American Journal of Food Technology.*
- Guess Editor *of Current Bioactive Compounds* journal *special issue* on *"Current Hyphenated Methods in Polyphenol Analysis".*
- **Editorial Board Member** of various scientific journals
    - *Journal of Food Composition and Analysis*
    - *Organic Chemistry Insight*
    - *Recent Patents on Food, Nutrition and Agriculture*
    - *The Open Agriculture Journal*

- *The Open Natural Products Journal*
- *The Open Organic Chemistry Journal*
- *International Journal of Medicinal and Aromatic Plants*

- **Reviewer** for many scientific journals
  - *American Journal of Food Technology*
  - *Arabian Journal of Chemistry*
  - *Asian Journal of Agricultural Research*
  - *Biotechnology*
  - *British Journal of Pharmacology*
  - *Current Bioactive Compounds*
  - *Food Chemistry*
  - *International Journal of Agricultural Research*
  - *International Journal of Dairy Science*
  - *International Journal of Food Sciences and Technology*
  - *International Journal of Pharmacology*
  - *Journal Marocain de Chimie Hétérocyclique*
  - *Journal of Agricultural and Food Chemistry*
  - *Journal of Chromatography A*
  - *Journal of Food Biochemistry*
  - *Journal of Food Composition and Analysis*
  - *Journal of Molecular Structure*
  - *Journal of Mass Spectrometry*
  - *Journal of Natural Products*
  - *Journal of Pharmaceutical and Biomedical Analysis*
  - *Journal of Physical Chemistry*
  - *Journal of Separation Science*
  - *Journal of the Science of Food and Agriculture*
  - *Journal of Zhejiang University-SCIENCE B*
  - *LWT-Food Science and Technology*
  - *Molecules*
  - *Natural Products Research*
  - *Pakistan Journal of Biological Sciences*
  - *Phytochemical analysis*
  - *Phytochemistry*

- *Rapid Communications in Mass Spectrometry*
- *Recent Patents on Food, Nutrition & Agriculture*
- *Tetrahedron Letters*
- *The Open Agriculture Journal*
- *The Open Natural Products Journal*
- *The Open Organic Chemistry Journal*
- *The Open Spectroscopy Journal*

LIST OF PUBLICATIONS

1 Elbir, M.; **Es-Safi, N.**; Amhoud, A.; Mbarki, M. (**2015**). Characterization of phenolic compounds in olive stones of three Moroccan varieties. *Maderas, Ciencia y tecnología, 17, under press*.

2 Benayad, Z. ; Gomez-Cordoves, C. ; **Es-Safi, N.** (**2014**). Characterization of flavonoid glycosides from fenugreek (*Trigonella foenum-graecum*) crude seeds by HPLC-DAD-ESI/MS analysis. *International Journal of Molecular Sciences, 15,* 20668-20685*.*

3 Benayad, Z. ; Gomez-Cordoves, C. ; Martinez-Villaluenga, C.; Frias, J. ; **Es-Safi, N.** (**2014**). Phenolic composition, antioxidant and anti-inflammatory activities of extracts from Moroccan Opuntia ficus–indica flowers obtained by different extraction methods. *Industrial Crops and Products*, *62*, *412-420*

4 Benayad, Z. ; Gomez-Cordoves, C. ; **Es-Safi, N.** (**2014**). Identification and quantification of flavonoid glycosides from fenugreek (*Trigonella foenum-graecum*) germinated seeds by LC–DAD–ESI/MS analysis. *Journal of Food Composition and Analysis*, 35, 21-29.

5 **Es-Safi, N**. (**2012**). Plant Polyphenols: Extraction, Structural Characterization, Hemisynthesi and Antioxidant Properties. Phytochemicals as Nutraceuticals - Global Approaches to Their Role in Nutrition and Health, Dr Venketeshwer Rao (Ed.), Intech Open Access Publisher, ISBN 979-953-307-611-8, 181-206**.** Available from: http://www.intechopen.com/books/phytochemicals-as-nutraceuticals-global-approaches-to-their-role-in-nutrition-and-health/polyphenols-as-potent-antioxidants-with-a-major-role-in-food-organoleptic-properties-and-human-healt

6 **Es-Safi, N**. Mass Spectroscopic Methods for the Characterization of Flavonoid Compounds. *Current Bioactive Compounds* **2012,** 8, 240-265**.**

7 **Es-Safi, N.** (**2014**). Review of the Book ''Green Materials for Sustainable Water Remediation and Treatment'' Edited by Anuradha Mishra and James H Clark**.** *Green and Sustainable Chemistry*.

8 **Es-Safi, N**. (**2012**). Mass Spectroscopic Methods for the Characterization of Flavonoid Compounds. *Current Bioactive Compounds*, 8, 240-265**.**

9 **Es-Safi, N**. **(2012).** Editorial Hot Topic: Current Hyphenated Methods in Polyphenol Analysis. *Current Bioactive Compounds*, 8, 189**.**

10 **Es-Safi, N.**; Essassi, E. M.; Massoui, M.; Banoub, J. Mass Spectrometry as a Powerful Analytical Technique for the Structural Characterization of Synthesized and Natural Products. In: *Detection of Biological Agents for the Prevention of Bioterrorism*, NATO Science for Peace and Security Series A: Chemistry and Biology, ISBN 978-90-481-9814-6. Springer Science+Business Media B.V., **2011**, p. 319

11 Tene Ghomsi, J.; Hamou Ahabchane, N.; **Es-Safi, N.**; Essassi, E.M. 4-Phenyl-1,5-benzodiazepin-2-one Compound as a Precursor of Various New heterocyclic Systems with Potent pharmacological Properties. *Frontiers in Science and Engineering An International Journal Edited by Hassan II Academy of Science and Technology*, 1-2**,** 17 pages, **2011**.

12 Boutayeb, M.; El Imadi, S.; Benchidmi, M.; Essassi, E.M.; **Es-Safi, N.**; El Ammari, L. Synthesis of New Pyrazolo[1.5.4-*de*]quinoxalines. *Synthetic Communications* **2010**, 40, 2130-2137.

13 Rida, M.; El Meslouhi, H.; **Es-Safi**, **N.**; Essassi, E.M.; Banoub, J. Structural fragmentation study of new synthetic benzodiazepine derivatives using electrospray ionization tandem mass spectroscopy. *Rapid Communications in Mass Spectrometry* **2008**, *22*, 2253-2268.

14 Rida, M.; El Meslouhi, H.; Hammou Ahabchane, N.; Garrigues, G.; **Es-Safi**, **N**.; Essassi, E.M. A Convenient Method for the Synthesis of 1,5-benzodiazepin-2-one. *The Open Organic Chemistry Journal* **2008**, 2, 83-87.

15 **Es-Safi, N.**; Meudec, E.; Bouchu, C.; Fulcrand, H.; Ducrot, P.H.; Gaëtan, H.; Cheynier, V. New compounds obtained by evolution and oxidation of malvidin 3-*O*-glucoside in ethanolic medium. *Journal of Agricultural and Food Chemistry* **2008**, *56*, 4584-4591.

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20 **Es-Safi, N.;** Guidouche, S.; Ducrot, P. H. (**2007**). Flavonoids: Hemisynthesis, reactivity and antioxidative properties. *Molecules*, *12*, 2228-2258

21 **Es-Safi, N.;** Kerhoas, L.; Ducrot, P. H. (**2007**). Fragmentation study of iridoid glucosides through positive and negative ESI/MS, CID/MS and tandem MS/MS. *Rapid Communications in Mass Spectrometry*, *21*, 1165-1175.

22 **Es-Safi, N.;** Kerhoas, L.; Ducrot, P. H. (**2007**). NMR Analysis and Fragmentation Study of Globularin through Positive and Negative ESI/MS, CID/MS and Tandem MS/MS**.** *Specroscopy Letters*, *40*, 695-714.

23 Tene Ghomsi, J.; Hammou Ahabchane, N.; **Es-Safi**, **N.**; Essassi, E.M. (**2007**). Synthesis and Spectroscopic Stuctural Elucidation of New Quinoxaline Derivatives. *Spectroscopy Letters*, *40*, 741, 751.

24 **Es-Safi, N.;** Kollmann, A.; Khlifi, S.; Ducrot, P. H. (**2007**). Antioxidative effect of compounds isolated from *Globularia alypum* L**.** Structure–activity relationship. *LWT-Food Science and Technology*, *40*, 1246-1252.

25 **Es-Safi, N.;** Khlifi, S.; Kollmann, A.; Ducrot, P. H. (**2006**). Antioxidative activity of polyphenoolic compounds isolated from *Globularia alypum* L. Structure-activity relationship. *Polyphenol Communications*, 493-494

26 Ghidouche, S.; **Es-Safi, N.;** Ducrot, P. H. (**2006**). Importance of the substitution pattern of ring B of flavonols on their transformation by *Trametes versicolor* laccase. *Polyphenol Communications*, 161-162.

27 **Es-Safi, N.;** Guyot, S.; Ducrot, P.H. (**2006**). NMR, ESI/MS and MALDI-TOF/MS analysis of pear juice polymeric proanthocyanidins with potent free radical scavenging activity. *Journal of Agricultural and Food Chemistry*, *54*, 6969-6977.

28 **Es-Safi, N.;** Beauhaire, J.; Boyer, F.D.; Ducrot, P. H. (**2006**). Substituent effects on flavanol couplings. *Polyphenol Communications*, 57-58**.**

29 **Es-Safi, N.;** Khlifi, S.; Kollmann, A.; Kerhoas, L.; El Abbouyi, A.; Ducrot, P.H. (**2006**). Iridoid glucosides from the aerial parts of *Globularia alypum* L. (Globulariaceae). *Chemical and Pharmaceutical Bulletin*, *54*, 85-88.

30 **Es-Safi, N.;** Ducrot, P.H. (**2006**). Oxidation of flavan-3-ols: Gram-Scale synthesis of taxifolin. *Letters in Organic Chemistry*, *3*, 231-234.

31 Khlifi, S.; El Hachimi Y., Khalil A., **Es-Safi, N.;** El Abbouyi, A. (**2006**). Antioxidant properties of *Salvia verbenaca* L. hydro-methanolic extract. *Indian Journal of Pharmacology*, *38*, 276-280.

32 **Es-Safi, N.;** Le Guernevé, C.; Kerhoas, L.; Ducrot, P.H. (**2006**). Influence of an 8-trifluoroacetyl group on flavanol couplings. *Tetrahedron*, *62*, 2705-2714.

33 **Es-Safi, N.;** Kerhoas, L.; Einhorn, J.; Ducrot, P.H. (**2005**). Application of ESI/MS, CID/MS and tandem MS/MS to the fragmentation study of eriodictyol 7-*O*-glucosyl-(1→2)-glucoside and luteolin 7-*O*-glucosyl-(1→2)-glucoside. *International Journal of Mass Spectrometry*, *247*, 93-100

34 **Es-Safi, N.;** Kerhoas, L.; Ducrot, P. H. (**2005**). Application of positive and negative ESI-MS, CID/MS and tandem MS/MS to a study of fragmentation of 6-hydroxyluteolin 7-*O*-glucoside and 7-*O*-glucosyl-(1→3)-glucoside. *Rapid Communications in Mass Spectrometry*, *19*, 2734-2742.

35 **Es-Safi, N.;** Khlifi, S.; Kerhoas, L.; Kollmann, A.; El Abbouyi, A.; Ducrot, P. H. (**2005**). Antioxidant constituents of the aerial parts of *Globularia alypum* growing in Morocco. *Journal of Natural Products*, *68*, 1293-1296.

36 Khlifi, S.; El Hachimi Y., Khalil A., **Es-Safi, N.;** El Abbouyi, A. (**2005**). Antioxidant properties of *Globularia alypum* L. hydro-methanolic extract. *Indian Journal of Pharmacology*, *37***,** 227-231.

37 Boyer, F.D.; **Es-Safi, N.;** Beauhaire, J.; Le Guernevé, C.; Ducrot, P. H. (**2005**). Synthesis of modified proanthocyanidins: easy and general introduction of an hydroxy group at C-6 of catechin; efficient synthesis of elephantorrhizol. *Bioorganic & Medicinal Chemistry Letters*, *15*, 563-566.

38 Beauhaire, J.; **Es-Safi, N.;** Boyer, F.D.; Kerhoas, L.; Le Guernevé, C.; Ducrot, P. H. (**2005**). Synthesis of modified proanthocyanidins: introduction of acyl substituents at C-8 of catechin. Selective synthesis of a C-4 → O →C-3 ether-linked procyanidin-like dimer. *Bioorganic & Medicinal Chemistry Letters*, *15*, 559-562.

39 **Es-Safi, N.;** Cheynier, V**.** (**2004**). Flavanols and anthocyanins as potent compounds in the formation of new pigments during storage and aging of red wine. In *Red Wine Color - Exploring the Mysteries.* Waterhouse AL, Kennedy JA (Eds), *ACS Symposium*, Series 886, Washington, DC, USA, 143-159.

40 **Es-Safi, N.** (**2004**). Colour of a xanthylium pigment in aqueous solutions at different pH values. *Food Chemistry*, *88*, 367-372.

41 **Es-Safi, N.;** Kerhoas, L.; Boyer, F. D.; Le Guernevé, C.; Ducrot, P. H. (**2004**). Selective synthesis and structure of a C4-O-C3 ether-linked procyanidin-like dimer. *Polyphenols Communications*, 578-579.

42 Beauhaire, J.; Boyer, F. D.; **Es-Safi, N.;** Le Guernevé, C.; Ducrot, P. H. (**2004**). New methodologies for the synthesis of proanthocyanidins. *Polyphenols Communications*, 73-74.

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44 **Es-Safi, N.;** Cheynier, V.; Moutounet, M. (**2003**). Implication of phenolic reactions in food organoleptic properties. *Journal of Food Composition and Analysis*, *16*, 535-553.

45 **Es-Safi, N.;** Cheynier, V.; Moutounet, M. (**2003**). Effect of copper on oxidation of (+)-catechin in a model solution system. *International Journal of Food Science & Technology*, *38*, 153-163.

46 **Es-Safi, N.;** Cheynier, V.; Moutounet, M. (**2002**). Interactions between cyanidin 3-O-glucoside and furfural derivatives and their impact on food color changes. *Journal of Agricultural and Food Chemistry*, *50*, 5586-5595.

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48 **Es-Safi, N.;** Le Guernevé, C.; Cheynier, V.; Moutounet, M. (**2002**). 2D NMR analysis for unambiguous structural elucidation of phenolic compounds formed through reaction between (+)-catechin and glyoxylic acid. *Magnetic Resonance in Chemistry*, *40*, 693-704.

49 **Es-Safi, N.;** Cheynier, V.; Moutounet, M. (**2002**). Role of aldehydes in the condensation of phenolic compounds with emphasis on food organoleptic properties. *Polyphenols Communications*, 577-578.

50 **Es-Safi, N.;** Cheynier, V.; Moutounet, M. (**2000**). Study of the reactions between (+)-catechin and furfural derivatives in the presence or absence of anthocyanins and their implication in food color change. *Journal of Agricultural and Food Chemistry*, *48*, 5946-5954.

51 **Es-Safi, N.;** Le Guernevé, C.; Cheynier, V.; Moutounet, M. (**2000**). New phenolic compounds formed by evolution of (+)-catechin and glyoxylic acid in hydroalcoholic solution and their implication in color changes of grape-derived foods. *Journal of Agricultural and Food Chemistry*, *48*, 4233-4240.

52 **Es-Safi, N.;** Le Guernevé, C.; Cheynier, V.; Moutounet, M. (**2000**). New phenolic compounds obtained by evolution of (+)-catechin and glyoxylic acid in hydroalcoholic medium. *Tetrahedron Letters*, *41*, 1917-1921.

53 **Es-Safi NE**, Le Guernevé, C**.;** Fulcrand, H.; Cheynier, V.; Moutounet, M. (**2000**). Xanthylium salts formation involved in wine colour changes. *International Journal of Food Science and Technology*, *35*, 63-74.

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55 Cheynier, V.; **Es-Safi, N.;** Fulcrand, H. (**1999**). Structure and colour properties of anthocyanins and related pigments. *In The Proceedings of the first International Congress Pigments in food Technology* (edited by M. I. Minguez Mosquera, M. Jaren Galan & D. Hornero Mendez), Sevilla Spain March 24-26, 23-35.

56 **Es-Safi, N.;** Fulcrand, H.; Cheynier, V.; Moutounet, M. (**1999**). Competition between (+)-catechin and (-)-epicatechin in acetaldehyde-induced polymerization of flavanols. *Journal of Agricultural and Food Chemistry*, *47*, 2088-2095.

57 **Es-Safi, N.;** Fulcrand, H.; Cheynier, V.; Moutounet, M. (**1999**). Studies on the acetaldehyde-induced condensation of (-)-epicatechin and malvidin 3-O-glucoside in a model solution system. *Journal of Agricultural and Food Chemistry*, *47*, 2096-2101.

58 **Es-Safi, N.;** Le Guernevé, C.; Fulcrand, H.; Cheynier, V.; Moutounet, M. (**1999**). New Polyphenolic Compounds with Xanthylium Skeletons Formed Through Reaction between (+)-Catechin and Glyoxylic Acid. *Journal of Agricultural and Food Chemistry*, *47*, 5211-5217.

59 Hmamouchi, M.; Lahlou, M.; **Es-Safi, N.;** Agoumi, A. (**1998**). Molluscicidal properties of some proanthocyanidins, flavones and flavonols. *Fitoterapia*, *69*, 161-164.

60 **Es-Safi, N.;** Fulcrand, H.; Cheynier, V.; Moutounet, M. (**1998**). Detection of new pigments through the reaction of (+)-catechin with glyoxylic acid. *Polyphenols Communications*, 395-396.

61 Fulcrand, H.; **Es-Safi, N.;** Cheynier, V.; Moutounet, M. (**1998**). A new oxidative pathway contributing to wine browning. *Polyphenols Communications*, 259-260.

62 Hmamouchi, M.; **Es-Safi, N.;** Essassi, E.M. (**1997**). Oligomeric and polymeric proanthocyanidins from moroccan grapewine (Vitis vinifera) leaves. *Fitoterapia*, *68*, 332-337.

63 Hmamouchi, M.; **Es-Safi, N.;** Essassi, E.M.; Moutounet, M. (**1996**). Les composés phénoliques de la vigne rouge provenant du Maroc. *Polyphenols Communications*, 91-92.

64 Fulcrand, H.; **Es-Safi, N.;** Doco, T.; Cheynier, V.; Moutounet, M. (**1996**). LC-MS study of acetaldehyde induced polymerisation of flavan-3-ols. *Polyphenols Communications*, 203-204.

65 **Es-Safi, N.;** Fulcrand, H.; Cheynier, V.; Moutounet, M., Hmamouchi, M.; Essassi E.M. (**1996**). Kinetic studies of acetaldehyde-induced condensation of flavan-3-ols and malvidin-3-glucoside in model solution systems. *Polyphenols Communications*, 279-280.

66 Hmamouchi, M.; **Es-Safi, N.;** Lahlou, M.; Agoumi, A.; Moulis, C., Fouraste, I. (**1996**). Molluscicidal properties of some proanthocyanidins, flavones, and flavonol derivatives. *Polyphenols Communications*, 441-442.

67 Hmamouchi, M.; **Es-Safi, N.;** Hamamouchi, J.; Agoumi, A.; Moulis, C., Fouraste, I. (**1996**). Antimicrobial activity of some proanthocyanidins. *Polyphenols Communications*, 434-444.

68 Hmamouchi, M.; **Es-Safi, N.;** Lahrichi A., Fruchier A., Essassi, E.M. (**1996**). Flavones and flavonols in leaves of some moroccan Vitis. *American Journal of Enology and Viticulture*, *47*, 186-192.

69 Fulcrand, H.; Doco Thierry, **Es-Safi, N.;** Cheynier, V.; Moutounet, M. (**1996**). Study of the acetaldehyde-induced polymerization of flavan 3-ols by liquid chromatography-ion spray mass spectrometry. *Journal of Chromatography A*, *752*, 85.

70 Hmamouchi, M.; **Es-Safi, N.;** Pellecuer, J.; Essassi, E. M. (**1995**). Composition anthocyanique des pellicules de raisin de quatre cépages provenant du Maroc. *Bulletin de l'Office International de la Vigne*, *68 (777-778)*, 905-919.

71 Hmamouchi, M.; **Es-Safi, N.;** Boubekri, C.; Bourzeix, M.; Essassi, E.M. (**1994**). Analyse qualitative et quantitative des proanthocyanidols de la grappe de raisin de quatre cépages provenant du Maroc. *Bulletin de l'Office International de la Vigne*, *67 (765-766),* 901-915.

72 **Es-Safi, N.;** Hmamouchi, M.; Tantaoui-Elaraki, A., Agoumi, A. (**1991**). Influence de la durée d'incubation sur l'activité antimicrobienne des huiles essentielles d'eucalyptus. *Al Biruniya, Rev. Mar. Pharm.*, *7*, 113.

73 Hmamouchi, M.; **Es-Safi, N.** (**1990**). Contribution à l'étude des tanins d'Eucalyptus. II- Analyse quantitative. *Al Biruniya, Rev. Mar. Pharm*., *6*, 109.

74 Hmamouchi, M.; Tantaoui-Elaraki, A.; **Es-Safi, N.** (**1990**). Mise en évidence des proprétés antimicrobiennes des tanins extraits d'eucalyptus. *Al Biruniya, Rev. Mar. Pharm*., *6*, 9.

75 Hmamouchi, M.; Tantaoui-Elaraki, A.; **Es-Safi, N.;** Agoumi, A. (**1990**). Mise en évidence des proprétés antibactériennes et antifongiques des huiles essentielles d'eucalyptus. *Plantes Médicinales et Phytothérapie*, *24*, 278.

76 Hmamouchi, M.; **Es-Safi, N.** (**1989**). Contribution à l'étude des tanins d'Eucalyptus. I- Analyse qualitative. *Al Biruniya, Rev. Mar. Pharm*., *5*, 113.

BIOGRAPHICAL SKETCH

(NIH Format)

NAME Jana Hildreth	POSITION TITLE Director of Technology and Scientific Affairs, SynutraPure, MD
eRA COMMONS USER NAME	

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of California at Berkeley	BA	1983-1987	Biology

A. Positions

Employment

2014 – Present	Director of New Technology and Scientific Affairs, SynutraPure, MD
2006 – Present	CEO and Technical Director, Blaze Science Industries, LLC, CA
2005 – 2006	Subject Matter Expert for AOAC International, MD
2001 – 2005	Technical Director, Chromadex Inc., CA
1999 – 2001	Training Director, Phenomenex, Advanza Institute, CA
1994 – 1999	Technical Sales Consultant, Phenomenex, CA
1990 – 1994	Staff Research Associate III/Lab Manager, U.C. Davis Dept. of Surgery, CA
1989 – 1990	Immunology Technician, Northview Pacific Laboratories, Inc., CA
1983 – 1989	Staff Research Associate II, U.C. Berkeley Dept. of Physiology/Anatomy, CA

Committees and Boards (Past and Present)

USP <2251> ADSDDA Expert Panel Member and Working Group Leader for Weight Loss Group
AOAC Working Group Chair for Chondroitin
NCCAM Product Quality Working Group Reviewer
Member, AOAC Presidential Task Force
Member, AOAC Voucher Sub-committee
Member, AOAC Ingredient Ranking Sub-committee
Manuscript reviewer, Journal of AOAC International
Member of the Scientific Organizing Committee for an international conference entitled “Quality and Safety Issues Related to Botanicals” at the University of Mississippi in Oxford, MS
Scientific Advisory Board Member for UK Testing Group “What’s In It.com”

B. Peer-Reviewed Publications

1. Verbaski, S., Gourdin, G., Ikenouye, L., McChesney, J., Hildreth, J., *Detection of Acetea racemosa adulteration by thin-layer chromatography and combined thin-layered chromatography-bioluminescence,* J. AOAC Int., 91 (2008) 268-275.

2. Hildreth, J., Hrabeta-Robinson, E., Applequist, W., Betz, J., Miller, J., *Standard operating procedure for the collection and preparation of voucher plant specimens for use in the nutraceutical industry,* Anal Bioanal Chem., 2007 Jun 16th

3. Ji, D., Roman, M.C., Zhou, J., Hildreth J., *Determination of Chondroitin Sulfate in Raw Materials and Dietary Supplements by HPLC-UV after Enzymatic Hydrolysis: Single Laboratory Validation*, J. AOAC Int., 90 (2007) 659-669.

4. Roman, M.C, Betz, J.M., Hildreth, J. *Determination of Synephrine in Bitter Orange Raw Materials, Extracts, and Dietary Supplements by HPLC-UV: Single Laboratory Validation*, J AOAC Int., 90 (2007) 68-81.

5. Matsuoka, T., Hildreth, J., Wisner, D. *Uncontrolled hemorrhage from parenchymal injury: is resuscitation helpful?*
J Trauma. 1996 Jun;40(6):915-21; discussion 921-2.

6. Dalton, M., Hildreth, J., Matsupka, T., Berguer, R.. *Determination of cardiorespiratory function and the optimum anesthetic regimen during laparoscopic surgery in the rat model.*
Surg Endosc. 1996 Mar;10(3):297-300.

7. Matsuoka, T., Hildreth, J., Wisner, D. Liver injury as a model of uncontrolled hemorrhagic shock: resuscitation with different hypertonic regimens.
J Trauma. 1995 Oct;39(4):674-80.

8. Anderson JT, Wisner DH, Sullivan PE, Matteucci M, Freshman S, Hildreth J, Wagner FC Jr. *Initial small-volume hypertonic resuscitation of shock and brain injury: short- and long-term effects.* J Trauma. 1997 Apr;42(4):592-600; discussion 600-1.

9. Fry IV, Hrabeta J, D'Souza J, Packer L. *Application of photosynthetic N2-fixing cyanobacteria to the CELSS program.* Adv Space Res. 1987;7(4):39-46.

Other Publications

1. M. Roman, J. Hildreth , S. Bannister, *Single Laboratory Validation of a Method for the Determination of Catechins and Caffeine in Camillia Sinensis Botanicals and Dietary Supplements by HPLC-UV.* Poster at AOAC Annual Meeting and Exposition, Orlando FL, September 26-29, 2010

2. J. Hildreth, M. Blumenthal*, Illegal Drug Products Masquerading as Dietary Supplements*
www.doctoroz.com/videos/illegal-drug-products-masquerading-dietary-supplements, February 02, 2011

3. M. Blumenthal, J. Hildreth, *Dietary Supplement Quality: A Complex Situation*.
www.doctoroz.com/videos/dietary-supplement-quality, April 26, 2010

4. M. Chan, J. Hildreth, A. McCutcheon, P. N. Brown, *Development of a high performance liquid chromatographic (HPLC) method for determining anthocyanins in Andean purple corn (Zea mays L.) materials to support quality control and product development.* Poster at National Nutritional Foods Association, Annual Natural Products Convention & Tradeshow, Las Vegas, NV, July 14-16, 2006

C. Current and Previous Funding

1. GSA Contract with US Government as of July 2007
2. NIH/ODS-Funding for Method Optimization and Single Lab Validation of MSM in Dietary Supplements
3. NIST-Funding for the isolation of Pure Chemical Compounds for use in the Creation of Calibration Standards for Green Tea
4. NIH/ODS-Funding for Method Optimization and Single Lab Validation of Catcehins and Caffeine in Green Tea
5. NIST/ODS-Funding for the collaboration with NRC in the isolation, development and packaging of a highly characterized Ginseng reference solution traceable to the National Research Council of Canada and to be used for commercial resale by NIST
6. NCCAM/ODS-grant for organizing “State of the Science“ Conference held in 2007
7. ODS/NIH-funding for organizing a workshop on The Analysis of Isoflavones in Dietary Supplements

8. ODS/NIH-Funding for the development of a synthetic method for making Pure Chemical Compounds used in testing Ginger for the USP
9. NIH/ODS-Funding for development of a Method Development and Single Lab Validation Course
10. NIST-Funding for the isolation of Pure Chemical Compounds for use in the Creation of Calibration Standards for Black Cohosh
11. NIST-Funding for the isolation of Pure Chemical Compounds for use in the Creation of Calibration Standards for Soy
12. NIST-Funding for the isolation of Pure Chemical Compounds for use in the Creation of Calibration Standards for Gingko Biloba

D. Presentations and Conferences

1. Invited speaker at AOAC Annual Meeting-September 2014
2. Invited speaker and co-organizer- AOAC-USP Southern California Meeting-March, 2013
3. Invited speaker for AOAC International meeting-September, 2012
4. Invited speaker for AOAC International meeting-September, 2011
5. Invited speaker for AOAC-USP Southern California Meeting -October 2011
6. Co-Chair and speaker at AOAC International meeting-September, 2009
7. Invited speaker and co-organizer- AOAC-USP Southern California Meeting-May, 2009
8. Invited speaker at UNPA GMP Seminar-July, 2007
9. Invited speaker at CRN annual meeting-May, 2007
10. Invited speaker at DCAT conference California-April, 2007
11. Invited speaker at USP annual meeting-January 2007
12. Invited speaker at Vitamin Conference in Czech Republic-September, 2006
13. Symposia organizer and speaker at Oxford International Conference on the Science of Botanicals-August, 2006
14. Invited speaker to UNPA Seminar on Analytical Methods-April ,2005
15. Symposium Chair, “Scientific and Regulatory Affairs” at the Second Annual meeting of the Natural Health Products Research Society of Canada, Vancouver, BC, Canada-February, 2005.
16. Invited speaker at NIH Office of Dietary Supplements’ Stakeholder Meeting-May, 2005
17. Organizer and Co-Chaired botanical symposium at AAAS 2004 annual meeting
18. Invited speaker at British Columbia Functional Food & Nutraceutical Network Lecture Series, Vancouver, BC, Canada, November, 2003.
19. Invited speaker at Agencia Nacional de Vigilancia Sanitaria Public Meeting, Brazil-October, 2004

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PROFESSIONAL EXPERIENCE

2013-present Research Chemist II. This role is within the Technical Development group and serves Nutritional Chemisty as a whole as a technical resource. Perform client specific methods as needed and develop methods for new analysis. Utilize new instrumentation including LC/MS/MS. Support the Technical Development group's IT needs by putting assays into our Labware Documentation System as well as helping trouble-shoot the current assays in the system.

2009-2013 Technical Leader III-Covance Laboratories. Oversee the technical conduct for routine and study work in the Special Analysis group. Work on method development and validation within the group to update or develop new assays for the group. Review data and communicate information or questions to the client service staff and external clients as needed. Also, complete OOS investigations and respond to QA audits as needed. Provide back- up technical leader assistance to other groups as needed and trained technical leaders at the Singapore facility.

2007-2009 Research Assistant III-Covance Laboratories. Provide troubleshooting, root cause analysis, and process validation expertise to multiple project areas. Work on method development/validation for client specific studies and new methods. Conduct stability studies and routine assays, including work with HPLC, GC and LCMS under GLP guidelines. Multi-departmental assay assistance across three separate groups, as needed. Travel to other sites to provide support of methods and data management and continue to provide support to other sites as issues arise. Provide final review of data before submission to clients. Discuss issues and projects with clients as they arise and work to resolve data/testing issues.

2005-2007 Research Assistant-UW Madison. Immunology research including RNA, cDNA and qPCR work. Cell culture of mammalian cell lines and viral transfection and transductions. DNA work including cloning and purification. Maintained laboratory supplies and trained undergraduate students.

2004-2005 Scientist/ Project Manager-PPD Development. HPLC, CGE testing in cGMP environment of pharmaceutical compounds. Project manager--responsible for overseeing project, data and report writing.

2003-2004 Laboratory Manager/ Research Assistant-University of Wisconsin, Madison. RT-PCR, cell culture, cell staining techniques, ordering and maintenance of laboratory supplies and equipment, oversee graduate students and give technical advice.

1997-2002 Scientist-Promega Corporation. Production of restriction enzymes utilizing various chromatography techniques. Product development and process improvement, feasibility issues for new technology, new product launches including packaging validation, writing manufacturing and QC protocols as well as SOPs. Understand and work with the ISO 9000 quality system. Tissue culture work-establishing stable cell lines, maintenance of several mammalian cell lines, electroporation methods. Protein purification-purifying proteins from bacterial cells, FPLC use Millennium software with Waters system, HPLC with HP Aligent system, characterization and kinetics of purified proteins. Served as hot lab supervisor for multiple group use lab. Product affiliations: IsoQuant, Steady-Glo, DLR 1000, thermostable luciferase.

1995-1997 Research Assistant-Agracetus/ Powderject, Inc. Working on DNA vaccines with Accell technology, specifically tropical and exotic diseases. Duties include: cloning, DNA sequencing, SDS PAGE analysis, tissue culture with several mammalian cell lines, RNA work, ELISAs, animal work, CTL assays, analyze and compile data with various computer software, upkeep of accurate notebooks, working with collaborating labs and served on radiation safety committee.

1991-1995 Molecular Biology/Biochemistry-Washington University. Use PCR techniques, DNA sequencing, tissue culture with mammalian and insect cell lines, protein production and purification with mammalian, insect and yeast cells, hybridization processes, in charge of ordering supplies, radiation safety and environmental safety for the laboratory, plan and aid in design of projects, interpret data and assist other members of my laboratory and other laboratories with technical problems and oversee the laboratory with PI is out.

EDUCATION

Practical Statistical Methods for Improving Analytical Laboratories, 2009

Macros and Pivot Tables, Covance 2008

Agilent HPLC Hands-On Training (Advanced), 2007

Advanced HPLC Method Development; May 2002

Fundamental Principles and Practices of HPLC; December 2000

Washington University; St. Louis, MO; Graduate work, 1990 - 1991.

Stephens College; Columbia, Missouri; B.A. Biology, May 1990

PROFESSIONAL AFFILIATIONS

AOAC International

PUBLICATIONS

Manuscripts:
H.F. Sims, M.L. Jennens, M.E. Lowe, **GENE;** 1993 Sept 15: 131(2): 281-5.
R.M. Payne, H.F. Sims, M.L. Jennens, M.E. Lowe, **AMERICAN JOURNAL OF PHYSIOLOGY**; 1994 May: 266 (5 pt 1): G914-21.
M.L. Jennens, M.E. Lowe, **JOURNAL OF BIOLOGICAL CHEMISTRY**; 1994 Oct 14: 269(41) 25470-4.
M.L. Jennens, M.E. Lowe, **JOURNAL OF LIPID RESEARCH**; 1995 May: 36 5):1029-36.
M.L. Jennens, M.E. Lowe, **JOURNAL OF LIPID RESEARCH**; 1995 Nov: 36(11):2374-82.
R. Hannah, M. Jennens-Clough, K Wood, **PROMEGA NOTES**; 1998: Number 65.
E. Hawkins, M. Jennens-Clough, K. Wood, **PROMEGA NOTES**; 1999: Number70.
M. P. Hall, M.G. Gruber, R.R. Hannah, M.L. Jennens-Clough, K.V. Wood, **Bioluminesence and Chemilumenescence: Perspectives for the 21st Century. Proceedings of the 10th International Symposium** 1998.
Jartti T, Burmeister KA, Seroogy CM, Jennens-Clough ML, Tisler CJ, Salazar LP, Dasilva DF, Evans MD, Vrtis RF, Wallace PK, Ruiz-Perez B, Gangnon RE, Lemanske RF Jr, Gern JE. **J Allergy Clin Immunol.** 2007.
Debra A Mackenzie, Jill Schartner, Jack Lin, Amanda Timmel, Martha Jennens-Clough, C Garrison Fathman, Christine M Seroogy, **J Biol Chem.** 2007

Abstracts:
M.L. Jennens, M.E. Lowe, **PEDIATRIC RESEARCH**, (1993) 33:102A.
P. Deshpande, A. Khurana, P. Hansen, M. Jennens, B. Thach, **AMERICAN PEDIATRIC SOCIETY**, (1995).
M. Seguin, C. Ockenhouse, R. Ballou, C. Elmer, M. Jennens-Clough, D. Fuller, J. Haynes, M. Sheehy; **ASBTRACTS OF THE AMERICAN ASSOCIATION OF IMMUNOLOGY**, (1996).
J. Fuller, M. Jennens-Clough, J. Haynes, G. Widera, **THE AMERICAN SOCIETY OF TROPICAL MEDICINE AND HYGIENE**, (1996).
R. Hannah, M. Jennens-Clough, K. Wood. **MipTec 1998**, (1998).

References available upon request.

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QUALIFICATIONS

Demonstrated technical leadership, analytical problem solving and troubleshooting skills; with specific focus on chromatography (high performance liquid chromatography (HPLC), capillary gas chromatography (GC), and solid phase extraction (SPE).

PROFESSIONAL EXPERIENCE

- Fourteen plus years as Senior Technical Manager and HPLC Product Manager with Phenomenex – a privately owned manufacturer of chromatography consumable products used for the separation, identification, quantification, and purification of complex mixtures in the pharmaceutical, food and beverage, environmental, clinical toxicology, and food safety industries.
- Eleven years with DuPont in increasingly responsible technical positions with expanding business experience at research and development and manufacturing sites.

Phenomenex, Inc. (Torrance, CA)
Senior Technical Manager 2009 to Present

- Leverage 25+ years of chromatography experience to:
  - Develop and present technical training seminars and webinars to customers, international distributors, and internal sales globally – necessitating significant (> 50%) domestic and international travel.
  - Provide hands-on customer laboratory training (deminars), with focus on implementation of method improvements and new method development opportunities using Phenomenex HPLC, SPE, and GC products.
  - Provide troubleshooting and problem solving support

Technical Manager / HPLC Product Manager 1999 to 2008

- Lead the technical team responsible for providing product technical support to customers, sales and marketing.
- Work closely with sales and customers to provide troubleshooting and problem solving support for general chromatographic problems and the use of Phenomenex products.
- Develop and implement technical training program for new sales hires.
- Develop and present product and technical training presentations to international distributors, sales, and customers throughout the world – approximately 20% domestic and international travel.

- Responsible for managing the flagship HPLC products (Gemini, Luna, Synergi, Axia) in the Phenomenex product portfolio with demonstrated growth exceeding 15% per year.
- Responsible for identifying new product development opportunities to grow the Phenomenex HPLC product portfolio and maintain a market leadership position.
- Facilitate the efficient and timely technology transfer between R&D and Manufacturing for new product introductions and product extensions.
- Provide technical leadership to the brand managers and marketing segment managers; ensure technical content in brochures and marketing collateral is accurate.
- Work closely with Brand Managers to identify and implement strategies to grow unit sales, revenue, and market share internationally.

Senior Chemist, DuPont (Wilmington, DE) 1988 to 1999

- Led a team in development, validation and implementation of analytical methods for process control and product release to support new product/process startup.
- Worked closely with business and technical leadership to identify and implement cost savings and quality improvement strategies in an ISO 9000 certified manufacturing facility.
- In analytical leadership role identified opportunities for leveraging capabilities of analytical groups within a network of domestic and international DuPont locations.
- Managed operating and capital equipment budget for a diverse group of chemists and engineers.

EDUCATION

- MBA - University of Delaware (1997)
- Ph.D. (Chemistry) - University of Illinois at Urbana-Champaign (1988)
- M.S. (Chemistry) - University of Illinois at Urbana-Champaign (1986)
- B.S. (Chemistry) - University of California at Irvine (1981)

OTHER INTERESTS

- Wine, Golf, Sailing, Travel

AOAC Expert Review Panel Submission
Resume Supplement – Philip Koerner

To Whom It May Concern:

I am an analytical chemist with over 25 years of experience in HPLC, GC and SPE. I have a BS degree in chemistry from the University of California, Irvine, and MS and PhD degrees in analytical chemistry from the University of Illinois, Urbana-Champaign. I am currently employed by Phenomenex, the leading global provider of HPLC products. I hold the position of Senior Technical Manager and HPLC Product Manager. I have extensive experience in the application of liquid chromatography in the fields of food safety, food quality, clinical toxicology, pharmaceuticals and environmental.

I have reviewed the SMPRs for the three categories of SPDS methods. It is very apparent that the majority (if not the entirety) of the methods submitted to AOAC will be based upon some form of liquid chromatography and/or solid phase extraction. I believe that the breadth and depth of my expertise in chromatography would be of significant value in the expert review of submitted methods and will help assure objective, scientifically valid first action decisions. I would be pleased to provide additional biographic information and references upon request.

Respectfully submitted,

Philip J. Koerner, Jr., Ph.D
November 26, 2014

Jungmin Lee

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https://www.researchgate.net/profile/Jungmin_Lee7/

Education

Ph.D. Food Science & Technology (Minor in Statistics) Oregon State University, Corvallis, OR Dissertation Title: The Blueberry: Composition, Anthocyanins, and Polyphenolics. Advisor: Dr. Ronald E. Wrolstad	January 2004
B.S. Botany (Minor in Chemistry) B.S. Food Science & Technology Oregon State University, Corvallis, OR	June 1998

Research Experience

Research Food Technologist, Lead Scientist (GS-1382-14). United States Department of Agriculture, Agricultural Research Service, Horticultural Crops Research Unit, Corvallis, OR. – Stationed at Parma Research and Extension Center. Parma, ID. Direct federal research program emphasizing analytical chemistry of compounds related to small fruit, particularly phenolics. And apply HPLC-DAD-ion trap MS, HPLC-FLD, HPLC-RID, GC-MS, GC-FID, FT-NIR/MIR, and other techniques as appropriate. Supervise one full-time technical assistant and various temporary staff. Participate in graduate advisory committees for students at University of Idaho, Oregon State University, and Washington State University. Provide informal advising to graduate students, post-doctoral research associates, and technicians from UI, OSU, WSU, and UC Davis. Collaborate with food scientists, horticulturists, plant physiologists, geneticists, plant pathologists, and soil scientists in Land Grant Universities, federal agencies, and private industries.	October 2004 - present
Postdoctoral Research Associate, Research Chemist (GS-1320-11). USDA-ARS. Beltsville Human Nutrition Research Center, Food Composition and Methods Development Laboratory. Beltsville, MD. Assessed analytical methods for determining secondary amino acid metabolites in garlic and broccoli by GC-FID, GC-MS, and GC-PFPD.	March 2004 - October 2004
Graduate Research Assistant. Oregon State University, Department of Food Science & Technology. Corvallis, OR. Assessed compositional changes of anthocyanins and other phenolics in blueberries by HPLC during juice, and concentrate processing. Compared phenolics of 36 populations of PNW native huckleberries to commercial highbush blueberries. Explored methods for further extraction of phenolics from blueberry processing waste. Analyzed phenolics in blueberry fractions (i.e., peel, flesh, seeds) by HPLC, ESI-MS, and LC-MS.	July 1998 – February 2004
Collaborative Study Director. OSU Department of Food Science & Technology. Lead investigator of 13 national and international laboratories, for AOAC method validation (FE020): *Determination of total monomeric anthocyanin pigments by the pH differential method*.	June 2001 - May 2005

Undergraduate Research Assistant. OSU Department of Food Science & Technology. Determined factors influencing the measurement of total monomeric anthocyanin in juice samples. Processed radish and potato for natural colorants at pilot plant scale.	August 1997 - June 1998
Undergraduate Research Assistant. OSU Department of Botany & Plant Pathology. Performed molecular techniques, histology, and experimental plant care to isolate mutant tomato genes.	September 1996 - August 1997

Teaching and Advisory Experience

Affiliate Faculty, Department of Plant, Soils, and Entomological Sciences (PSES), University of Idaho.	July 2013 - present
Major advisor, Nicole Umiker, WSU Ph.D. Project title- Factors affecting culturability, viability, and filterability of *Dekkera bruxellensis* in red wine.	February 2011 - April 2011
Affiliate Faculty, Department of Horticulture, Oregon State University.	October 2010 - present
Affiliate Faculty, School of Food Science, Washington State University.	January 2009 - present
Affiliate Faculty, School of Food Science, University of Idaho. Web page: http://www.ag.uidaho.edu/fst/Lee_Profile.htm	June 2007 - present
Affiliate Faculty, Department of Food Science and Technology, Oregon State University.	October 2007 – September 2008
Graduate Advisory Committee, Department of Horticulture, Oregon State University, A. Reeve (Ph.D.); Department of Plant, Soils, and Entomological Sciences, University of Idaho, B. Thompson (M.S.); School of Food Science, Washington State University, N. Umiker (Ph.D.); School of Food Science, Washington State University, L. Schopp (M.S.)	January 2007 - present
Technical Advisor (ad hoc). Pharmavite LLC (S. Yoo); Monash University (K. Mosse, Ph.D. student/ visiting Fulbright post-graduate scholar); College of Southern Idaho (T. Ellis, undergraduate); Washington State University (L. Schopp and N. Umiker, M.S. and Ph.D. students; A. Subramanian, post-doctoral research associate); University of Idaho, Department of Plant, Soil and Entomological Sciences (B. Thompson, M.S. student; B. Werner, M.S. student; R. John, M.S. student; W. Buhrig, technician & M.S. student); Oregon State University, Department of Food Science & Technology (S. Cohen, M.S. and Ph.D. student; J. Koerner, M.S. student; A. Reeve, M.S. student); Oregon State University, Department of Horticulture (F. Yang, Ph.D. student ; M. Dossett, M.S. and Ph.D. student; M. Mathey, M.S. student; L. Coleman, M.S. student); Vale high school (S. Kamo and N. Noblit); Undergraduate summer worker (S. Carter); Academy of Science program in Loudoun County, Virginia (L. Griffin); USDA-ARS-CPGRU (B. Leachman, technician); USDA-ARS-HCRU (A. Shireman, technician at Corvallis, OR; J. Ferguson, technician at Prosser, WA; T. Mackey, technician at Corvallis, OR; M. Peterson, technician at Corvallis, R; J. Bushakra, post-doctoral research associate at Corvallis, OR).	2004 - present
Teaching Assistant and Laboratory Instructor. Pigment and Color Evaluation. (OSU Graduate Course *FST 561*).	Fall 2003, Fall 2000
Teaching Assistant and Laboratory Instructor. Food Chemistry 2. (OSU Graduate and Undergraduate Course *FST 412/512*).	Spring 2002

Professional Service Activities

RPES Advisory Council Representative, per request by Pacific West Area Area Director (Dr. A. Hammond) to fill one of the two PWA representatives. Decision pending.	January 2015-present
Editorial board, ISHS 11th International *Rubus* and *Ribes* Symposium (*Acta Horticulturae*).	January 2015 - present
IFT 2015 Award juror, IFT 2015 William V. Cruess award for excellence in teaching**.**	January 2015
IFT 2015 Session Proposal Reviewer, IFT 2015 annual meeting scientific program track team reviewer. Session proposals for Food Chemistry Track (Total 6).	December 2014 – January 2015
Handling editor, 2nd International Berry Symposium at the International Horticultural Congress (*Acta Horticulturae*).	October 2014-December 2014
Expert Review Panel Member for Stakeholder Panel on Dietary Supplements (SPDS), AOAC Official Methods Board (Folin C working group- Estimation of total phenolics by Folin Ciocalteu method; AOAC contract with the National Institutes of Health- Office of Dietary Supplements [NIH/ODS]).	October 2014-present
Peer-reviewer, Academic press (Elsevier) Fruit juice book proposal.	July 2014
Academic member, Idaho Wine Commission industry education committee.	March 2014-present
Expert Review Panel Member for Stakeholder Panel on Dietary Supplements (SPDS), AOAC Official Methods Board (Anthocyanins working group- Methods for determination of anthocyanins in dietary ingredients and dietary supplements; AOAC contract with the National Institutes of Health- Office of Dietary Supplements [NIH/ODS]).	February 2014-January 2015
Peer-reviewer, WSU Agricultural Research Center (ARC) Hatch project.	January 2014
Associate Editor, Frontiers in Chemistry: Agricultural Biological Chemistry (Nature Publishing Group)	2013-present
IFT 2014 Session Proposal Reviewer, IFT 2014 annual meeting scientific program track team reviewer. Session proposals for Food Chemistry and Food Health & Nutrition Tracks (Total 44).	September 2013-June 2014
Scientific committee member, 2nd International Berry Fruit symposium: Interactions! Local and global berry research and innovation, International Horticultural Congress (IHC). Brisbane, Australia.	2012-2014
Lead Scientist, USDA-ARS CRIS project # 2072-21000-047-00D.	September 2012 - present
IFT 2013 Session Proposal Reviewer, for IFT 2013 annual meeting scientific program development. Member of subpanel (Food Chemistry- Food, Health, and Nutrition).; Session proposal reviewer (Total 41).	June 2012 – July 2013
Research Position Evaluation Committee (RPEC) panelist and peer group Food Science and Human Nutrition representative, USDA-ARS category 1 positions classification evaluation. (June 2013- Total 12, IDR for 2; August 2014- Total 10, IDR for 2).	June 2012-present
Contributing committee member for IFT 2011 annual meeting scientific program development. Member of two subpanels (Food Chemistry; Food, Health, and Nutrition)	September 2010 – June 2011

Location monitor for worksite deck, stairs, and ramp replacement project.	2009 - 2010
Peer-reviewer, WSU Agricultural Research Center (ARC) Hatch project.	April 2009
Search Committee for Post-Doctoral Research Associate, WSU School of Food Science.	November 2008 – May 2009
Invited and participated, Developing a team to address optimizing white wine quality through plant nutrient management. SCRI planning project.	February 2009
Vice Chairperson, Berry / Grape Processing Technical Working Group, Northwest Center for Small Fruits Research (NCSFR).	2008
Handling editor, ISHS 9th International *Vaccinium* Symposium (*Acta Horticulturae*).	2008
Scientific committee member, Post-harvest, fruit quality, health benefits, and marketing section, ISHS 9th International *Vaccinium* Symposium.	2008
Moderator, session post-harvest / fruit quality, ISHS 9th International *Vaccinium* Symposium.	July 2008
Peer-reviewer, SEEDS research enhancement competitive grants program, Ohio Agricultural Research and Development Center (OARDC).	November 2007
Chairperson, Wine Technical Working Group, NCSFR.	2006
Peer-reviewer, NCSFR grant proposals.	November 2005
Vice Chairperson, Wine Technical Working Group, NCSFR.	2005
Peer-reviewer (ad hoc; total 118 since 2004), Manuscripts submitted to *European Food Research and Technology, Food Chemistry, Australian Journal of Grape and Wine Research, Food Research International, Journal of Agricultural and Food Chemistry, American Journal of Enology and Viticulture, Journal of Chromatographic Science, Journal of the Science of Food and Agriculture, Journal of the American Society for Horticultural Science, HortScience, HortTechnology, Journal of AOAC International, Journal of Functional Foods, International Journal of Food Sciences and Nutrition, Food Analytical Methods, Innovative Food Science and Emerging Technologies, Journal of Food Composition and Analysis, Journal of Food Science, Journal International des Sciences de la Vigne et du Vin, Vitis-Journal of Grapevine Research, Journal of Food Quality, Journal of Food Processing and Preservation, Acta Horticulturae, Food Science and Nutrition,* and *Journal of Biomedicine and Biotechnology*.	March 2004 - present
Peer-reviewer, SEEDS research enhancement competitive grants program, Ohio Agricultural Research and Development Center (OARDC)	November 2005
Translator and document interpretation, South Korean customer of CAMO (company providing sensory evaluation, experimental design, and multivariate analysis). Corvallis, OR.	May 2003
Search Committee for Food Chemistry Postdoctoral Scientist (GRA Representative), OSU Department of Food Science & Technology	Fall 2001
Search Committee for Fruit & Vegetable Extension Specialist (GRA Representative), OSU Department of Food Science & Technology	Summer 2000

Languages

Korean: native language
English: fluent

Awards and Honors

American Chemical Society (ACS) / Agricultural and Food Chemistry Division (AGFD) Young Scientist Award finalist. Travel award $1,000.	April 2011
American Society for Enology and Viticulture 2009 Best Viticulture Paper Award, ASEV. $1,000 equally divided amongst authors.	June 2009
USDA-ARS Certificate of Merit for Performance of Research.	2005, 2006, 2007, 2009, 2010, 2011, 2012, 2013, 2014
USDA-ARS 'Spot' Awards (2). Total $1,265	2006, 2014
2004 Savery Outstanding Doctoral Student Award, OSU College of Agricultural Sciences. $800	May 2004
Matjarang (Promotion of Korean Cuisine) Food Scholarship. Jayone Foods, Inc. and Matjarang. $1,500	November 2003
Fruits and Vegetable Products Division, poster competition finalist at IFT Annual Meeting. (103B-16 and 39-B3)	July 2003, July 2000
Earnest H. Wiegand Outstanding Graduate Teaching Assistant Award. OSU Department of Food Science and Technology. $500	September 2002
Krumperman Scholarship (Outstanding transfer student). OSU Department of Food Science and Technology. $500	April 1998

Grants Received (Career total >$3.15 million, >$661,000 direct to program) as PI or Co-PI

These funds have been awarded from the USDA/NIFA Specialty Crop Research Initiative (SCRI) Grant, USDA Northwest Center for Small Fruits Research Grants, Technical Committee for Juice and Juice Products, Oregon Wine Board Grants, California Department of Food and Agriculture, Viticulture Consortium West, American Vineyard Foundation (AVF), Oregon Wine Research Institute, Idaho State Department of Agriculture (ISDA) Specialty Crop Block Grant, and Idaho Potato Commission (**total 18 funded**).

Peer Reviewed Publications (55 published – 39 as senior author; 1 in review; 1 in preparation)

1. *Dossett, M.*, **Lee, J.,** and Finn, C.E. 2015. Evaluation of anthocyanins and other fruit quality components of wild black raspberry germplasm. *Genetic Resources and Crop Evolution.* In preparation.
2. *Bushakra, J.M.,* Bryant, D.W., Dossett, M., Vining, K.J., VanBuren, R., Gilmore, B.S., **Lee, J.**, Mockler, T.C., Finn, C.E., and Bassil, N.V. 2015. A genetic linkage map of black raspberry (*Rubus occidentalis*) and the mapping of Ag_4 conferring resistance to the aphid *Amphorophora agathonica*. *Theoretical and Applied Genetics.* In review. Submitted 01/13/2015.
3. **Lee, J.** 2015. Analysis of bokbunja products show they contain *Rubus occidentalis* L. fruit. *Journal of*

Functional Foods. 12:144-149.

4. **Lee, J.** 2015. Sorbitol, *Rubus* fruit, and misconception. *Food Chemistry*. 166:616-622.
5. **Lee, J.,** Dossett, M., and Finn, C.E. 2014. Mistaken identity: clarification of *Rubus coreanus* Miquel (bokbunja). *Molecules- special Anthocyanin issue*. 19:10524-10533. [*invited*]
6. Schreiner, R.P. and **Lee, J.** 2014. Effects of post-véraison water deficit on 'Pinot noir' nutrient status in leaves, clusters, and musts. *HortScience*. 49:1335-1340.
7. Finn, C.E., Strik, B.C., Yorgey, B.M., Peterson, M.E., **Lee, J.**, Martin, R.R., and Hall, H.K. 2014. 'Columbia Star' thornless trailing blackberry. *HortScience*. 49:1108-1112.
8. Bassil, N., Gilmore, B., Hummer, K., Weber, C., Dossett, M., Agunga, R., Rhodes, E., Mockler, T., Scheerens, J.C., Filichkin, S., Lewers, K., Peterson, M., Finn, C.E., Graham, J., **Lee, J.,** Fernández-Fernández, F., Fernandez, G., Yun, S.J., and Perkins-Veazie, P. 2014. Genetic and developing genomic resources in black raspberry. *Acta Horticulturae*. 1048:19-24.
9. **Lee, J.** 2014. Marketplace analysis demonstrates quality control standards needed for black raspberry dietary supplements. *Plant Foods for Human Nutrition*. 69:161-167.
10. **Lee, J.** 2014. Establishing a case for improved food phenolic analysis. *Food Science and Nutrition*. 2:1-8.
11. Schreiner, R.P., Scagel, C.F., and **Lee, J.** 2014. N, P, and K supply to Pinot noir grapevines: impact on berry phenolics and free amino acids. *American Journal of Enology and Viticulture*. 65:43-49.
12. **Lee, J.** and *Rennaker, C*. 2014. American cranberry products: proanthocyanidin purification and concentrations. *Acta Horticulturae*. 1017:363-368.
13. **Lee, J.**, *Dossett, M.*, and Finn, C.E. 2014. Anthocyanin rich black raspberries can be made even better. *Acta Horticulturae*. 1017:127-133.
14. **Lee, J.** and Scagel, C.F. 2013. Chicoric acid: chemistry, distribution, and production. *Frontiers in Chemistry.* 1:40.1-40.17. [*Frontiers in Chemistry-section Agricultural Biological Chemistry inaugural article; invited*]
15. **Lee, J.,** Dossett, M., and Finn, C.E. 2013. Anthocyanin fingerprinting of true bokbunja (*Rubus coreanus* Miq.) fruit. *Journal of Functional Foods*. 5:1985-1990.
16. *Schopp, L.M.*, **Lee, J.,** Osborne, J.P., Chescheir, S.C., and Edwards, C.G. 2013. Metabolism of nonesterified and esterified hydroxycinnamic acids in red wines by *Brettanomyces bruxellensis*. *Journal of Agricultural and Food Chemistry.* 61:11610-11617.
17. *Thomas, A.L.*, Perkins-Veazie, P., Byers, P.L., Finn, C.E., and **Lee, J.** 2013. A comparison of fruit characteristics among diverse elderberry genotypes grown in Missouri and Oregon. *Journal of Berry Research.* 3:159-168.
18. *Umiker, N.L.*, DeScenzo, R.A., **Lee, J**., and Edwards, C.G. 2013. Removal of *Brettanomyces bruxellensis* from red wine using membrane filtration. *Journal of Food Processing and Preservation.* 37:799-805.
19. Finn, C.E., Moore, P.P., Yorgey, B.M., **Lee, J.**, Strik, B.C., Kempler, C., and Martin, R.R. 2013. 'Charm' strawberry. *HortScience*. 48:1184-1188.
20. **Lee, J.** and Skinkis, P.A. 2013. Oregon 'Pinot noir' grape anthocyanin enhancement by early leaf removal. *Food Chemistry.* 139:893-901.
21. Thornton, M.K., **Lee, J.**, *John, R.*, Olsen, N.L., and Navarre, D.A. 2013. Influence of growth regulators on plant growth, yield, and skin color of specialty potatoes. *American Journal of Potato Research.* 90:271-283.
22. **Lee, J.** and Steenwerth, K.L. 2013. 'Cabernet Sauvignon' grape anthocyanin increased by soil conservation practices. *Scientia Horticulturae*. 159:128-133.
23. *Mosse, K.P.M.,* **Lee, J.,** *Leachman, B.T.*, Parikh, S.J., Cavagnaro, T.R., Patti, A.F., and Steenwerth, K.L. 2013. Irrigation of an established vineyard with winery cleaning agent solution (simulated winery wastewater): vine growth, berry quality, and soil chemistry. *Agricultural Water Management.* 123:93-102.
24. **Lee, J.** 2013. Proanthocyanidin A2 purification and levels found in American cranberry (*Vaccinium macrocarpon* Ait.) products. *Journal of Functional Foods*. 5:144-153.
25. Schreiner, R.P., **Lee, J.**, and Skinkis, P.A. 2013. N, P, and K supply to Pinot noir grapevines: impact on vine nutrient status, growth, physiology, and yield. *American Journal of Enology and Viticulture*. 64:26-38. [*Selected as AJEV issue highlight article March 2013*]
26. Scagel, C.F. and **Lee, J.** 2012. Phenolic composition of basil plants is differentially altered by plant nutrient status and inoculation with mycorrhizal fungi. *HortScience*. 47:660-671.
27. *Dossett, M.*, **Lee, J.,** and Finn, C.E. 2012. Anthocyanin content of wild black raspberry germplasm. *Acta Horticulturae*. 946:43-47.
28. **Lee, J.** and Finn, C.E. 2012. Lingonberry (*Vaccinium vitis-idaea* L.) grown in the Pacific Northwest of North America: anthocyanin and free amino acid composition. *Journal of Functional Foods*. 4:213-218.

29. **Lee, J.**, *Dossett, M.*, and Finn, C.E. 2012. *Rubus* fruit phenolic research: the good, the bad, and the confusing. *Food Chemistry.* 130:785-796. [*Food Chemistry top 25 hottest articles in October-December 2011*]
30. *Dossett, M.*, **Lee, J.,** and Finn, C.E. 2011. Characterization of a novel anthocyanin profile in wild black raspberry mutants: An opportunity for studying the genetic control of pigment and color. *Journal of Functional Foods.* 3:207-214.
31. **Lee, J.** and Steenwerth, K.L. 2011. Rootstock and vineyard floor management influence on 'Cabernet Sauvignon' grape yeast assimilable nitrogen (YAN). *Food Chemistry*. 127:926-933.
32. **Lee, J.** and *Rennaker, C.* 2011. Influence of extraction methodology on grape composition values. *Food Chemistry*. 126:295-300.
33. *Dossett, M.*, **Lee, J.**, and Finn, C.E. 2010. Variation of anthocyanins and total phenolics in black raspberry populations. *Journal of Functional Foods.* 2:292-297.
34. **Lee, J.** 2010. Degradation kinetics of grape skin and seed proanthocyanidins in a model wine system. *Food Chemistry.* 123:51-56.
35. **Lee, J.** and Martin, R.R. 2010. Analysis of grape polyamines from *grapevine leafroll associated viruses* (GLRaV-2 and -3) infected vines. *Food Chemistry*. 122:1222-1225.
36. **Lee, J.** 2010. Caffeic acid derivatives in dried Lamiaceae and *Echinacea purpurea* products. *Journal of Functional Foods.* 2:158-162.
37. **Lee, J.** and Scagel, C.F. 2010. Chicoric acid levels in commercial basil (*Ocimum basilicum*) and *Echinacea purpurea* products. *Journal of Functional Foods.* 2:77-84.
38. **Lee, J.** and Schreiner, R.P. 2010. Free amino acid profiles from 'Pinot noir' grapes are influenced by vine N-status and sample preparation method. *Food Chemistry*. 119:484-489.
39. **Lee, J.**, *Keller, K.E., Rennaker, C.*, and Martin, R.R. 2009. Influence of *grapevine leafroll associated viruses* (GLRaV-2 and -3) on the fruit composition of Oregon *Vitis vinifera* L. cv. Pinot noir: free amino acids, sugars, and organic acids. *Food Chemistry*. 117:99-105.
40. **Lee, J.** and Scagel, C.F. 2009. Chicoric acid found in basil (*Ocimum basilicum* L.) leaves. *Food Chemistry*. 115:650-656.
41. *Koerner, J.L.*, Hsu, V.L., **Lee, J.**, and Kennedy, J.A. 2009. Determination of proanthocyanidin A2 content in phenolic polymer isolates by reversed-phase high performance liquid chromatography. *Journal of Chromatography A.* 1216:1403-1409.
42. **Lee, J.** and Martin, R.R. 2009. Influence of *grapevine leafroll associated viruses* (GLRaV-2 and -3) on the fruit composition of Oregon *Vitis vinifera* L. cv. Pinot noir: phenolics. *Food Chemistry*. 112:889-896.
43. **Lee, J.,** *Rennaker, C.*, and Wrolstad, R.E. 2009. Comparison of two methods for anthocyanin quantification. *Acta Horticulturae.* 810:831-834.
44. Tarara, J.M., **Lee, J.**, Spayd, S.E., and Scagel, C.F. 2008. Berry temperature and solar radiation alter acylation, proportion, and concentration of anthocyanin in 'Merlot' grapes. *American Journal of Enology and Viticulture*. 59:235-247. [*Awarded American Society for Enology and Viticulture 2009 Best Viticulture Paper; AJEV top fifty most-frequently read and cited articles since publication- for multiple years*]
45. **Lee, J.**, *Rennaker, C.,* and Wrolstad, R.E. 2008. Correlation of two anthocyanin quantification methods: HPLC and spectrophotometric methods. *Food Chemistry.* 110:782-786. [*Food Chemistry top 25 hottest articles in April – June 2008*]
46. *Dossett, M.*, **Lee, J.**, and Finn, C.E. 2008 Inheritance of phenological, vegetative, and fruit chemistry traits in black raspberry. *Journal of the American Society for Horticultural Science* 133:408-417. [*JASHS top 10 articles read in June 2008*]
47. **Lee, J.**, Kennedy, J.A., Devlin, C., Redhead, M., and *Rennaker, C.* 2008. Effect of early seed removal during fermentation on proanthocyanidin extraction in red wine: a commercial production example. *Food Chemistry*. 107:1270-1273.
48. **Lee, J.** and Finn, C.E. 2007. Anthocyanins and other polyphenolics in American elderberry (*Sambucus canadensis*) and European elderberry (*S. nigra*) cultivars. *Journal of the Science of Food and Agriculture.* 87:2665-2675.
49. **Lee, J.** and *Rennaker, C.* 2007. Antioxidant capacity and stilbene contents of wines produced in the Snake River Valley of Idaho. *Food Chemistry.* 105:195-203.
50. **Lee, J.**, Finley, J.W., and Harnly, J.M. 2005. Effect of selenium fertilizer on free amino acid composition of broccoli (*Brassica oleracea* cv. Majestic) determined by gas chromatography with flame ionization and mass selective detection. *Journal of Agricultural and Food Chemistry*. 53:9105-9111.
51. **Lee, J.** and Harnly, J.M. 2005. Free amino acid and cysteine sulfoxide composition of 11 garlic (*Allium sativum*

L.) cultivars by gas chromatography with flame ionization and mass selective detection. *Journal of Agricultural and Food Chemistry.* 53:9100-9104.

52. **Lee, J.**, Durst, R.W., and Wrolstad, R.E. 2005. Determination of total monomeric anthocyanin pigment content of fruit juices, beverages, natural colorants, and wines by the pH differential method: collaborative study. *Journal of AOAC International*. 88:1269-1278.
53. Wrolstad, R.E., Durst, R.W., and **Lee, J.** 2005. Tracking color and pigment changes in anthocyanin products. *Trends in Food Science and Technology.* 16:423-428.
54. **Lee, J.**, Finn, C.E., and Wrolstad, R.E. 2004. Comparison of anthocyanin pigment and other phenolic compounds of *Vaccinium membranaceum* and *V. ovatum* native to the Pacific Northwest of North America. *Journal of Agricultural and Food Chemistry.* 52:7039-7044.
55. **Lee, J.** and Wrolstad, R.E. 2004. Extraction of anthocyanins and polyphenolics from blueberry processing waste. *Journal of Food Science.* 69:C564-C573.
56. **Lee, J.**, Finn, C.E., and Wrolstad, R.E. 2004. Anthocyanin pigment and total phenolic content of three *Vaccinium* species native to the Pacific Northwest of North America. *HortScience*. 39:959-964.
57. **Lee, J.**, Durst, R.W., and Wrolstad, R.E. 2002. Impact of juice processing on blueberry anthocyanins and polyphenolics: comparison of two pretreatments. *Journal of Food Science*. 67:1660-1667.

** Italicized names are graduate students, post-doctoral research associates, and technicians to whom incumbent provided supervision.*

Additional Publications

58. **Lee, J.** 2015. Chemical composition. In: Funt, R.C. and Hall, H.K. (eds.) Blackberries and Their Hybrids (CABI, Oxfordshire, United Kingdom). In preparation. (Book Chapter) [*invited*]
59. Tarara, J.M. and **Lee, J.** 2015. Fruit microclimate and ripening, the relevance of macroclimate. In: Smart, R. (ed.) More Sunlight into Wines (Winetitles Pty Ltd., Broadview, Australia). Submitted 1/6/2010. In press. (Book Chapter) [*invited*]
60. **Lee, J.**, Dossett, M., and Finn, C.E. 2014. Chemotaxonomy of black raspberry: deception in the marketplace? Polyphenols Communications 2014 (Proceedings of XXVIIth International Conference on Polyphenols, Nagoya, Japan). 2014:347-348. (Conference Proceedings)
61. **Lee, J.,** Dossett, M., and Finn, C.E. 2013. Black raspberry: Korean vs. American. http://www.black-raspberries.com (Other)
62. Finn, C.E. and **Lee, J.** 2013. Extending RosBREED in the Pacific Northwest for strawberry processing traits: year 1. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
63. Tarara, J.M., **Lee, J.,** and Skinkis, P.A. 2013. Is timing the key to good fruit phenolics?: year 3. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
64. **Lee, J.,** Dossett, M., Bassil, N.V., and Finn, C.E. 2013. A black berry that is not a blackberry. http://www.black-raspberries.com (Other)
65. **Lee, J.,** Finn, C.E., and *Dossett, M.* 2012. Evaluation of fruit chemistry traits in wild black raspberry germplasm: year 2. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
66. Tarara, J.M. and **Lee, J.** 2012. Is timing the key to good fruit phenolics?: year 2. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
67. **Lee, J.,** Finn, C.E., and *Dossett, M.* 2011. Evaluation of fruit chemistry traits in wild black raspberry germplasm: year 1. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
68. **Lee, J.** and Tarara, J.M. 2011. Is timing the key to good fruit phenolics?: year 1. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
69. **Lee, J.** and Steenwerth, K.L. 2011. To till or not to till? - impacts on grape YAN. OSU wine and grape research and extension newsletter. 3:6. (Extension Circular)
70. Tarara, J.M., and **Lee, J.** 2011. An introduction to environmental influences on ripening in grapes: focus on wine grapes and phenolics. eXtension: Grape Community of Practice. (Popular Publication) [*invited*]
71. Schreiner, R.P., Skinkis, P.A., **Lee, J.,** Qian, M., and Osborne, J. 2010. Determining optimal levels of N, P, and K for Pinot noir based on vine growth and fruit quality. 2010 Oregon Wine Board Progress Report. (Conference Proceedings)
72. Tarara, J.M. and **Lee, J.** 2010. Environmental influences on ripening and phenolics in grapes. Plant Growth

Regulation Society of America 37th annual meeting. (Conference Proceedings) [*Invited*]

73. **Lee, J.** and Tarara, J.M. 2010. Understanding micro-oxygenation technique and the oxidation of grape/wine polyphenolics: final report. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
74. Ringer, K.L., **Lee, J.**, and Harbertson, J. 2010. Dehydration of berry purees to produce value-added powders of high quality for use in nutritional supplements. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
75. **Lee, J.**, Tarara, J.M., and Ringer, K.L. 2009. Understanding micro-oxygenation technique and the oxidation of grape/wine polyphenolics: year 3. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
76. **Lee, J.** and Schreiner, R.P. 2009. Vine nutrition and extraction parameters can influence winegrape YAN. OSU wine and grape research and extension newsletter. 7:7. (Extension Circular)
77. **Lee, J.**, Tarara, J.M., and Kennedy, J.A. 2008. Understanding micro-oxygenation technique and the oxidation of grape/wine polyphenolics: year 2. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
78. **Lee, J.** and Martin, R.R. 2008. Impact of Grapevine leafroll associated virus -2 and -3, on phenolic compounds: commercial vineyard example. Polyphenols Communications 2008 (Proceedings of XXIVth International conference on Polyphenols, Salamanca, Spain). 1:399-400. (Conference Proceedings)
79. **Lee, J.** and Kennedy, J.A. 2007. Understanding micro-oxygenation technique and the oxidation of grape/wine polyphenolics: year 1. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
80. *Dossett, M.*, Finn, C.E., and **Lee, J.** 2007. Challenges and strategies in breeding black raspberries (*R. occidentalis* L.) for improved nutraceutical value. 2007 Berry Health Benefits Symposium Proceedings. (Conference Proceedings)
81. **Lee, J.** and Tarara, J.M. 2007. Grape and wine phenolics: a refresher. *Proceedings of Washington Association of Wine Grape Growers Annual meeting*. (Conference Proceedings) [*invited*]
82. Hummer, K. and **Lee, J.** 2006. Naming and release of the gooseberry cultivar 'Jeanne'. USDA, Agricultural Research Services, Germplasm release. Docket number 0807.07. (Plant Invention).
83. Schreiner, R.P., **Lee, J**., Kennedy, J., and Qian, M. 2006. Identifying optimal nutrient concentrations for premium winegrape production based on physiological needs and fruit quality: year 2. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
84. **Lee, J.,** Durst, R.W., and Wrolstad, R.E. 2005. Method 2005.02: Total monomeric anthocyanin pigment content of fruit juices, beverages, natural colorants, and wines by the pH differential method. Approved first action 2005. *Official Methods of Analysis of AOAC International*. 18 th ed. Washington, D.C.: AOAC. Chapter 37, 37-39 pp. (Book Chapter)
85. Schreiner, R.P., **Lee, J.**, Kennedy, J., Qian, M., Connelly, A., Fuchigami, L., Davenport, J., and Campbell, A. 2005. Identifying optimal nutrient concentrations for premium winegrape production based on physiological needs and fruit quality: year 1. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
86. **Lee, J.** 2004. The blueberry: composition, anthocyanins, and polyphenolics. Oregon State University, Corvallis, OR. 261 p. (Ph.D. Dissertation) [*Awarded 2004 Savery Outstanding Doctoral Student Award, OSU College of Agricultural Sciences*]
87. **Lee, J.,** Durst, R.W., and Wrolstad, R.E. 2002. Precollaborative study protocol: Determination of total monomeric anthocyanin pigments by the pH differential method. Accepted by AOAC International Committee on Commodity Foods and Commodity Products.
88. Wrolstad, R.E. and **Lee, J.** 2002. Impact of processing on blueberry anthocyanins and polyphenolics: year 3. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
89. Wrolstad, R.E., **Lee, J.**, and Durst, R.W. 2001. Impact of processing on blueberry anthocyanins and polyphenolics: year 2. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)
90. Wrolstad, R.E., **Lee, J.**, Durst, R.W., Moyer, R., Finn, C., and Hummer, K. 2000. Impact of processing on blueberry anthocyanins and polyphenolics: year 1. Proceedings of Northwest Center for Small Fruits Research. (Conference Proceedings)

** Italicized names are graduate students, post-doctoral research associates, and technician to whom incumbent provided supervision.*

Abstracts

91. **Lee, J.**, Dossett, M., and Finn, C.E. 2014. Chemotaxonomy of black raspberry: deception in the marketplace? XXVIIth International conference on Polyphenols (ICP). Nagoya, Japan.
92. Bryant, D., *Bushakra, J.M.*, Dossett, M., Vining, K., Filichkin, S., Weiland, J.E., **Lee, J.,** Finn, C.E., Bassil, N.V., Mockler, T. 2014. Building the genomic infrastructure in black raspberry. ASHS annual conference, Orlando, FL.
93. *Bushakra, J.M.,* Bryant, D., Bradish, C.M., Dossett, M., Vining, K., Weiland, J.E., Filichkin, S., Perkins-Veazie, P., Scheerens, J.C., Weber, C., Buck, E.B., Agunga, R., Yang, W., Fernández Fernández, F., Yun, S.J., Lewers, K., Graham, J., Fernandez, G., Mockler, T., **Lee, J.,** Finn, C.E., and Bassil, N.V. 2014. Developing the genomic and genetic infrastructure for black raspberry. ASHS annual conference, Orlando, FL.
94. *Bushakra, J.M.*, Bradish C.M., Weber, C.A. Scheerens J.C., Dossett, M., Perterson, M., Fernandez, F., **Lee, J.,** Bassil, N.V., and Finn, C.E. 2014. Toward understanding genotype x environment interactions in black raspberry (*Rubus occidentalis* L.). ASHS annual conference, Orlando, FL.
95. **Lee, J.**, Dossett, M., and Finn, C.E. 2014. What's really in our black raspberry products?: chemotaxonomy by anthocyanin. Botany 2014- Botanical Society of America Conference, Boise, ID. Abstract 1245.
96. *Reeve, A.L.*, Skinkis, P.A., **Lee, J.,** and Tarara, J.M. 2014. Influence of vine vigor and crop level on 'Pinot noir' vine growth, nutrition, fruitfulness, and fruit composition. American Society of Enology and Viticulture (ASEV) National Conference, Austin, TX. P108.
97. Schreiner, R.P., **Lee, J.,** Skinkis, P.A., Osborne, J., Qian, M., and Navarrete, A. 2014. A greater understanding of nutrient supply for Pinot noir production. ASEV National Conference, Austin, TX. P154
98. *Bushakra, J.M.,* Bryant, D., Dossett, M., Gilmore, B., Filichkin, S., Weiland, J.E., Peterson, M., Bradish, C.M., Fernandez, F., Lewers, K., Graham, J., **Lee, J.,** Mockler, T., Bassil, N.V., and Finn, C.E. 2014. Black raspberry genetic and genomic resource development. Plant Biology 2014- American Society of Plant Biologists, Portland, OR.
99. *Bushakra, J.M.,* Bryant, D., Vining, K., Dossett, M., Mockler, T., **Lee, J.**, Finn, C.E., and Bassil, N.V. 2014. A linkage map for black raspberry (*Rubus occidentalis*). 7th International Rosaceae Genomics Conference, Seattle, WA.
100. *Reeve, A.L.*, Skinkis, P.A., **Lee, J.,** and Tarara, J.M. 2014. Vine balance: relationships between Pinot noir vegetative vigor and fruit composition. Oregon Grape and Wine Institute (OWRI) Viticulture & Enology Research Grape Day. Corvallis, OR.
101. **Lee, J.** 2013. The untapped capacity of phenolics. American Chemical Society (ACS) 246th National meeting. Indianapolis, IN. AGFD 30. [*invited*]
102. Schreiner, R.P., **Lee, J.**, and Skinkis, P.A. 2013. Understanding the causes of flower necrosis in grapevines. American Society for Horticultural Science (ASHS) annual conference. Palm Desert, CA. Abstract #1448. HortScience.
103. *Schopp, L.M.*, **Lee, J.,** and Edwards, C.G. 2013. Metabolism of hydroxycinnamic acids and their tartaric acid esters by *Brettanomyces* and *Pediococcus* in red wines. ASEV National Conference. Monterey, CA.
104. *Reeve, A.L.*, Skinkis, P.A., **Lee, J.,** Tarara, J.M., and Vance, A.J. 2013. Shifts in fruitfulness and crop load of 'Pinot noir' in response to nitrogen depletion. ASEV National Conference. Monterey, CA.
105. **Lee, J.** and Skinkis, P.A. 2013. Leaf removal in cool seasons enhances 'Pinot noir' anthocyanins. ASEV National Conference. Monterey, CA.
106. *Reeve, A.L.*, Skinkis, P.A., **Lee, J.,** Tarara, J.M., and Vance, A.J. 2013. Shifts in fruitfulness and crop load of 'Pinot noir' in response to nitrogen depletion. Oregon Grape and Wine Institute (OWRI) Viticulture & Enology Research Grape Day (previously OWRI Colloquium). Corvallis, OR. P75.
107. **Lee, J.**, Schreiner, R.P., Skinkis, P.A., and Tarara, J.M. 2013. Sun, shade, and secondary metabolites. OWRI Viticulture & Enology Research Grape Day (previously OWRI Colloquium). Corvallis, OR. [*invited*]
108. **Lee, J.**, Dossett, M., and Finn, C.E. 2012. The next generation of superfruits: enhancing anthocyanin rich black raspberries. ACS 244th National Meeting. Philadelphia, PA. AGFD 128.
109. Bassil, N., Dossett, M., Mockler, T., Filichkin, S., Peterson, M., **Lee, J.,** Fernandez, G., Perkins-Veazie, P., Weber, C., Agunga, R., Rhodes, E., Scheerens, J., Yang, W., Lewers, K., Graham, J., Fernández Fernández, F., Yun, S., and Finn, C. 2012. Developing the genomic infrastructure for breeding black raspberry. ASHS annual conference. Miami, FL. Abstract 10778.
110. **Lee, J.** and *Rennaker, C.* 2012. American cranberry products: proanthocyanidin purification and concentrations. 10th International Symposium on *Vaccinium* and Other Superfruits, Maastricht, The

Netherlands.

111. **Lee, J.**, Dossett, M., and Finn, C.E. 2012. Anthocyanin rich black raspberries can be made even better. 10th International Symposium on *Vaccinium* and Other Superfruits, Maastricht, The Netherlands.

112. Dossett, M., **Lee, J.**, and Finn, C.E. 2012. Black raspberry phytochemical research in North America. Korean Society of Food Science and Technology annual meeting. Daejon, South Korea. [*invited*]

113. *Schopp, L.M.,* **Lee, J.** and Edwards, C.G. 2012. Metabolism of hydroxycinnamic acids and esters by *Brettanomyces* in different red wines. ASEV National Conference. Portland, OR. P20.

114. **Lee, J.** and Tarara, J.M. 2012. Small differences in temperature interact with solar radiation to alter anthocyanin in grapes. ASEV National Conference. Portland, OR. P67. 63:464A.

115. Bassil, N., Dossett, M., Hummer, K., Mockler, T., Filichkin, S., Peterson, M., **Lee, J.,** Fernandez, G., Perkins-Veazie, P., Weber, C., Agunga, R., Rhodes, E., Scheerens, J., Yang, W., Lewers, K., Graham, J., Fernández Fernández, F., Yun, S., and Finn, C. 2012. Genetic and developing genomic resources in black raspberry. Biotech Fruit 2012, Nelsons, New Zealand. [*invited*]

116. *Schopp, L.M.,* **Lee, J.** and Edwards, C.G. 2012. Differential metabolism of hydroxycinnamic acids by two *Brettanomyces bruxellensis* strains grown in red wines. Washington Association of Wine Grape Growers (WAWGG) annual meeting, Kennewick, WA.

117. **Lee, J.** and Tarara, J.M. 2012. Is solar radiation a key to good red wine grape anthocyanin?, WAWGG annual meeting, Kennewick, WA.

118. **Lee, J.** and Tarara, J.M. 2011. Understanding optimal anthocyanin accumulation of 'Merlot' grapes – influence of light exclusion. ASHS annual conference. Waikoloa, HI. Abstract 5506. *HortScience*. 46:S371-S372.

119. Scagel, C.F. and **Lee, J.** 2011. Phenolic composition of basil plants is differentially altered by plant nutrient status and inoculation with mycorrhizal fungi. ASHS annual conference. Waikoloa, HI. Abstract 5542. *HortScience.* 46:S240-S241.

120. Schreiner, R.P. and **Lee, J.** 2011. Nutrient uptake and use in young 'Pinot noir' grapevines. ASHS annual conference. Waikoloa, HI. Abstract 5582. *HortScience*. 46:S228-S229.

121. **Lee, J.**, *Dossett, M.*, and Finn, C.E. 2011. Range of black raspberry (*Rubus occidentalis* L.) anthocyanin content from 26 seedling populations. ASHS annual conference. Waikoloa, HI. Abstract 5445. HortScience. 46:S336-S337.

122. **Lee, J.**, *Dossett, M.*, and Finn, C.E. 2011. Range of black raspberry (*Rubus occidentalis* L.) anthocyanin content from 26 seedling populations. Institute of Food Technologists (IFT) national meeting. IFT national meeting. New Orleans, LA. IFT national meeting book of abstracts. Abstract 089-22.

123. *Dossett, M.*, **Lee, J.**, and Finn, C.E. 2011. Anthocyanin content of wild black raspberry germplasm. International *Rubus* and *Ribes* Symposium, Zlatibor, Serbia.

124. **Lee, J.** 2011. Plant phenolics- from field to fork. ACS 242nd National Meeting. Denver, CO. AGFD 4. [*invited*]

125. Schreiner, R.P. and **Lee, J.** 2011. Nutrient uptake and use in young 'Pinot noir' grapevines. OWRI Viticulture & Enology Research Colloquium booklet. Corvallis, OR.

126. **Lee, J.** and Tarara, J.M. 2011. Vineyard management practices and the quality of grape and grape products: USDA-ARS CRIS project. OWRI Viticulture & Enology Research Colloquium booklet. Corvallis, OR.

127. **Lee, J.** and Martin, R.R. 2011. Impact of Grapevine leafroll associated virus -2 and -3, on primary and secondary metabolites: commercial vineyard example. OWRI Viticulture & Enology Research Colloquium booklet. Corvallis, OR.

128. **Lee, J.** and Steenwerth, K. 2011. Rootstock and vineyard floor management influence on 'Cabernet Sauvignon' grape yeast assimilable nitrogen (YAN). WAWGG 13th Annual Meeting. Kennewick, WA.

129. Ringer, K., **Lee, J.,** and Harbertson, J. 2010. Dehydration of berry purees to produce value-added powders of high quality for use in nutritional supplements. Pre-Proceedings of NCSFR. Boise, ID.

130. Steenwerth, K., Mostoller, E., Roncoroni, J., and **Lee, J.** 2010. Mitigating nitrous oxide emissions, nitrate leaching, and weed pressure in vineyards. ASA, CSSA, and SSSA 2010 International annual meeting. Long Beach, CA. Paper 61664.

131. Tarara, J.M. and **Lee, J.** 2010. Solar radiation and temperature: drivers of ripening in grapes. ASHS annual conference. Palm Desert, CA. Abstract 3376. [*invited*]

132. *Dossett, M.,* **Lee, J.**, and Finn, C.E. 2010. Variation in anthocyanin content of wild black raspberry for breeding improved cultivars. ASHS annual conference. Palm Desert, CA. Abstract 4377.

133. **Lee, J.** and Scagel, C.F. 2010. Caffeic acid derivatives in market available Lamiaceae and *Echinacea*

purpurea products. IFT national meeting. Chicago, IL. IFT national meeting book of abstracts. Abstract 289-06.

134. *Subramanian, A.,* **Lee, J.**, Ringer, K.L., and Savarese, M. 2010. Comparison of different formulations for cranberry phenolic retention during Radiant Zone Drying. IFT national meeting. IFT national meeting. Chicago, IL. IFT national meeting book of abstracts. Abstract 233-10.
135. Schreiner, R.P., Du, X., Qian, M., and **Lee, J**. 2010. Low N supply, but not low P or K supply alters Pinot noir growth, yield, and berry aroma profiles. International Cool Climate Symposium. Seattle, WA.
136. **Lee, J.** 2010. USDA-ARS-HCRU Food Chemistry Research Program. OSU Viticulture & Enology Research Colloquium booklet. Corvallis, OR.
137. **Lee, J.**, Tarara, J.M., and Ringer, K.L. 2009. Understanding micro-oxygenation technique and the oxidation of grape/wine polyphenolics: year 3. Pre-Proceedings of NCSFR. Kennewick, WA.
138. **Lee, J.** and Scagel, C.F. 2009. Chicoric acid levels in basil (*Ocimum basilicum*). ACS 238th National Meeting. Washington D.C. AGFD 142.
139. **Lee, J.** and Martin, R.R. 2009. Impact of Grapevine leafroll associated virus-2 and -3 on fruit composition: commercial vineyard example. WAWGG 13th Annual Meeting. Kennewick, WA.
140. **Lee, J.**, Tarara, J.M., and Kennedy, J.A. 2008. Understanding micro-oxygenation technique and the oxidation of grape/wine polyphenolics: year 2. Pre-Proceedings of NCSFR. Corvallis, OR.
141. **Lee, J.** and Martin, R.R. 2008. Impact of Grapevine leafroll associated virus -2 and -3, on phenolic compounds: commercial vineyard example. XXIVth International conference on Polyphenols (ICP). Salamanca, Spain.
142. **Lee, J.,** *Rennaker, C.,* and Wrolstad, R.E. 2008. Comparison of two methods for anthocyanin quantification. ISHS 9th International *Vaccinium* Symposium. Corvallis, OR.
143. Schreiner, R.P. and **Lee, J.** 2008. Nutrient response of 'Pinot noir' in a sand-culture vineyard: problems and prospects. ASHS annual conference. Orlando, FL.
144. Tarara, J.M., **Lee, J.**, Spayd, S.E., and Scagel, C.F. 2008. Field temperature and anthocyanins in Merlot grape berries. ASHS annual conference. Orlando, FL. HortScience. 43(4):1233.
145. Tarara, J.M., **Lee, J.**, Spayd, S.E., and Scagel, C.F. 2008. Field temperature and anthocyanins in Merlot grape berries. ASEV National Conference. Portland, OR.
146. Tarara, J.M., **Lee, J.**, Scagel, C.F., and Spayd, S.E. 2008. Berry temperature and solar radiation alter acylation, proportion, and concentration of anthocyanins in 'Merlot' grapes. Oregon Wine Industry Symposium. Eugene, OR.
147. Tarara, J.M., **Lee, J.**, Scagel, C.F., and Spayd, S.E. 2008. Berry temperature and solar radiation alter acylation, proportion, and concentration of anthocyanins in 'Merlot' grapes. WAWGG 12th Annual Meeting. Kennewick, WA.
148. **Lee, J.** and Kennedy, J.A. 2007. Understanding micro-oxygenation technique and the oxidation of grape/wine polyphenolics: year 1. Pre-Proceedings of NCSFR. Boise, ID.
149. *Dossett, M.*, Finn, C.E., and **Lee, J.** 2007. Challenges and strategies in breeding black raspberries (*R. occidentalis* L.) for improved nutraceutical value. 2007 Berry Health Benefits Symposium.
150. **Lee, J.**, Durst, R.W., and Wrolstad, R.E. 2003. Determination of total monomeric anthocyanin pigment content by pH differential method of fruit juices, beverages, natural colorants, and wines: collaborative study. AOAC International annual meeting. Atlanta, GA.
151. **Lee, J.**, Wrolstad, R.E., and Durst, R.W. 2003. Anthocyanins and polyphenolics composition of blueberry processing waste. IFT national meeting. Chicago, IL. IFT national meeting book of abstracts. Abstract 103B-16.
152. **Lee, J.,** Wrolstad, R.E., and Durst, R.W. 2001. Impact of juice processing on highbush blueberry anthocyanins and polyphenolics. IFT national meeting. Dallas, TX. IFT national meeting book of abstracts. Abstract 39-B3.

** Italicized names are graduate students, post-doctoral research associates, and technician to whom incumbent provided supervision.*

Professional Presentations

1. **Lee, J.** (presenter). "Grape metabolites: what we know, and what we think we know", 2015 Oregon Wine Symposium. Portland, OR. February 2015. [*invited*; travel award ~$1,500]
2. **Lee, J.** (presenter), Dossett, M., and Finn, C.E. (poster) "Chemotaxonomy of black raspberry: issues with marketplace products" 2014 XXVIIth International Conference on Polyphenols (The 8th Tannin conference jointly hosted), Nagoya, Japan. September 2014.
3. Bryant, D. (presenter), *Bushakra, J.M.* (presenter), Dossett, M., Vining, K., Filichkin, S., Weiland, J.E., **Lee, J.,** Finn, C.E., Bassil, N.V., Mockler, T. "Building the genomic infrastructure in black raspberry." ASHS annual conference, Orlando, FL. July 2014.
4. *Bushakra, J.M.* (presenter), Bryant, D., Bradish, C.M., Dossett, M., Vining, K., Weiland, J.E., Filichkin, S., Perkins-Veazie, P., Scheerens, J.C., Weber, C., Buck, E.B., Agunga, R., Yang, W., Fernández Fernández, F., Yun, S.J., Lewers, K., Graham, J., Fernandez, G., Mockler, T., **Lee, J.,** Finn, C.E., and Bassil, N.V. 2014. "Developing the genomic and genetic infrastructure for black raspberry." ASHS annual conference, Orlando, FL. July 2014.
5. *Bushakra, J.M.* (presenter), Bradish C.M., Weber, C.A. Scheerens J.C., Dossett, M., Perterson, M., Fernandez, F., **Lee, J.,** Bassil, N.V., and Finn, C.E. (presenter) (poster) "Toward understanding genotype x environment interactions in black raspberry (*Rubus occidentalis* L.)." ASHS annual conference, Orlando, FL. July 2014.
6. **Lee, J.** (presenter), Dossett, M., and Finn, C.E. (poster). What's really in our black raspberry products?: chemotaxonomy by anthocyanin. Botany 2014- Botanical Society of America Conference, Boise, ID. July 2014.
7. *Bushakra, J.M.* (presenter), Bryant, D., Dossett, M., Gilmore, B., Weiland, J., Filichkin, S., Weiland, J.E., Peterson, M., Bradish, C.M., Fernandez, F., Lewers, K., Graham, J., **Lee, J.,** Mockler, T., Bassil, N.V., and Finn, C.E. (poster) "Black raspberry genetic and genomic resource development." Plant Biology 2014- American Society of Plant Biologists Conference, Portland, OR. July 2014.
8. *Bushakra, J.M.* (presenter), Bryant, D., Vining, K., Dossett, M., Mockler, T., **Lee, J.**, Finn, C.E., and Bassil, N.V. (poster) "A linkage map for black raspberry (*Rubus occidentalis*).", 7th International Rosaceae Genomics Conference, Seattle, WA. June 2014.
9. **Lee, J.** "USDA-ARS-HCRU program overview and reaction demonstration", Oregon and Idaho Agricultural Science high school teachers involved with National FFA (Future Farmers of America) organization. Parma, ID. June 2014. [*invited*]
10. *Reeve, A.L.* (presenter), Skinkis, P.A., **Lee, J.,** and Tarara, J.M. (oral) "Influence of vine vigor and crop level on 'Pinot noir' vine growth, nutrition, fruitfulness, and fruit composition.", American Society of Enology and Viticulture (ASEV) National Conference. Austin, TX. June 2014.
11. Schreiner, R.P. (presenter), **Lee, J.,** Skinkis, P.A., Osborne, J.P., Qian, M.C., and Navarrete, A. (poster) "A greater understanding of nutrient supply for Pinot noir production", ASEV National Conference. Austin, TX. June 2014.
12. *Reeve, A.L.* (presenter), Skinkis, P.A., **Lee, J.,** and Tarara, J.M. (poster) "Vine balance: relationships between Pinot noir vegetative vigor and fruit composition." Oregon Grape and Wine Institute (OWRI) Viticulture & Enology Research Grape Day. Corvallis, OR. April 2014.
13. **Lee, J.** (presenter), Schreiner, R.P., and Osborne, J.P. "N: investment or risk to berry quality?", 2014 Oregon Wine Symposium. Portland, OR. February 2014. [*invited*; travel award ~$1,500]
14. **Lee, J.** "The untapped capacity of phenolics", American Chemical Society (ACS) 246th National Meeting. Indianapolis, IN. September 2013. [*invited*; travel award ~$250]
15. **Lee, J.** (poster) "USDA-ARS-HCRU Food Chemistry lab activities." Food Producers of Idaho Legislative tour. Parma, ID. August 2013. [*invited*]
16. Schreiner, R.P. (presenter), **Lee, J.**, and Skinkis, P.A. (poster) 2013. "Understanding the causes of flower necrosis in grapevines." (ASHS) annual conference. Palm Desert, CA. July 2013.
17. *Schopp, L.M.*, **Lee, J.,** and Edwards, C.G. (presenter; poster) 2013. "Metabolism of hydroxycinnamic acids and their tartaric acid esters by *Brettanomyces* and *Pediococcus* in red wines", ASEV National Conference. Monterey, CA. June 2013.
18. **Lee, J.** and Skinkis, P.A. (presenter) (poster) "Leaf removal in cool seasons enhances 'Pinot noir' anthocyanin", ASEV National Conference. Monterey, CA. June 2013.
19. *Reeve, A.L.* (presenter), Skinkis, P.A., **Lee, J.,** Tarara, J.M., and Vance, A.J. (poster; flash talk) "Shifts in fruitfulness and crop load of 'Pinot noir' in response to nitrogen depletion". ASEV National Conference. Monterey, CA. June 2013.
20. **Lee, J.** "Phacts and phenolics", USDA-ARS location research symposium. Corvallis, OR. April 2013.
21. *Reeve, A.L.* (presenter), Skinkis, P.A., **Lee, J.,** Tarara, J.M., and Vance, A.J. (poster) "Shifts in fruitfulness and

crop load of 'Pinot noir' in response to nitrogen depletion". Oregon Grape and Wine Institute (OWRI) Viticulture & Enology Research grape day. Corvallis, OR. April 2013.

22. Schreiner, R.P. (presenter), **Lee, J.**, and Skinkis, P.A. (poster) "Understanding and managing flower necrosis in grapevines", OWRI Viticulture & Enology Research grape day. Corvallis, OR. April 2013.
23. **Lee, J.**, Schreiner, R.P., Skinkis, P.A., and Tarara, J.M. "Sun, shade, and secondary metabolites", OWRI Viticulture & Enology Research grape day. Corvallis, OR. April 2013. [*invited*; travel award ~$600]
24. *Dossett, M.* (presenter), **Lee, J.**, and Finn, C.E. "Evaluation of fruit chemistry traits in wild black raspberry germplasm: final report.", NCSFR meeting, Kennewick, WA, November 2012.
25. **Lee, J.,** Skinkis, P.A. (presenter), and Tarara, J.M. (poster) "Is timing the key to good fruit phenolics?: year 2", NCSFR meeting, Kennewick, WA, November 2012.
26. Bassil, N. (presenter), Dossett, M., Mockler, T., Filichkin, S., Peterson, M., **Lee, J.,** Fernandez, G., Perkins-Veazie, P., Weber, C., Agunga, R., Rhodes, E., Scheerens, J., Yang, W., Lewers, K., Graham, J., Fernández Fernández, F., Yun, S., and Finn, C. "Developing the genomic infrastructure for breeding black raspberry.", 6th Rosaceous Genomics Conference (RGC 6). San Michele all'Adige, Italy. October 2012.
27. **Lee, J.** (presenter), Dossett, M., and Finn, C.E. (poster) "The next generation of superfruits: enhancing anthocyanin rich black raspberries", ACS 244th National Meeting. Philadelphia, PA. August 2012.
28. Bassil, N. (presenter), Dossett, M., Mockler, T., Filichkin, S., Peterson, M., **Lee, J.,** Fernandez, G., Perkins-Veazie, P., Weber, C., Agunga, R., Rhodes, E., Scheerens, J., Yang, W., Lewers, K., Graham, J., Fernández Fernández, F., Yun, S., and Finn, C. "Developing the genomic infrastructure for breeding black raspberry.", ASHS annual conference. Miami, FL. July 2012.
29. **Lee, J.** (presenter) and *Rennaker, C.* (poster) "American cranberry products: proanthocyanidin purification and concentrations.", 10th International Symposium on *Vaccinium* and Other Superfruits, Maastricht, The Netherlands. June 2012.
30. **Lee, J.** (presenter), Dossett, M., and Finn, C.E. (poster) "Anthocyanin rich black raspberries can be made even better.", 10th International Symposium on *Vaccinium* and Other Superfruits, Maastricht, The Netherlands. June 2012.
31. Dossett, M. (presenter), Bassil, N., **Lee, J.**, and Finn, C.E. "Current research in black raspberry genetics and breeding." Chonnam National University. Gwangju, South Korea, June 2012. [*invited*]
32. Dossett, M. (presenter), **Lee, J.**, and Finn, C.E. "Black raspberry phytochemical research in North America." Korean Society of Food Science and Technology annual meeting. Daejon, South Korea, June 2012. [*invited*]
33. Bassil, N., Dossett, M., Hummer, K., Mockler, T., Filichkin, S., Peterson, M., **Lee, J.,** Fernandez, G., Perkins-Veazie, P., Weber, C., Agunga, R., Rhodes, E., Scheerens, J., Yang, W., Lewers, K., Graham, J., Fernández Fernández, F., Yun, S., and Finn, C. (poster) "Genetic and developing genomic resources in black raspberry.", Biotech Fruit 2012, Nelson, New Zealand. March 2012. [*invited*]
34. **Lee, J.** "What about food phenolics?", Department of Plant, Soil, & Entomological Sciences seminar series (PLSc 501: Plant Science seminar), Moscow, ID. May 2012. [*invited*]
35. **Lee, J.** "How are you calculating your supplement needs?", Idaho Grape Growers and Wine Producers Annual Meeting, Caldwell, ID, February 2012. [*invited*]
36. *Schopp, L.M.* (presenter)*,* **Lee, J.** and Edwards, C.G. (poster) "Metabolism of hydroxycinnamic acids and esters by *Brettanomyces* in different red wines", ASEV National Conference. Portland, OR, June 2012.
37. **Lee, J.** and Tarara, J.M. (presenter) (poster) "Small differences in temperature interact with solar radiation to alter anthocyanin in grapes", ASEV National Conference. Portland, OR, June 2012.
38. *Schopp, L.M.* (presenter)*,* **Lee, J.** and Edwards, C.G. (poster) "Differential metabolism of hydroxycinnamic acids by two *Brettanomyces bruxellensis* strains grown in red wines." WAWGG annual meeting, Kennewick, WA, February 2012.
39. **Lee, J.** and Tarara, J.M. (presenter) (poster) "Is solar radiation a key to good red wine grape anthocyanin?", WAWGG annual meeting, Kennewick, WA, February 2012.
40. **Lee, J.** and Tarara, J.M. (presenter) (poster) "Is timing the key to good fruit phenolics?: year 1", Washington Small Fruit Workshop, Lynden, WA, December 2011.
41. **Lee, J.**, Finn, C.E. (presenter), and *Dossett, M.* (poster) "Evaluation of fruit chemistry traits in wild black raspberry germplasm: year 1.", Washington Small Fruit Workshop, Lynden, WA, December 2011.
42. **Lee, J.** (presenter), Finn, C.E., and *Dossett, M.* (poster) "Evaluation of fruit chemistry traits in wild black raspberry germplasm: year 1.", NCSFR meeting, Clackamas, OR, December 2011.
43. **Lee, J.** (presenter) and Tarara, J.M. (poster) "Is timing the key to good fruit phenolics?: year 1", NCSFR meeting, Clackamas, OR, December 2011.

44. **Lee, J.** (presenter) and Tarara, J.M. (poster) "Understanding optimal anthocyanin accumulation of 'Merlot' grapes – influence of light exclusion", ASHS annual conference. Waikoloa, HI. September 2011.
45. **Lee, J.** (presenter), *Dossett, M.*, and Finn, C.E. (poster) "Range of black raspberry (*Rubus occidentalis* L.) anthocyanin content from 26 seedling populations", ASHS annual conference. Waikoloa, HI. September 2011.
46. Scagel, C.F. (presenter) and **Lee, J.** (poster) "Phenolic composition of basil plants is differentially altered by plant nutrient status and inoculation with mycorrhizal fungi", ASHS annual conference. Waikoloa, HI. September 2011.
47. Schreiner, R.P. (presenter) and **Lee, J.** "Nutrient uptake and use in young 'Pinot noir' grapevines." ASHS annual conference. Waikoloa, HI. September 2011.
48. **Lee, J.** 2011. "Plant phenolics- from field to fork.", ACS/AGFD Young Scientist Award Symposium, ACS 242nd National Meeting. Denver, CO, August 2011. [*invited*; travel award ~$1,000]
49. *Dossett, M.*, **Lee, J.**, and Finn, C.E. (presenter) "Anthocyanin content of wild black raspberry germplasm.", International Rubus and Ribes Symposium, Zlatibor, Serbia. June 2011.
50. **Lee, J.** (presenter), *Dossett, M.*, and Finn, C.E. (poster) "Range of black raspberry (*Rubus occidentalis* L.) anthocyanin content from 26 seedling populations.", IFT national meeting, New Orleans, LA, June 2011.
51. Schreiner, R.P. (presenter) and **Lee, J.** "Nutrient uptake and use in young 'Pinot noir' grapevines." OWRI Viticulture & Enology Research Colloquium. Corvallis, OR, February 2011.
52. **Lee, J.** (presenter) and Tarara, J.M. (poster) "Vineyard management practices and the quality of grape and grape products: USDA-ARS CRIS project." OWRI Viticulture & Enology Research Colloquium. Corvallis, OR, February 2011.
53. **Lee, J.** (presenter) and Martin, R.R. (poster) "Impact of Grapevine leafroll associated virus -2 and -3, on primary and secondary metabolites: commercial vineyard example." OWRI Viticulture & Enology Research Colloquium. Corvallis, OR, February 2011.
54. **Lee, J.** "Grape polyamines role and analysis", Idaho Grape Growers and Wine Producers Annual Meeting, Caldwell, ID, February 2011. [*invited*]
55. **Lee, J.** (presenter) and Steenwerth, K. (poster) "Rootstock and vineyard floor management influence on 'Cabernet Sauvignon' grape yeast assimilable nitrogen (YAN)." WAWGG annual meeting, Kennewick, WA, February 2011.
56. Thornton, M., *John, R.*, Olsen, N., Wharton, P., **Lee, J.**, and Navarre, R. (poster) "Improving the appearance of specialty varieties." Potato expo, Las Vegas, NV, January 2011.
57. **Lee, J**. (presenter), Ringer, K.L., and Savarese, M. (poster) "Comparison of different formulations for cranberry phenolic retention during Radiant Zone Drying." NCSFR meeting, Boise, ID, December 2010.
58. **Lee, J.** (presenter) and Tarara, J.M. "Understanding micro-oxygenation technique and the oxidation of grape/wine polyphenolics: final report." NCSFR meeting, Boise, ID, December 2010.
59. Steenwerth, K. (presenter), Mostoller, E., Roncoroni, J., and **Lee, J.** "Mitigation nitrous oxide emissions, nitrate leaching, and weed pressure in vineyards." ASA, CSSA, and SSSA 2010 international annual meeting. Long Beach, CA, November 2010.
60. **Lee, J.** and Tarara, J.M. (presenter) (poster). "Vineyard management practices and the quality of grapes and grape products." USDA-ARS Grape/Wine industry workshop. Charlottesville, VA, October 2010. [*invited*]
61. **Lee, J.** "USDA-ARS-HCRU Food Chemistry lab activities." WERA 20, Multistate research project-Virus and virus-like diseases of fruit trees, small fruits, and grapevines). Parma, ID, September 2010. [*invited* by Dr. A. Karasev]
62. *Dossett, M.,* **Lee, J.**, Finn, C.E. (poster) "Variation in anthocyanin content of wild black raspberry for breeding improved cultivars." Western Region of the International Plant Propagators Society. Bellingham, WA, September 2010. [*invited* by F. Hopkins, vice president of the society]
63. Tarara, J.M. (presenter) and **Lee, J.** "Environmental influences on ripening and phenolics in grapes." Plant Growth Regulation Society of America annual meeting. Portland, OR, August 2010. [*invited*]
64. Tarara, J.M. (presenter) and **Lee, J.** "Solar radiation and temperature: drivers of ripening in grapes." ASHS annual conference. Palm Desert, CA, August 2010. [*invited*]
65. *Dossett, M.* (presenter)*,* **Lee, J.**, Finn, C.E. (poster) "Variation in anthocyanin content of wild black raspberry for breeding improved cultivars." ASHS annual conference. Palm Desert, CA, August 2010.
66. **Lee, J.** (presenter) and *Rennaker, C*. "USDA-ARS-HCRU Food Chemistry laboratory recent projects and tour", Idaho Grape Days, Parma, ID, August 2010. [*invited*]
67. **Lee, J.** (presenter) and Scagel, C.F. (poster) 2010. "Caffeic acid derivatives in market available Lamiaceae and *Echinacea purpurea* products", IFT national meeting, Chicago, IL, July 2010.

68. *Subramanian, A.* (presenter), **Lee, J.**, Ringer, K.L., and Savarese, M. (poster) "Comparison of different formulations for cranberry phenolic retention during Radiant Zone Drying", IFT national meeting, Chicago, IL, July 2010.
69. Schreiner, R.P. (presenter), Du, X., Qian, M., and **Lee, J**. 2010. "Low N supply, but not low P or K supply alters Pinot noir growth, yield, and berry aroma profiles." International Cool Climate Symposium. Seattle, WA. June 2010.
70. **Lee, J.** (poster) "USDA-ARS-HCRU Food Chemistry Research Program." OSU Viticulture & Enology Research Colloquium. Corvallis, OR, March 2010.
71. **Lee, J.** "Vine nutrition and grape YAN", Idaho Grape Growers and Wine Producers Annual Meeting, Caldwell, ID, February 2010. [*invited*]
72. **Lee, J.** (presenter), Tarara, J.M., and Ringer, K.L. (poster) "Understanding micro-oxygenation technique and the oxidation of grape/wine polyphenolics: year 3", NCSFR meeting, Kennewick, WA, December 2009.
73. **Lee, J.** (presenter) and Scagel, C.F. (poster) "Chicoric acid levels in basil (*Ocimum basilicum*)." ACS 238th National Meeting. Washington D.C., August 2009.
74. **Lee, J.** "USDA food chemistry program update", Idaho Grape Growers and Wine Producers Annual Meeting, Caldwell, ID, February 2009. [*invited*]
75. **Lee, J.** (presenter) and Martin, R.R. "Impact of Grapevine leafroll associated virus-2 and -3 on fruit composition: commercial vineyard example." WAWGG annual meeting, Kennewick, WA, February 2009.
76. **Lee, J.** and Tarara, J.M. (presenter) (poster and oral) "USDA-ARS-HCRU berry chemistry program, Parma, ID.", HCRU open house, Corvallis, OR, December 2008.
77. **Lee, J.**, Tarara, J.M. (presenter), and Kennedy, J.A. (poster) "Understanding micro-oxygenation technique and the oxidation of grape/wine polyphenolics: year 2", NCSFR meeting, Corvallis, OR, December 2008.
78. **Lee, J.** "Phenolics and USDA-ARS-HCRU Food Chemistry Research Program.", Seoul Women's University, Seoul, Korea, December 2008. [*invited*]
79. **Lee. J.,** (presenter) and Martin, R.R. (poster) "Impact of *Grapevine leafroll associated virus* -2 and -3, on phenolic compounds: commercial vineyard example.", XXIVth International conference on Polyphenols (ICP). Salamanca, Spain. July 2008.
80. **Lee, J.** (presenter), *Rennaker, C.* and Wrolstad, R.E. (poster) "Comparison of two methods to quantify anthocyanins", 9th International *Vaccinium* Symposium, Corvallis, OR. July 2008.
81. Schreiner, R.P. (presenter) and **Lee, J.** "Nutrient response of 'Pinot noir' in a sand-culture vineyard: problems and prospects", ASHS annual conference. Orlando, FL. July 2008.
82. Tarara, J.M. (presenter), **Lee, J.**, Spayd, S.E., and Scagel, C.F. (poster) "Field temperature and anthocyanins in Merlot grape berries", ASHS annual conference. Orlando, FL. July 2008.
83. Tarara, J.M. (presenter), **Lee, J.**, Spayd, S.E., and Scagel, C.F. "Field temperature and anthocyanins in Merlot grape berries", ASEV National Conference. Portland, OR, June 2008.
84. Tarara, J.M. (presenter), **Lee, J.** (presenter), Scagel, C.F. and Spayd, S.E. (poster) "Berry temperature and solar radiation alter acylation, proportion, and concentration of anthocyanin in 'Merlot' grapes", Oregon Wine Industry Symposium. Eugene, OR, February 2008.
85. Tarara, J.M., **Lee, J.** (presenter), Scagel, C.F. and Spayd, S.E. (poster) "Berry temperature and solar radiation alter acylation, proportion, and concentration of anthocyanin in 'Merlot' grapes", WAWGG annual meeting, Kennewick, WA, February 2008.
86. **Lee, J.** (presenter) and Kennedy, J.A. (poster) "Understanding micro-oxygenation technique and the oxidation of grape/wine polyphenolics.", NCSFR meeting, Boise, ID, November 2007.
87. **Lee, J.** "HCRU Food Chemistry Research Program.", NCSFR meeting, Boise, ID, November 2007. [*invited*]
88. **Lee, J.** "HCRU Food Chemistry Research Program.", UI Parma Research and Extension Center visitors (17 delegates from rural South Korea, horticulturists, fruit growers, and state workers), Parma, ID, October 2007. [*invited* by Dr. E. Fallahi]
89. **Lee, J.** "USDA-ARS grape and wine chemistry program.", UI Parma Research and Extension Center visitors (EPA and senator Crapo congressional staffers), Parma, ID, August 2007. [*invited* by Dr. M. Thornton]
90. **Lee, J.** (poster) "USDA-ARS grape and wine chemistry program.", USDA-ARS Grape and Wine Industry workshop, Kennewick, WA. July 2007. [*invited* by Area Director Dr. D. Buxton]
91. **Lee, J.** "USDA-ARS research highlights on quality.", USDA-ARS Grape and Wine Industry workshop, Kennewick, WA. July 2007. [*invited* by National Program Leader Dr. S. Schneider]
92. *Dossett, M.* (presenter), Finn, C.E., and **Lee, J.** (poster) "Challenges and strategies in breeding black raspberries (*R. occidentalis* L.) for improved nutraceutical value.", 2007 2nd International Berry Health Benefits

Symposium, Corvallis, OR, June 2007.

93. **Lee, J.** "Analytical instruments used in food chemistry research", Albertson College of Idaho students registered in Analytical Instruments- CH451, May 2007. [*invited*]
94. **Lee, J.** "Composition of Idaho wines.", Idaho Grape Growers and Wine Producers Annual Meeting, Caldwell, ID, March 2007. [*invited*]
95. **Lee, J.** (presenter) and Tarara, J.M. "Grape and wine phenolics: a refresher.", WAWGG)] annual meeting, Kennewick, WA, February 2007. [*invited*; travel award ~$900]
96. **Lee, J.** (poster) "USDA-ARS-HCRU berry chemistry program, Parma, ID.", WAWGG annual meeting, Kennewick, WA, February 2007. [*invited*]
97. **Lee, J.** (poster) "USDA-ARS-HCRU berry chemistry program, Parma, ID.", HCRU stakeholders meeting, Corvallis, OR, November 2006. [*invited*]
98. **Lee, J.** (poster) "AOAC method 2005.02: Determination of total monomeric anthocyanin pigment content by pH differential method of fruit juices, beverages, natural colorants, and wines.", Parma Research and Extension Center open house and field day, Parma, ID, July 2006. [*invited*]
99. **Lee, J.** "USDA-ARS-HCRU food chemistry lab" USDA-ARS-HCRU internal seminar series. Corvallis, OR, November 2005. [*invited*]
100. **Lee, J.** "Defining Idaho wines." Idaho Grape Growers and Wine Producers Annual Meeting, Caldwell, ID, March 2005. [*invited*]
101. **Lee, J.** (poster) "AOAC method 2005.02: Determination of total monomeric anthocyanin pigment content by pH differential method of fruit juices, beverages, natural colorants, and wines.", New SY training. Albany, CA, January 2005.
102. **Lee, J.** "The blueberry: composition, anthocyanins, and polyphenolics." Beltsville Human Nutrition Research Center Seminar Series, Beltsville, MD, January 2004. [*invited*; travel award ~$1,700]
103. **Lee, J.** (presenter), Durst, R.W., and Wrolstad, R.E. (poster) "Determination of total monomeric anthocyanin pigment content by pH differential method of fruit juices, beverages, natural colorants, and wines: collaborative study." AOAC Meeting, Atlanta, GA, September 2003.
104. **Lee, J.** (presenter) and Wrolstad, R.E. (research progress report) "Determination of total monomeric anthocyanin pigment content by pH differential method of fruit juices, beverages, natural colorants, and wines: collaborative study." Technical Committee for Juice and Juice Products (TCJJP) Meeting, Atlanta, GA, September 2003. [*invited*]
105. **Lee, J.** (presenter), Durst, R.W., and Wrolstad, R.E. (poster) "AOAC collaborative study: the pH differential method.", Department of Food Science and Technology, FST Research Day, Corvallis, OR, September 2003.
106. **Lee, J.** (presenter) and Wrolstad, R.E. (poster) "Extraction of anthocyanins and polyphenolics from blueberry processing waste." IFT national meeting, Chicago, IL. July 2003.
107. **Lee, J.** (presenter) and Wrolstad, R.E. (research progress report) "Impact of processing on blueberry anthocyanins and polyphenolics." NCSFR meeting, Portland, OR, December 2002.
108. **Lee, J.** (presenter) and Wrolstad, R.E. (research progress report) "Determination of total monomeric anthocyanin pigment content by pH differential method of fruit juices, beverages, natural colorants, and wines: precollaborative study." AOAC Committee F board meeting, Los Angeles, CA, September 2002. [*invited*]
109. **Lee, J.** (presenter) and Wrolstad, R.E. (research progress report) "Determination of total monomeric anthocyanin pigment content by the pH differential method: precollaborative study." TCJJP Meeting, Los Angeles, CA, September 2002. [*invited*]
110. Wrolstad, R.E. (presenter), **Lee, J.**, and Durst, R.W. (research progress report) "Impact of processing on blueberry anthocyanins and polyphenolics" NCSFR meeting, Boise, ID, December 2001.
111. Wrolstad, R.E. (presenter), **Lee, J.**, Durst, R.W., Moyer, R., Finn, C., and Hummer, K. (research progress report) "Impact of processing on blueberry anthocyanins and polyphenolics." NCSFR meeting, Seattle WA, December 2000.
112. **Lee, J.** (presenter), Durst, R.W., and Wrolstad, R.E. (poster) "Impact of juice processing on highbush blueberry anthocyanins and polyphenolics." IFT national meeting, Dallas, TX, July 2000.
113. **Lee, J.** (presenter) and Wrolstad, R.E. "Blueberry research findings." Northwest Food Processors Association (NWFPA) meeting, Portland, OR, January 1998–2004 (annually).

** Italicized names are graduate students, post-doctoral research associate, and technician to whom incumbent provided supervision.*

Professional Memberships

IFT (Institute of Food Technologists)- member since 1998, professional member since 2013
ACS (American Chemical Society)- member since 2004
ASEV (American Society of Enology and Viticulture)- member 2005-2012
AOAC (Associate of Analytical Communities)- member 2001-2004 (member during collaborative study

KATERINA MASTOVSKA, COVANCE LABORATORIES

Dr. Katerina Mastovska is a Lead Staff Scientist in Nutritional Chemistry and Food Safety unit at Covance Laboratories and a Principal Consultant at Excellcon International. At Covance Laboratories, she is mainly responsible for development of new analytical methods and strategies for testing of chemical residues and contaminants in food and dietary supplements. She has been actively involved in the AOAC International as the co-chair of the AOAC Chemical Contaminants and Residues in Food community (2011-present), Topic Advisor for the veterinary drug residue methods, member of veterinary drug Expert Review Panels (ERPs), presenter of scientific papers, session chair at annual meetings, and co-Study Director for a collaborative study of a method for the analysis of polycyclic aromatic hydrocarbons in seafood. Prior to joining Covance Laboratories in September 2009, she worked at the U.S. Dept. of Agriculture and served as an expert in the United Nation's Food and Agricultural Organization (FAO) panel of the Joint FAO/WHO Meeting on Pesticide Residues (JMPR), recommending world-wide maximum residue levels for pesticides in food and feed commodities. Dr. Mastovska has authored/co-authored over 50 scientific publications (journal articles, book chapters, and monographs) and over 100 presentations at national and international meetings. She received her Ph.D. in Food Chemistry and Analysis from the Institute of Chemical Technology in Prague, Czech Republic.

Melissa Meaney Phillips

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Silver Spring, MD 20906
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Email: melmphillips@gmail.com

EDUCATION

Postdoctoral Research Chemist **January 2008 – January 2010**
Organic Chemical Metrology Group, Analytical Chemistry Division, National Institute of Standards and Technology, Gaithersburg, MD
Advisor: Dr. Lane C. Sander

PhD in Chemistry (Analytical) **December 2007**
Department of Chemistry, Michigan State University, East Lansing, MI
Project: Analytical Applications of Fluorescence Quenching
Advisor: Dr. Victoria L. McGuffin

MS in Forensic Chemistry **October 2007**
School of Criminal Justice, Michigan State University, East Lansing, MI
Project: Quantitation of Nitrated Explosives by Fluorescence Quenching following Thin-Layer Chromatography
Advisors: Dr. Victoria L. McGuffin, Dr. Jay A. Siegel, Dr. Ruth J.H. Waddell

BS in Lyman Briggs School – Chemistry, *cum laude* **May 2002**
Michigan State University, East Lansing, MI

RESEARCH EXPERIENCE

Program Coordinator, Food & Nutrition **2013 – present**
Organic Chemical Metrology Group, Chemical Sciences Division, National Institute of Standards and Technology, Gaithersburg, MD
- Responsible for development of food Standard Reference Materials (SRMs), including identification and acquisition of materials, coordination of analytical measurements, and documentation of results
- Responsible for oversight of food and nutrition-related research projects

Research Chemist **2008 – present**
Organic Chemical Measurement Science Group, Chemical Sciences Division, National Institute of Standards and Technology, Gaithersburg, MD
- Evaluated various approaches for integration of data from two-dimensional liquid chromatography (LCxLC) for purposes of comparing quantitative data.
- Certified concentrations for water-soluble vitamins in food and dietary supplement SRMs (e.g., infant formula, baby food, whole milk powder, whole egg powder, soy flour, and fortified breakfast cereal) using various extraction techniques and analytical methods such as liquid chromatography with isotope-dilution mass spectrometric detection (LC-ID-MS and LC-ID-MS/MS).
- Developed a method for high-precision determination and certified concentrations of choline and carnitine in food-matrix SRMs using microwave digestion and LC-ID-MS.
- Developed methods for high accuracy and high precision determination of ammonium and phosphate in a fertilizer SRM by ion chromatography with conductivity detection (IC-CD).
- Developed methods and certified concentrations of relevant active and marker compounds in botanical dietary supplement and natural product SRMs (e.g. *Vaccinium* berries, soy, kudzu, red clover) using various extraction techniques and analytical methods such as liquid chromatography with absorbance (LC-Abs), gas chromatography with ID-MS, IC-CD, and LC-ID-MS.

Developed methods for separation of biomarker isomers by LC-Abs.

Administered a quality assurance program for dietary supplement laboratories, including selection and shipment of samples, communication with participants, collection and analysis of data, and formulation and distribution of final reports.

Tested and catalogued the performance (e.g. selectivity, number of theoretical plates, pressure) of over 300 liquid chromatography (LC) columns.

Research Assistant **2002 – 2007**

Department of Chemistry, Michigan State University

Investigated fluorescence quenching-based methods for detection of nitrated explosives by screening fluorophores based on sensitivity and incorporating them into potential field-ready devices for explosives detection.

Utilized the pH-dependent fluorescence of fluorescein for determination of acids in solution and applied this method to analysis of foods and beverages (juices, wines, and vinegars) and drugs of abuse (γ-hydroxybutyric acid or GHB) by HPLC.

Developed a less toxic method for the separation of explosives by thin-layer chromatography and quantitation based on CCD camera imaging.

TEACHING EXPERIENCE

Teaching Assistant **2002 – 2007**

Department of Chemistry, Michigan State University

Introductory Physical Chemistry I (Recitation Instructor) Physical chemistry of macroscopic systems including gases, liquids, phase diagrams, classic thermodynamics, chemical equilibrium, kinetics, electrolytic solutions and electrochemistry. Fall 2007. Instructor: Dr. John L. McCracken, enrollment: 280.

Advanced Analytical Chemistry (Teaching Assistant) Basic electronics and data acquisition/analysis, electrochemistry, and statistics for chemists. Fall 2006. Instructors: Dr. Merlin L. Bruening and Dr. Gary J. Blanchard, enrollment: 20.

Advanced Analytical Chemistry (Teaching Assistant) Principles of equilibria and applications in analytical methodology including acid-base, complexation, redox reactions, potentiometry and conductometry, solute partitioning in extraction and chromatography, and kinetic methods of analysis. Fall 2005. Instructor: Dr. Victoria L. McGuffin, enrollment: 12.

Quantitative Analysis (Recitation and Laboratory Instructor) Preparation and quantitative analysis of chemical compounds, including solution descriptions, solution chemistry (acid/base, solubility, complexation, oxidation-reduction reactions), titrimetry, volumetric calculations, statistics, chemical equilibrium, activity, buffers, indicators, gravimetric analysis, equilibrium, introductory spectroscopy, and calibration curves. Summer 2003, 2004, 2005, 2006, 2007. Instructor: Dr. Kathryn G. Severin, enrollment: 30.

Analytical Laboratory (Laboratory Instructor) A project-based capstone course in which students solve analytical chemical problems including chromatographic separations (GCMS or HPLC), spectroscopic (AA or XRF) and electrochemical methods (potentiometry or stripping voltammetry), deformulation of a household product using available techniques, computer programming using Labview, and surface and interface analysis. Spring 2003, 2004, 2005, 2006, 2007. Instructors: Dr. Merlin L. Bruening and Dr. Kathryn G. Severin, enrollment: 15-30.

Introductory Physical Chemistry I (Recitation Instructor) Physical chemistry of macroscopic systems including gases, liquids, phase diagrams, classic thermodynamics, chemical equilibrium, kinetics, electrolytic solutions and electrochemistry, and statistical mechanics. Fall 2002, 2003, 2004. Instructor: Dr. Paul F. Mantica, enrollment: 280.

Undergraduate Research Mentor **2004 – 2007**

Department of Chemistry, Michigan State University

Heidi L. Bonta, Michigan State University: Incorporation of Selected Fluorophores into Field-Ready Devices for the Detection of Nitrated Explosives. Fall 2006-Fall 2007.

Jenny M. Borowitz, Michigan State University: Quantitation of Nitrated Explosives by Fluorescence Quenching following Thin-Layer Chromatography. Summer 2005-Spring 2006.

Victoria J. Hall, Huntington University: Selectivity of Fluorescein Quenching by Nitroaromatic Compounds. Summer 2004.

Guest Lecturer **2005**

Forensic Science Workshop, Portage Northern High School, Portage, MI

Developed and presented forensic science-based laboratory experiments to 25 high school science teachers interested in incorporation of such materials into the classroom. Experiments included determination of blood alcohol content using visible spectrophotometry following reaction with a chromophore as well as comparison of soil composition (e.g. limestone, chloride, iron) using observation and visible spectrophotometry following addition of appropriate indicator solutions.

Guest Lecturer **2004**

School of Criminal Justice, Michigan State University

Survey of Forensic Science. Scientific analysis of physical evidence. Four major aspects of physical evidence using real criminal and civil cases: generation of physical evidence by criminal activity; collection and preservation of physical evidence; analysis of physical evidence by forensic science laboratory; presentation of scientific expert testimony in court. Topics covered: Fire/arson and explosives analysis. Fall 2004. Instructor: Dr. David R. Foran, enrollment: 15.

Tutor **2003 – 2005**

Department of Chemistry, Michigan State University

General Chemistry II and Introductory Physical Chemistry.

Undergraduate Teaching Assistant **2001**

Department of Mathematics, Michigan State University

Multivariable Calculus (Recitation Instructor) Vectors in space, functions of several variables and partial differentiation, multiple integrals, line and surface integrals, and Green's and Stokes's theorems. Spring 2001. Instructor: Dr. Khodr M. Shamseddine, enrollment: 600.

PROFESSIONAL AFFILIATIONS

American Chemical Society (ACS)	2004-present
ACS Subdivision on Chromatography and Separations Chemistry	2009-present
AOAC International	2008-present
AOAC International Technical Division on Reference Materials	2011-present
Washington Chromatography Discussion Group	2008-present
American Academy of Forensic Sciences	2004-2008
Society of Electroanalytical Chemistry	2004-2008
Midwestern Association of Forensic Scientists	2007-2008
Society for Applied Spectroscopy	2007-2008

PROFESSIONAL DEVELOPMENT

Participant, Introduction to Chemometrics, Short Course, Washington Chromatography Discussion Group (2013).

Participant, Comprehensive Two-Dimensional Liquid Chromatography (LCxLC) Short Course, HPLC 2013 (2013).

Participant, Fundamentals of Uncertainty Analysis, National Institute of Standards and Technology Short Course (2012).

Participant, ISO 17043 Proficiency Testing Workshop, National Voluntary Laboratory Accreditation Program (NVLAP) (2011).

Participant, Introduction to Mass Spectrometry and Interpretation of Mass Spectra, Baltimore-Washington Mass Spectrometry Discussion Group Short Course (2010).

Participant, Single Laboratory Validation of Analytical Methods for Dietary Supplements, AOAC Training Course (2008).

Participant, Advanced HPLC Method Development, Washington Chromatography Discussion Group Short Course (2008).

Participant, Creating a Teaching Philosophy You Can Use, Workshop, Teaching Assistant Programs, Michigan State University (2007).

Participant, Talking about Teaching in the Interview, Workshop, Teaching Assistant Programs, Michigan State University (2007).

Participant, Understanding and Handling Classroom Incivility, Workshop, Teaching Assistant Programs, Michigan State University (2007).

Participant, Using Demonstrations to Promote Conceptual Understanding in Chemistry: Making Connections on the Macroscopic, Microscopic, and Symbolic Levels, Lilly Seminar Series, Office of Faculty and Organizational Development, Michigan State University (2006).

Participant, Making Classroom Lectures Interactive and Effective: Engaging Students in Course Content through Interactive Lecturing, Lilly Seminar Series, Office of Faculty and Organizational Development, Michigan State University (2006).

ACADEMIC AND PROFESSIONAL SERVICE

Member, AOAC INTERNATIONAL Editorial Board (2014-present)

Co-Chair, International Vitamin Conference (IVC), Washington, DC (2014)

Member, General Chapters Chemical Analysis Expert Committee, United States Pharmacopeia, Rockville, MD (2010-2015)
Review and approve changes to USP guidelines related to chemical analysis.
Member of Subcommittee on Dietary Supplements.
Member of Expert Panel on Elemental Impurities.

Expert Review Panel Member, Stakeholder Panel on Infant Formula and Adult Nutritionals, AOAC International, Gaithersburg, MD (2010-present)

Provided expert guidance on method performance requirements for determination of vitamins in infant formulas.

Expert Review Panel Member, Stakeholder Panel on Strategic Food Analytical Methods, AOAC International, Gaithersburg, MD (2014-present)
Provided expert guidance on method performance requirements for determination of analytes of interest in foods.

Stakeholder, Stakeholder Panel on Dietary Supplements, AOAC International, Gaithersburg, MD (2014-present)
Provided expert guidance on method performance requirements for determination of analytes of interest in dietary supplements.

Poster Committee, HPLC Conference, Boston, MA (2010)
Judged poster presentations to help identify a contest winner.

Presenter, Kids Adventures, Rock Creek Forest Elementary School, Chevy Chase, MD (2009, 2013)
Presented science demonstrations to elementary children.
Developed a lab to demonstrate pH using red cabbage indicator and household chemicals.

Presenter, Kids Adventures, Candlewood Elementary School, Derwood, MD (2013)
Presented science demonstrations to elementary children.

Presenter, Kids Adventures, Carderock Springs Elementary School, Bethesda, MD (2014)
Presented science demonstrations to elementary children.

Presenter, USA Science and Engineering Festival, Washington, DC (2012)
Presented science demonstrations to elementary children.

Presenter, Take your Daughters and Sons to Work Day**,** NIST, Gaithersburg, MD (April 2008-2010)
Developed a hands-on activity for 11 – 12 year olds.
Demonstrated chromatography principals using paper chromatography and separating food dye in grape soda.

Secretary, Washington Chromatography Discussion Group (2009-present)

Board Member, Washington Chromatography Discussion Group (2008-2009)

Poster Committee, HPLC Conference, Baltimore, MD (2008)
Judged poster presentations to help identify a contest winner.

Co-chair and Member, ACS Women in Chemistry, Michigan State Local Section American Chemical Society (Member 2002-2007; Co-Chair 2004-2005)
American Chemical Society's National Chemistry Week. Performed demonstrations. Coordinated 30 demonstration teams in 2004.
Girls Math/Science Conference. Coordinated a hands-on session entitled "Solving Murder with Makeup" for sixth-grade girls. Sponsored by the Capital Area Science and Math Center.
Awards
Sustained Effort toward Excellence in Diversity, Office of Affirmative Action, Michigan State University, 2006.
Outstanding Overall Local Section Women Chemist Committee, American Chemical Society, 2003, 2004, 2005.
Outstanding Outreach to Girls or Young Women Finalist, American Chemical Society, 2003.

Co-chair and Member, Orientation Committee, Department of Chemistry, Michigan State University

Coordinated the orientation schedule for incoming graduate students. Organized and raised funds for a department-wide picnic. (Member 2003, 2004; Co-Chair 2005, 2006)

Graduate Student Representative, Educational Policies Committee, Department of Chemistry, Michigan State University

Modified graduate program course requirements and the written component for Ph.D. candidacy. Integrated a biological chemistry area into the department beginning Fall 2006. (2004-2007)

Co-editor, Teaching Assistant Manual, Department of Chemistry, Michigan State University

Prepared a document to assist incoming graduate students in their first experiences with teaching, including sections on learning styles, the types of students at MSU, tips on being an effective instructor, and a resource guide. (2004, 2006)

Co-author and Presenter, University Policies and Procedures on Teaching, Department of Chemistry, Michigan State University

Authored and delivered presentations designed to supplement the Teaching Assistant Manual, including skits and sections on learning styles, sexual harassment, academic dishonesty, and potential classroom situations. (2004-2006)

Coordinator and Volunteer, Scout Chemistry Merit Badge Day, Michigan State University

Coordinated a series of hands-on experiments and demonstrations in which 50 boy and girl scouts fulfill the requirements for the Chemistry Merit Badge. Administered a web-based sign up, communicated with scout leaders and parents, and organized volunteers. (Coordinator 2005-2006; Volunteer 2004)

State Event Supervisor and Volunteer, Chemistry Lab, Michigan Science Olympiad

Wrote and administered a laboratory practical for high school competition. Topics included thermodynamics, molecular structures, colligative properties, and redox reactions. Coordinated volunteers to set-up, proctor, and grade exams. (State Event Supervisor 2005, 2007; Volunteer 2006)

Graduate Student Representative, Advisory Committee to the Chair, Department of Chemistry, Michigan State University

Advised on departmental issues important to graduate students. Developed goals for other departmental committees. (2005-2007)

Graduate Student Representative, Anti-Discrimination Judicial Board, Michigan State University

Advised the President on issues related to discrimination in policy and procedure. (2005-2007)

Coordinator, "Things Every Scientist Should Know – Outside the Laboratory", Women in Chemistry, Michigan State University

Coordinated speakers on topics including intellectual properties, alternative carers in the sciences, conflict resolution, health and wellness, scientific writing, and financial planning. Received a Local Section Innovative Grant from the American Chemical Society to support the seminar series. (2005)

HONORS AND AWARDS

2013 Best Poster Award, HPLC 2013
2007 Educational Merit Fellowship, Department of Chemistry, Michigan State University
2007 Travel Fellowship, School of Criminal Justice, Michigan State University
2007 Travel Fellowship, American Chemical Society Michigan State University Local Section
2006 Educational Merit Fellowship, Department of Chemistry, Michigan State University
2006 Outstanding Graduate Student Woman, Faculty-Professional Women's Association, Michigan State University
2006 Excellence-in-Teaching Citation, College of Natural Science, Michigan State University
2006 Travel Fellowship, The Graduate School, Michigan State University

2005 Tracy A. Hammer Outstanding Graduate Student Award, College of Natural Science, Michigan State University
2005 Educational Merit Fellowship, Department of Chemistry, Michigan State University
2005 Travel Fellowship, Council of Graduate Students, Michigan State University
2002 Recruitment Fellowship, Department of Chemistry, Michigan State University

INVITED PUBLICATIONS

Catherine A. Rimmer, Melissa M. Phillips. "Solution to Certified Reference Material Recipe Challenge." *Anal. Bioanal. Chem.* 405 (2013) 6899-6900.

Catherine A. Rimmer, Melissa M. Phillips. "Certified Reference Material Recipe Challenge." *Anal. Bioanal. Chem.* 405 (2013) 4321-4322.

Melissa M. Phillips, Catherine A. Rimmer. "Functional Foods and Dietary Supplements." *Anal. Bioanal. Chem.* 405 (2013) 4323-4324.

Melissa M. Phillips. "Analytical Approaches to Determination of Total Choline in Foods and Dietary Supplements." *Anal. Bioanal. Chem.* 403 (2012) 2103-2112.

Hendrik Emons, Jane Weitzel, John Budin, Melissa Phillips, Catherine Rimmer, Donna Zink. "TDRM/TDLM Workshop on Reference Materials and Laboratory Accreditation at the AOAC Annual Meeting 2011." *Inside Laboratory Management*. (Nov/Dec 2011) 6-7.

Melissa M. Phillips. "André M. Striegel, Wallace W. Yau, Joseph J. Kirkland, and Donald D. Bly (Eds.): Modern size-exclusion liquid chromatography. Practice of gel permeation and gel filtration chromatography, 2nd ed." *Anal. Bioanal. Chem.* 399 (2011) 1571-2.

Catherine A. Rimmer, Melissa M. Phillips. "Analytical Tools for the Dietary Supplement and Food Laboratory." *Natural Products Insider* (Mar 7, 2011).

Paula Brown, Melissa Phillips, Catherine Rimmer, Laura Wood. "Quality Focus: GMPs: The Other Pieces of the Puzzle." *Nutraceuticals World*. (Jan/Feb 2011) 28-29.

Paula Brown, Catherine Rimmer, Melissa Phillips, Laura Wood. "Quality Focus: The GMP Puzzle: What's in Your Box?" *Nutraceuticals World*. (Nov 2010) 28-29.

PEER-REVIEWED SCIENTIFIC PUBLICATIONS

Melissa M. Phillips. "Liquid Chromatography with Isotope-Dilution Mass Spectrometry for Determination of Water-Soluble Vitamins in Foods." *Anal. Bioanal. Chem.* (2014) DOI 10.1007/s00216-014-8354-y.

Catherine A. Rimmer, Melissa M. Phillips, Laura A. Wood, Curtis S. Phinney, Katrice A. Lippa, David L. Duewer, Stephen A. Wise, and Joseph M. Betz. "NIST Dietary Supplements Quality Assurance Program: Niacin, a Case Study." *J. AOAC Int.* (in preparation).

Benjamin J. Place, Mallory J. Morris, Melissa M. Phillips, Lane C. Sander, Catherine A. Rimmer. "Evaluation of the Impact of Peak Description on the Quantitative Capabilities of Comprehensive Two-Dimensional Liquid Chromatography." *J. Chromatogr. A* 1368 (2014) 107-115.

Laura J. Wood, Katrice A. Lippa, Melissa M. Phillips, Catherine A. Rimmer, N. Alan Heckert, Stefan D. Leigh, Amanda J. Moors, Rebecca S. Pugh, and Lauren B. Rust. "Breakfast Cereal Sampling Study for Nutritional Elements." *Anal. Bioanal. Chem.* 405 (2013) 4569-4578.

Mark S. Lowenthal, Melissa M. Phillips, Catherine A. Rimmer, Paul A. Rudnick, Yamil Simón-Manso, Stephen E. Stein, Dmitrii Tchekhovskoi, Karen W. Phinney. "Developing Qualitative LC-MS Methods for Characterization of *Vaccinium* Berry Standard Reference Materials." *Anal. Bioanal. Chem.* 405 (2013) 4451-4465.

Lane C. Sander, Mary Bedner, David L. Duewer, Katrice A. Lippa, Melissa M. Phillips, Karen W. Phinney, Catherine A. Rimmer, Michelle M. Schantz, Katherine E. Sharpless, Susan Tai, Jeanice B. Thomas, Stephen A. Wise, Laura J. Wood. "The Development and Implementation of Quality Assurance Programs to Support Nutrient Measurements." *Anal. Bioanal. Chem.* 405 (2013) 4437-4441.

Melissa M. Phillips, Katherine E. Sharpless, Stephen A. Wise. "Standard Reference Materials for Foods: A Program Update." *Anal. Bioanal. Chem.* 405 (2013) 4325-4335.

Melissa M. Phillips, Lane C. Sander. "Microwave-Assisted Extraction and Quantitative LC/IDMS Measurement of Total Choline and Free Carnitine in Foods." *J. AOAC Int.* 95 (2012) 1479-1486.

Hendrik Emons, Jane Weitzel, John Budin, Melissa Phillips, Catherine Rimmer, Donna Zink. "TDRM/TDLM Workshop on Reference Materials and Laboratory Accreditation at the AOAC Annual Meeting 2011." *Accred. Qual. Assur.* 17 (2012) 101-105.

Melissa M. Phillips, Catherine A. Rimmer, Laura J. Wood, Katrice A. Lippa, Katherine E. Sharpless, David L. Duewer, Lane C. Sander, Joseph M. Betz. "NIST/NIH Dietary Supplement Laboratory Quality Assurance Program: The First Five Exercises." *J. AOAC Int.* 94 (2011) 803-814.

Ryan G. Brennan, Melissa M. Phillips, Liang Y.O. Yang, Thomas P. Moffat. "Characterization and Purification of Commercial SPS and MPS by Ion Chromatography and Mass Spectrometry." *J. Electrochem. Soc.* 158 (2011) D178-86.

Melissa M. Phillips, Ryan J. Case, Catherine A. Rimmer, Katherine E. Sharpless, Stephen A. Wise, Lane C. Sander. "Determination of Organic Acids in *Vaccinium* Berry Standard Reference Materials." *Anal. Bioanal. Chem.* 398 (2010) 425-434.

Melissa S. Meaney, Victoria L. McGuffin. "Investigation of Common Fluorophores for the Detection of Nitrated Explosives by Fluorescence Quenching." *Anal. Chim. Acta* 610 (2008) 57-67.

Melissa S. Meaney, Victoria L. McGuffin. "Luminescence-Based Methods for Sensing and Detection of Explosives." *Anal. Bioanal. Chem.* 391 (2008) 2557-2576.

NIST SPECIAL PUBLICATIONS

Melissa M. Phillips, Catherine A. Rimmer, Laura J. Wood. "Dietary Supplement Laboratory Quality Assurance Program: Exercise K Final Report." NIST Interagency Report 8032. Gaithersburg, MD, USA. DOI: 10.6028/NIST.IR.8032. http://dx.doi.org/10.6028/NIST.IR.8032 (November 2014).

Melissa M. Phillips, Catherine A. Rimmer, Laura J. Wood, Mary Bedner, Kaitlyn D. Chieh, Rick L. Paul. "Dietary Supplement Laboratory Quality Assurance Program: Exercise J Final Report." NIST Interagency Report 7997. Gaithersburg, MD, USA. DOI: 10.6028/NIST.IR.7997. http://dx.doi.org/10.6028/NIST.IR.7997 (April 2014).

Melissa M. Phillips, Catherine A. Rimmer, Laura J. Wood, Karen E. Murphy, Thomas W. Vetter. "Dietary Supplement Laboratory Quality Assurance Program: Exercise I Final Report." NIST Interagency Report 7955. Gaithersburg, MD, USA. DOI: 10.6028/NIST.IR.7955. http://dx.doi.org/10.6028/NIST.IR.7955 (August 2013).

Melissa M. Phillips, Catherine A. Rimmer, Laura J. Wood, Anthony F. Marlow, Michele M. Schantz, John R. Sieber. "Dietary Supplement Laboratory Quality Assurance Program: Exercise H Final Report." NIST Interagency Report 7903. Gaithersburg, MD, USA. DOI: 10.6028/NIST.IR.7903. http://dx.doi.org/10.6028/NIST.IR.7903 (Dec 2012).

PUBLISHED ABSTRACTS

Melissa M. Phillips. "NIST Tools for Quality Assurance in Botanical Dietary Supplement Measurements." *Planta Med.*, 77 (2011).

INVITED PRESENTATIONS

Melissa M. Phillips. "The Role of Standard Reference Materials in Method Performance Verification Studies." 128th AOAC INTERNATIONAL Annual Meeting and Exposition, Boca Raton, FL, September 2014.

Melissa M. Phillips. "Metrology 101: No Umbrella Required." Penn State Erie, The Behrend College, Erie, PA, December 2013.

Melissa M. Phillips. "Eggs, Milk, Cereal, and Meat: SRMs for Breakfast." The Pittsburgh Conference, Philadelphia, PA, March 2013.

Melissa M. Phillips. "Challenges in the Certification of Dietary Supplement Standard Reference Materials." The Pittsburgh Conference, Orlando, FL, March 2012.

Melissa M. Phillips. "NIST Tools for Quality Assurance in Botanical Dietary Supplement Measurements." 10th Annual International Conference on the Science of Botanicals, Oxford, MS, April 2011.

Melissa M. Phillips, Lane C. Sander, Katherine E. Sharpless, Stephen A. Wise. "The Journey of a Standard Reference Material." College of the Holy Cross, Worcester, MA, June 2010.

Melissa M. Phillips, Lane C. Sander, Katherine E. Sharpless, Stephen A. Wise. "Development of Cranberry Juice Cocktail and Other Related Reference Materials." 123rd AOAC Annual Meeting and Exposition, Philadelphia, PA, September 2009.

Melissa S. Meaney, Lane C. Sander, Katherine E. Sharpless, Stephen A. Wise. "Characterization of NIST Dietary Supplement SRMs." Chromatography Forum of the Delaware Valley Spring Symposium, Fort Washington, PA, April 2009.

ORAL PRESENTATIONS

Melissa M. Phillips, Catherine A. Rimmer. "NIST Tools for the Analysis of Dietary Supplements and Foods." SupplySide East, Secaucus, NJ, May 2011.

Melissa M. Phillips, Lane C. Sander, Katherine E. Sharpless, and Stephen A. Wise. "Determination of Water-Soluble Vitamins in NIST Food Matrix SRMs." The Pittsburgh Conference, Atlanta, GA, March 2011.

Melissa M. Phillips, Catherine A. Rimmer, Lane C. Sander, Katherine E. Sharpless, and Stephen A. Wise. "Determination of Vitamins in NIST Food Matrix SRMs." The Pittsburgh Conference, Orlando, FL, March 2010.

Melissa M. Phillips, Lane C. Sander, Katherine E. Sharpless, Stephen A. Wise. "Certification of Organic Acid and Flavonol Concentrations in *Vaccinium* Berry Standard Reference Materials (SRMs)." 238th American Chemical Society National Meeting and Exposition, Washington, DC, August 2009.

Melissa S. Meaney, Victoria L. McGuffin. "Fluorescence Quenching of Fluorescein for the Detection of Acids in Forensic Samples." The Pittsburgh Conference, Chicago, IL, March 2007.

Melissa S. Meaney, Victoria L. McGuffin. "Fluorescence Quenching of Fluorescein for the Detection of Carboxylic Acids." The Pittsburgh Conference, Orlando, FL, March 2006.

Melissa S. Meaney, Victoria L. McGuffin. "Investigation of Common Fluorophores for the Detection of Nitrated Explosives by Fluorescence Quenching." The Pittsburgh Conference, Orlando, FL, March 2005.

POSTER PRESENTATIONS

Melissa M. Phillips, Catherine A. Rimmer, Lane C. Sander. "LC-MS and LC-MS/MS for Determination of Water-Soluble Vitamins in Foods." 127th AOAC INTERNATIONAL Annual Meeting and Exposition, Chicago, IL, August 2013.

Melissa M. Phillips, Mallory J. Morris, Benjamin J. Place, Catherine A. Rimmer, Lane C. Sander. "Comparison of Commercial Software Approaches for Quantitation in Two-Dimensional Liquid Chromatography." HPLC2013, Amsterdam, the Netherlands, June 2013.

Melissa M. Phillips, Catherine A. Rimmer, Lane C. Sander. "LC-MS and LC-MS/MS for Determination of Water-Soluble Vitamins in Foods." HPLC2013, Amsterdam, the Netherlands, June 2013.

Melissa M. Phillips, Lane C. Sander, and Stephen A. Wise. "Using LC/MS/MS to Measure Water-Soluble Vitamins in NIST Unfortified Food-Matrix SRMs." 126th AOAC INTERNATIONAL Annual Meeting and Exposition, Las Vegas, NV, October 2012.

Catherine A. Rimmer, Melissa M. Phillips, Laura J. Wood. "Improving Measurement Capabilities: NIST Interlaboratory Studies for Food and Dietary Supplements." 126th AOAC INTERNATIONAL Annual Meeting and Exposition, Las Vegas, NV, October 2012.

Melissa M. Phillips, Catherine A. Rimmer, Lane C. Sander. "Microwave-Assisted Extraction and LC-MS Analysis of Total Choline and Free Carnitine in Foods." The Second International Vitamin Conference, Copenhagen, Denmark, May 2012.

Melissa Phillips, Mary Bedner, Johanna Camara, Danielle Cleveland, Candice Jongsma, Mark Lowenthal, Bryant Nelson, Karen Phinney, Karsten Putzbach, Catherine Rimmer, Lane Sander, Katherine Sharpless, Susan Tai, Jeanice Thomas, Stephen Wise. "Standard Reference Materials for the Determination of Vitamins in Food, Supplement, and Clinical Samples." The Second International Vitamin Conference, Copenhagen, Denmark, May 2012.

Catherine A. Rimmer, Melissa M. Phillips, Laura J. Wood, Katherine E. Sharpless, Stephen A. Wise, Lane C. Sander. "NIST Dietary Supplement Laboratory Quality Assurance Program: A Tool for Improving Vitamin Measurements in Foods and Dietary Supplements." The Second International Vitamin Conference, Copenhagen, Denmark, May 2012.

Melissa M. Phillips, Lane C. Sander, Stephen A. Wise. "Microwave-Assisted Extraction and LC-MS Analysis of Total Choline in Foods." 125th AOAC INTERNATIONAL Annual Meeting and Exposition, New Orleans, LA, September 2011.

Catherine A. Rimmer, Mary Bedner, Manuela K. Gradl, Mariana Arce-Osuna, Melissa M. Phillips, Lane C. Sander, Katherine E. Sharpless, Klaus Albert. "Determination of Soy Isoflavones in Foods and Dietary Supplements." 125th AOAC INTERNATIONAL Annual Meeting and Exposition, New Orleans, LA, September 2011.

Catherine A. Rimmer, Melissa M. Phillips, Laura J. Wood, Katrice A. Lippa, Stephen A. Wise, Lane C. Sander. "NIST Dietary Supplement Laboratory Quality Assurance Program: The First Five Years." 125th AOAC INTERNATIONAL Annual Meeting and Exposition, New Orleans, LA, September 2011.

Melissa M. Phillips, Lane C. Sander, Katherine E. Sharpless, Stephen A. Wise. "Determination of B-Vitamins, Choline, and Carnitine in NIST Food-Matrix SRMs." HPLC, Budapest, Hungary, June 2011.

Mary Bedner, Manuela K. Gradl, Mariana Arce-Osuna, Melissa M. Phillips, Catherine A. Rimmer, Lane C. Sander, Katherine E. Sharpless, Klaus Albert. "Determination of Soy Isoflavones in Foods and Dietary Supplements." HPLC, Budapest, Hungary, June 2011.

Melissa M. Phillips, Ryan G. Brennan, Thomas P. Moffat. "Analytical Characterization of Commercial SPS and MPS by Ion Chromatography and Mass Spectrometry." The Pittsburgh Conference, Atlanta, GA, March 2011.

Melissa M. Phillips, Lane C. Sander, Katherine E. Sharpless, and Stephen A. Wise. "Determination of Water-Soluble Vitamins in NIST Food-Matrix SRMs." 124th AOAC INTERNATIONAL Annual Meeting and Exposition, Orlando, FL, September 2010.

Lisa Steinhauser, Melissa M. Phillips, Catherine A. Rimmer, Klaus Albert, Lane C. Sander. "Method Development for the Determination of Yohimbine in Dietary Supplements." 124th AOAC INTERNATIONAL Annual Meeting and Exposition, Orlando, FL, September 2010.

Melissa M. Phillips, Catherine A. Rimmer, Kevin D. Krueger, Mark S. Lowenthal, Rachel A. Lieberman, Lane C. Sander. "Characterization of *Vaccinium* Berry Standard Reference Materials (SRMs)." HPLC, Boston, MA, June 2010.

Melissa M. Phillips, Catherine A. Rimmer, Karen W. Phinney, Jeanice B. Thomas, Bryant C. Nelson, Lane C. Sander. "Determination of Water-Soluble Vitamins in NIST Food-Matrix SRMs." The First International Vitamin Conference, Copenhagen, Denmark, May 2010.

Melissa M. Phillips, Catherine A. Rimmer, Lane C. Sander, Karen W. Phinney, Jeanice B. Thomas, Bryant C. Nelson, Karsten Putzbach, Katherine E. Sharpless, Stephen A. Wise. "Standard Reference Materials for the Determination of Vitamins in Foods and Dietary Supplements." The First International Vitamin Conference, Copenhagen, Denmark, May 2010.

Catherine A. Rimmer, Melissa M. Phillips, Laura J. Wood, Katrice A. Lippa, Lane C. Sander. "NIST Dietary Supplements Laboratory Quality Assurance Program: A Focus on Vitamin Exercises." The First International Vitamin Conference, Copenhagen, Denmark, May 2010.

Melissa M. Phillips, Catherine A. Rimmer, Lane C. Sander, Katherine E. Sharpless, Stephen A. Wise. "Determination of Vitamins in NIST Food Matrix SRMs." NIST Sigma Xi Postdoctoral Poster Session, Gaithersburg, MD, February 2010.

Catherine Rimmer, Katrice Lippa, Melissa Phillips, David Duewer, Lane Sander, Katherine Sharpless, Stephen Wise, Laura Wood. "Dietary Supplement Laboratory Quality Assurance Program." 123rd AOAC INTERNATIONAL Annual Meeting and Exposition, Philadelphia, PA, September 2009.

Melissa M. Phillips, Lane C. Sander, Katherine E. Sharpless, Stephen A. Wise. "Development of *Vaccinium* Berry Dietary Supplement Standard Reference Materials (SRMs)." 12th Biological and Environmental Reference Material (BERM) Symposium, Oxford, UK, July 2009.

Catherine A. Rimmer, Katrice A. Lippa, Laura J. Wood, Melissa M. Phillips, Katherine E. Sharpless, Stephen A. Wise, Lane C. Sander, David L. Duewer. "NIST Quality Assurance Program for Dietary Supplements." 12th Biological and Environmental Reference Material (BERM) Symposium, Oxford, UK, July 2009.

Melissa S. Meaney, Lane C. Sander, Katherine E. Sharpless, Stephen A. Wise. "Characterization of Organic Acid and Flavonoid Profiles in *Vaccinium* Berry Dietary Supplement Standard Reference Materials (SRMs)." The Pittsburgh Conference, Chicago, IL, March 2009.

Melissa S. Meaney, Lane C. Sander, Katherine E. Sharpless, Stephen A. Wise. "Characterization of Organic Acid and Flavonoid Profiles in *Vaccinium* Berry Dietary Supplement Standard Reference Materials (SRMs)." NIST Sigma Xi Postdoctoral Poster Session, Gaithersburg, MD, February 2009.

Melissa S. Meaney, Lane C. Sander, Katherine E. Sharpless, Stephen A. Wise. "Development of *Vaccinium* Berry Dietary Supplement Standard Reference Materials (SRMs)." HPLC, Baltimore, MD, May 2008.

Melissa S. Meaney, Victoria L. McGuffin. "Fluorescence Quenching Detection of Nitrated Explosives." The Pittsburgh Conference, Chicago, IL, March 2004.

SRM ACTIVITIES

RM 8441a	Wheat Hardness (TPL/TC)
RM 8445	Spray-Dried Whole Egg for Allergen Detection (TPL/TC) Extended certification date based on FDA data.
RM 8642	FDA Saxitoxin Dihydrochloride Solution (TPL/TC) Out of stock. RM 8642a being prepared as a replacement.
RM 8642a	FDA Saxitoxin Dihydrochloride Solution (TPL/TC) Material being purified by FDA.
SRM 194a	Ammonium Dihydrogen Phosphate Measured ammonium and phosphate by IC-CD.
SRM 916b	Bilirubin Method developed for stabilization and measurement of bilirubin isomers XIIIα, IXα, and IIIα by LC-Abs.
SRM 1544	Fatty Acids and Cholesterol in a Frozen Diet Composite (TPL/TC) To be discontinued when out of stock. In discussions with USDA and FDA to create a new material combining SRM 1544 and SRM 1548a Typical Diet.
SRM 1546	Meat Homogenate (TPL/TC) Out of stock. SRM 1546a being prepared as a replacement.
SRM 1546a	Meat Homogenate (TPL/TC) Measured water-soluble vitamins by ID-LC/MS/MS. Prepared data for submission to SED. Drafted and finalized Certificate of Analysis.
SRM 1549a	Whole Milk Powder (TPL/TC) Measured water-soluble vitamins, choline, and carnitine by ID-LC-MS.
SRM 1845a	Whole Egg Powder (TPL/TC) Measured water-soluble vitamins by ID-LC/MS/MS. Measured choline and carnitine by ID-LC-MS. Prepared data for submission to SED.
SRM 1846	Infant Formula (TPL/TC) Out of stock. Replaced by SRM 1849.
SRM 1849	Infant/Adult Nutritional Formula (TPL/TC) Out of stock. Replaced by SRM 1849a.
SRM 1849a	Infant/Adult Nutritional Formula (TPL/TC) Measured water-soluble vitamins, choline, and carnitine by ID-LC-MS. Prepared additional data for submission to SED. Drafted and finalized updated Certificate of Analysis.
SRM 2383	Baby Food Composite (TPL/TC) Out of stock. Replaced by SRM 2383a.
SRM 2383a	Baby Food Composite (TPL/TC) Measured water-soluble vitamins by ID-LC-MS.
SRM 2384	Baking Chocolate (TPL/TC) Measured water-soluble vitamins by ID-LC-MS/MS. Coordinated stability for 5 additional analyte groups.
SRM 2385	Slurried Spinach (TPL/TC)

SRM 2387 Peanut Butter (TPL/TC)
Coordinated stability for 3 analyte groups.

SRM 3180 Iodide Anion Standard Solution
Measured iodide by IC-CD.

SRM 3233 Fortified Breakfast Cereal (TPL/TC)
Measured water-soluble vitamins by ID-LC-MS.

SRM 3234 Soy Flour (TPL/TC)
Measured water-soluble vitamins by ID-LC/MS/MS. Measured choline and carnitine by ID-LC-MS. Measured isoflavones by LC-UV. Prepared isoflavones data for submission to SED.

SRM 3235 Soy Milk (TPL/TC)
Measured isoflavones by LC-UV. Prepared data for submission to SED.

SRM 3236 Soy Protein Isolate (TPL/TC)
Measured isoflavones by LC-UV. Prepared data for submission to SED. Drafted and finalized Certificate of Analysis.

SRM 3237 Soy Protein Concentrate (TPL/TC)
Measured isoflavones by LC-UV. Prepared data for submission to SED.

SRM 3238 Soy-Containing Solid Oral Dosage Form (TPL/TC)
Measured isoflavones by LC-UV. Prepared data for submission to SED. Drafted and finalized Certificate of Analysis.

SRM 3252 Protein Drink Mix (TPL/TC)
Coordinated measurement of total nutrients through Grocery Manufacturer's Association.

SRM 3253 Yerba Mate (TPL/TC)

SRM 3276 Carrot Extract in Oil (TPL/TC)

SRM 3278 Tocopherols in Edible Oils (TPL/TC)
Certification range extended based on stability data.

SRM 3281 Cranberry (Fruit)
Measured organic acids by ID-LC-MS and ID-GC-MS. Method developed for measurement of anthocyanidins and flavonols by LC-Abs. Method developed for measurement of anthocyanins by LC-Abs. Method developed for fingerprinting of proanthocyanidins by LC-FL-MS.

SRM 3282 Low-Calorie Cranberry Juice Cocktail
Measured organic acids by IC-CD and LC-UV, method developed for measurement of anthocyanidins and flavonols by LC-Abs.

SRM 3283 Cranberry Extract
Measured organic acids by IC-CD and ID-LC-MS, method developed for measurement of anthocyanidins and flavonols by LC-Abs. Method developed for measurement of anthocyanins by LC-Abs. Method developed for fingerprinting of proanthocyanidins by LC-FL-MS.

SRM 3284 Cranberry-Containing Solid Oral Dosage Form
Measured organic acids by IC-CD and ID-LC-MS, method developed for measurement of anthocyanidins and flavonols by LC-Abs. Method developed for measurement of anthocyanins by LC-Abs. Method developed for fingerprinting of proanthocyanidins by LC-FL-MS.

SRM 3285 Mixed Berry-Containing Solid Oral Dosage Form
Measured organic acids by IC-CD and ID-LC-MS, method developed for measurement of

anthocyanidins and flavonols by LC-Abs. Method developed for measurement of anthocyanins by LC-Abs. Method developed for fingerprinting of proanthocyanidins by LC-FL-MS.

SRM 3286 Organic Acids Calibration Solution (TPL/TC)
Prepared and measured organic acids by LC-UV. Drafted and finalized Certificate of Analysis.

SRM 3287 Blueberry (Fruit)
Measured organic acids by IC-CD and ID-LC-MS, method developed for measurement of anthocyanidins and flavonols by LC-Abs. Method developed for measurement of anthocyanins by LC-Abs. Method developed for fingerprinting of proanthocyanidins by LC-FL-MS. Measured water-soluble vitamins by ID-LC-MS.

SRM 3290 Dry Cat Food (TPL/TC)
Coordinated measurement of total nutrients, gravimetric fat, and crude fiber through Grocery Manufacturer's Association. Collected final data and prepared Report of Analysis summary for total nutrients.

SRM 3291 Bilberry Extract
Measured organic acids by ID-LC-MS, method developed for measurement of organic acids by IC-CD and of anthocyanidins and flavonols by LC-Abs. Method developed for measurement of anthocyanins by LC-Abs. Method developed for fingerprinting of proanthocyanidins by LC-FL-MS.

Curtis S. Phinney
Certified Nutrition Specialist
curtis789@comcast.net

Work Experience

Curtis S. Phinney, CNS
Columbia, MD 21046-2732
240.294.6614

01/2010 – present
Nutritionist and Functional Ingredient Scientist (contractor)
Translational Nutritionist, bringing chemistry and supplement scientific research into practice. Board-certified nutrition specialist (CNS). Maryland Dept. of Health (DHMH) licensed and insured nutritionist.
Specializing in dietary supplement and functional food ingredient scientific support; analysis of laboratory data, tests, and interpretations of ingredient purity, potency, and strength.
Nutrition and scientific support for consumer product, regulatory, and dispute resolution.

Duties, Accomplishments and Related Skills:
Supplement and nutritional scientific support for individuals, groups, and the wellness industry.
Specialist in potency, purity, and compatibility of ingredients. Prototype design and product support.
Develop key ingredient test methods, fitness for purpose, and dispute resolution approaches.
Expert interpretation of U.S. Pharmacopeia (USP), NIST, and Food Chemical Codex (FCC) requirements.
Expert in chromatography, reference materials and standards.

AOAC International dietary supplement expert committee volunteer, e.g., Strategic Food Analytical Methods (SPSFAM).
Nutrition researcher, specializing in dietary supplement and functional food consumer applications.
MD Health and Mental Hygiene Nutritionist license #DX-3105, exp. 31Oct2016.
Board for Certification of Nutrition Specialists CNS #16009, exp. 31Dec2015.

Naval Support Activity – Bethesda
Walter Reed National Military Medical Center
MWR – Bldg. 17
Bethesda, MD 20889

08/2011 - present
P/T Instructor (this is a federal contract job)
Duties, Accomplishments and Related Skills:
Design and implement GX-based approaches to facilitate client goals, e.g., weight maintenance, cardiac support, performance testing preparation, and physical rehabilitation. U.S. Navy/DoD CAGE registered contractor. Ten-plus year AFAA certified, with performance cycle training, perinatal fitness, and Les Mills USA certifications.

U.S. Pharmacopeia
North Bethesda, MD 20852

06/2008 - 01/2010
Scientific Liaison to the Dietary Supplements, Nutrition, and Electrolytes Expert Committee
Duties, Accomplishments and Related Skills:
Responsible for USP Drug and Dietary Supplement Monographs, General Chapters, Pharmacopeial Forum, USP Reference Standards (USP RS), and new proposals.
Managed DSN EC meetings, telephone technical support, and presentation of monographs, reports, and proposals.

Led USP lab projects to develop traceability to NIST for vitamin and mineral assays, and projects to detect economic adulteration of dietary supplements.
Applied principles of analytical chemistry to design quality tests for dietary supplements, vitamins, nutritional bulk materials, and dosage forms.
Answered telephone and E-mail queries from compendial monograph users and various industry stakeholders.

Concurrently served on AOAC International Expert Review panels for critical assay method development, e.g., water-soluble vitamins, Omega-3 and -6 oils, and Coenzyme-Q10.
Served on the Governing Board of the Washington Chromatography Discussion Group.

U.S. Pharmacopeia (continued)

08/2004 - 06/2008
Reference Standards Scientist
Duties, Accomplishments and Related Skills:
Steward of USP Reference Standards and fine chemicals portfolio. Planned and directed testing, evaluation, approval, release, and stability monitoring of USP Reference Standards.
Provided Reference Standards Technical Support to end users via E-mail and telephone. Point of contact for reference standard and monograph customer queries.
Prepared project summary documents, collaborative study findings, and oral presentations for the USP RS Expert Committee.
Commended for "superlative teamwork" in cross-silo assignments and interdepartmental team activities.

National Institute of Standards and Technology
Chemical Science and Technology Laboratory
Analytical Chemistry Division MS-8392
Gaithersburg, MD 20899

02/2003 - 08/2004
Research Chemist (This is a federal job)

Duties, Accomplishments and Related Skills:
Developed high accuracy methods for food and other natural matrices by GC/MSn and LC/MSn. Measurements used for certification of NIST Standard Reference Materials (SRM).
Improved Definitive Methods for high precision determination of human clinical markers: creatinine, urea, and uric acid. Improved precision of the measurement of these health status markers in human serum (SRM 909b).
National Institute of Standards and Technology (continued)

10/1993 - 02/2003
Physical Scientist (This is a federal job)
Duties, Accomplishments and Related Skills:
Identified and measured primary standard clinical and nutritional analytes by applying isotope dilution GC/MS and LC/MS methods. Performed precise measurements for value assignment in NIST Standard Reference Materials, e.g., fatty acid composition of SRM 1946 Lake Superior Fish Tissue. Extensive development of extraction techniques, compound class isolation, and derivative chemistry.

Developed analytical methods for the isolation and isotope-dilution mass spectrometric measurement of clinical analytes in blood and urine for CCQM inter-laboratory comparison studies.
Derived Certified, Reference, or Information values for NIST SRM certificates as a statistical team member.
Presented laboratory research and wrote refereed journal articles, e.g., Fresenius' J. of Analytical Chemistry, NIST Reports of Analysis, and at scientific meetings, including AOAC International, AOCS, and ASMS.

Education

University of Massachusetts at Amherst
School of Public Health and Health Sciences
Master's Degree, M.S.P.H.

Credits Earned: 60 semester hours
Major: Public Health
Relevant Coursework: M.Sc. in Public Health, with laboratory and literature research thesis. Over thirty credits in toxicology, risk assessment, public health statistics, industrial hygiene, and health physics.
Masters Thesis: *"Analysis of Filterable Particulate Emissions from Residential Heating and Cooking units to Determine Presence of Polycyclic Aromatic Hydrocarbons"*.

University of Massachusetts at Amherst
College of Natural Sciences
Bachelor's Degree, B.Sc., *with high honors*

Credits Earned: 132 semester hours
Major: Plant and Soil Science **Minor:** Honors program - Science option
Relevant Coursework: Entomology practicum in pesticide management, toxicology, regulation and labeling.

Training and milestones

Chemical Science and Technology Laboratory Technical Service Award, omega-3 fatty acids in SRM 1946
AOAC International – Collaborative Study Design and Management, September 2006
AOAC International - Single Laboratory Validation of Quantitative Chemical Analytical Methods, 2007
USP Lightening Award for root cause evaluation, and replacement, of top-seller USP RS
National Institutes of Health Office of Dietary Supplements – Element Methodology Workshop, March 2009
National Institutes of Health Office of Dietary Supplements - Dietary Supplement Research Practicum , June 2012
Web of Science (Thomson Reuters h-index) cited journal author

KELLY LYNN REINS
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SUMMARY

Quality Professional professional with extensive experience in manufacturing and laboratory operations in the pharmaceutical and dietary supplement industries. Expertise in manufacturing, quality systems, 21 CFR Part 110, 111, 211 and 11 cGMP compliance, and Pharmacopeial monographs. Key strengths include managing quality systems for compliance with cGMP, managing complex projects, resources, and troubleshooting. Solid background in auditing, laboratory instrumentation, training personnel, and electronic documentation systems.

PROFESSIONAL EXPERIENCE

ALKEMISTS LABORATORIES Costa Mesa, CA
Private, contract testing laboratory of natural products, herbal medicines, and dietary supplements

VP Operations & Quality **2013- 2014**
Oversaw the Company Operations and Quality aspects for compliance with 21 CFR Part 111, 211 and ISO17025.

- Expanded lab to handle high-end analytical work. Responsible for procurement of state of the art instrumentation. Water UPLC, HPLC, Microbalances.
- Provided technical support for the overhaul of the documentation, training and overall quality systems.
- Authored companywide SOPs for ISO17025 compliance.
- Oversaw the design of method feasibility, verification, and validation studies for Clients per USP/ICH guidelines.
- Provided technical expertise to Clients regarding cGMPs requirements, experimental design, CMC documentation requirements, and deficiency/warning letter responses.
- Provided training for safety, cGMP and ISO17025.
- Served on the Executive Leadership Network group, working with industry and the FDA to draft industry guidance for compliance with the Scientifically Valid method requirement.

Executive Director, Laboratory Operations and Compliance **2010-2013**

ROBINSON PHARMA, INC., Santa Ana, CA **2009 - 2010**
Private, global mass-market contract manufacturer and distributor of dietary supplements

Director, Quality Control
Oversaw Quality Control staff of 28 members.

- Authored and revised laboratory Standard Operating Procedures for compliance with 21 CFR Part 111.
- Proved support for master manufacturing and batch record review.
- Expanded laboratory size, staff, and instrument capabilities: Waters HPLC/UPLC, UV/VIS, Rapid Micro Detection Systems.
- Monitored the method verification and validation program for compliance with 21 CFR Part 111.
- Oversaw the stability program and the installation of a walk-in stability chamber.
- Worked with purchasing to ensure raw material were purchased against approved specifications.
- Served on the safety committee to ensure compliance with State, Federal, and company requirements.

WATSON PHARMACEUTICALS, INC., (ACTAVIS) Corona, CA **2006 - 2009**
$2.5B developer, manufacturer, and distributor of generic and brand pharmaceuticals

Manager, Analytical R&D
Managed raw material release group of 5 scientists. Met aggressive release time frames 100% of the time while ensuring team activities fulfilled company standards and regulations.

- Evaluated raw material excipients testing and release requirements, provided technical advice to formulators, and electronically authored hundreds of specifications and test methods for timely release for use in experimental, pilot, and exhibit batches.
- Provided Chemistry, Manufacturing, and Controls (CMC) ready documentation to regulatory affairs for ANDA submissions and deficiency responses.
- Provided support for pre-approval inspections (PAI)
- Redesigned and oversaw system for reference standard procurement, inventory, and qualification which received commendation from the FDA during multiple Preapproval Inspections (PAI)
- Served on JD Edward Materials Management System cross-functional implementation team.

SOFT GEL TECHNOLOGIES, INC., Commerce, CA **2002 - 2006**
Private, global contract manufacturer and distributor of soft gelatin capsule dietary supplements

Manager, Quality Control
Managed laboratory of 10 members. Supported testing, release, stability activities for 6-day manufacturing operations.

- Served as lead in build out of brand new 5,500 square foot laboratory in compliance with local, state, and FDA regulations.
- Advised customer service and global sales team in regulatory issues and customer complaint responses ensuring improved customer relations.
- Standardized systems which met requirements for foreign and domestic regulations resulting in increased consumer confidence.
- Assessed all retained contract laboratory testing capabilities by performing on-site audits ensuring the highest compliance level for outsourced testing.

BAXTER BIOSCIENCE, CORP., Los Angeles, CA **2001 - 2002**
$5.3B global manufacturer of plasma-based and recombinant proteins and plasma based therapies

Manager, Chemistry
Managed quality control chemistry laboratory of 20 analysts. Supported testing and release, activities for 24/7 manufacturing operations.

- Used LIMS to prioritize, scheduled and track workflow, ensuring timely reporting and completion of lab results.
- Presented project summary data to the Management Review Board, ensuring continuous improvement goals were on target.

ALPHA THERAPEUTIC CORP. (GRIFOLS USA, LLC) Los Angeles, CA **2000 - 2001**
A €121.7M Global developer of blood and plasma therapies

Manager, QC Chemistry
Managed cGMP/GLP quality control laboratory of 20 analysts.

- Enforced strict cGMP compliance under Consent Decree.
- Managed resources which resulted in prompt reporting of results.

MERLE NORMAN COSMETICS INC., Los Angeles, CA **1999 - 2000**
Private developer, manufacturer, and distributor of skin care and cosmetic products in US and Canada

Senior Chemist, Analytical/Quality Control
Supervised laboratory activities for stability, raw material and finished product release for foreign and domestic markets under strict cGMP compliance.

- Developed HPLC and GC methods, authored SOPs, created a log system to track samples, trained subordinates in wet chemistry, instrumentation, and managed laboratory budget.

GILEAD SCIENCE, INC., San Dimas, CA **1995 - 1998**
$5.3B research-based biopharmaceutical developer and manufacturer, of innovative medicines in primary areas of HIV/AIDS, liver disease and serious cardiovascular and respiratory conditions

Research Associate III, Analytical Biochemistry
Provided analytical HPLC and GC support for drug discovery formulation group.

- Developed, validated, and transferred HPLC and GC raw materials and residual solvent methods for liposomal encapsulated drug products in the presence of plasma and serum.
- Performed stability, in-process, raw material, and finished product testing.
- Trained peers in GC analysis, theory, maintenance; authored SOPs and test methods.

ESTEE LAUDER COMPANIES, Melville, NY **1993 - 1995**
$7.9B global leading manufacturer and marketer of skin care, cosmetics, perfume and hair care products

Quality Assurance Chemist
Provided analytical support for release of personal care products under strict cGMP compliance.

- Analyzed active ingredients in sunscreens, volatile organics, and preservatives utilizing ICP, GC, NIRS, and HPLC.
- Verified raw material compliance utilizing ICP, FTIR, and USP wet chemistry methods.
- Assessed product compliance using color matching for in-process and finished products.

EDUCATION

B.S. Chemistry, University of Southern California (USC), Los Angeles, CA

PROFESSIONAL DEVELOPMENT

A2LA Internal Auditing Training Course, Agilent Advanced GC Method Development, Estée Lauder Management, USP Training Courses: Fundamentals of Microbiological Testing, and Validation of Compendial Procedures, USP WCG & AOAC/SCS Joint 2 Day Regulatory & Compliance Conferences

COMPUTER PROGRAMS

LIMS, Microsoft Office, HP/Agilent Chemstation/Chemstore, Waters Millennium, Empower 3, Live Link/Hot Dox (electronic documentation authoring and approval system), JDE Materials Management System, Active Project (Electronic Project Management System), Sales Force

PUBLICATION

Co-author of Determination of Ubidecarenone (Coenzyme Q10, ubiquinol-10) in Raw Materials and Dietary Supplements by High-Performance Liquid Chromatography with Ultraviolet Detection: Single-Laboratory Validation. J AOAC Int. 2007 Sep-Oct;90(5):1227-36

PROFESSIONAL AFFILIATIONS

American Herbal Products Association, Orange County Regulatory Affairs Discussion Group (OCRA), American Chemical Society (ACS), AOAC & Pacific Southwest Section, American Society for Quality (ASQ), The Real Toastmasters of O.C. Club.

ALACC Dietary Supplement Subcommittee, Quality Leadership Network (FDA & Industry) for the Los Angeles District, AOAC St. John's Wort Working Group, AOAC Expert Review Panels (ERP) for Saw Palmetto Berry, Omega 3-6-9 Fatty Acids, and Flavonols, AOAC ERP Chair for Coenzyme Q10
Presidential Task Force on Dietary Supplements for AOAC International, 2 year Term

LITON ROY PhD

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Palm Beach Gardens, FL 33418
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Summary

Highly motivated scientist with over 12 years of combined experience in pharmaceutical industry and academia; encompassing discovery through development. Experienced leader in team building, motivation, and developing staff to deliver results. Demonstrated ability to work effectively in cross-functional and global roles with experience in managing multiple priorities and strategic analytical development.

Professional Experience

Sancilio and Company, Riviera Beach, FL (Manager of Laboratory Operations), December 2013- present

- Overseeing multiple early and late phase small molecule drug product development projects.
- Managed multiple direct reports, stability program, quality systems, and external audits.
- Led analytical development for FDA approval of generic Prometrium for treatment of secondary amenorrhea, generic Lovaza and Vascepa to help lower triglycerides, and generic Amitiza to treat chronic idiopathic constipation in adults.
- Led research program for Estradiol vaginal capsules for treatment of postmenopausal women for vulvar atrophy.
- Developed testosterone enanthate and tadalafil combination therapy for sever and intermediate testosterone deficiency using advanced lipid technology.
- Led microbiology quality control, qualification, and validation.
- Hired and developed staff to support exceptional growth of the corporation.

Sancilio and Company, Riviera Beach, FL (Group Leader/Senior Scientist), December 2012- December 2013

- Led a research group to develop, qualify, and validate various analytical methods for successful submission of 2 INDs and 1 ANDA in one fiscal year.
- Led cleaning validation program. Coordinated validation strategies, activities, training, and execution plans with all associated departments.
- Developed, validated and implemented HPLC and GC based cleaning verification methodologies.
- Designed qualitative and quantitative FTIR methods for finished dosage and raw material testing.
- Supervised analytical laboratory internship program.
- Overhauled equipment qualification program and implemented advanced protocols for analytical operations.
- Collaborated with QA in developing new SOPs and work instructions.

Perrigo, Georgia, VT (Associate Scientist, Global Scientific Affairs), August 2011- November 2012

- Set up a new analytical research and development laboratory. Managed proper installations, qualifications, and documentations of new instruments. Implemented new standard operating procedures and work instructions. Established and maintained GMP compliance.
- Reported to VP of R&D. Led and managed network-wide quality related projects. Provided analytical data and scientific justifications for business decisions.
- Developed and validated stability indicating HPLC methods and chiral LC methods for small molecule drug products in cGMP environment.

- Developed LCMS methods for quantitative and qualitative analysis of small molecules.
- Developed and validated peptide fingerprinting, quantitative FTNIR, and quantitative SDS-PAGE methodologies.
- Served as the subject matter expert for new product development and participated in related cross-functional teams. Driven analytical projects to support pre-clinical studies.
- Resolved key method issues in QC by implementing advanced and reliable analytical methods resulting in 225,000 USD savings in one fiscal year.
- Initiated third party scientific collaboration to address existing QC problems.

University of Vermont, Burlington, VT (Graduate Teaching Assistant), 2006-2011

- Developed a new high throughput screening approach to select, identify, and characterize highly stable globular proteins.
- Developed FPLC, HPLC, ESI-MS methodologies for the analysis of peptide libraries and bio-mimetic complexes.
- Utilized nanospray mass spectrometry technique for ligand exchange kinetic study.
- Designed metal directed coiled coil systems and analyzed electrostatic determinants of stability.
- Routinely utilized GC, NMR, Mass spectrometry, and FTIR for small molecule characterizations.
- Routinely utilized solid and solution phase peptide synthesis to produce peptide library (mixtures and discrete).
- Led interdisciplinary research projects to completion.

Michigan State University, East Lansing, MI (Research and Teaching Assistant) 2003-2005

- Developed HPLC and FPLC methodologies for enzymatic assays and protein purification.
- Detailed mechanism of radical generation of SAM enzymes using ENDOR and EPR spectroscopies.
- Synthesized isotopically labeled AdoMet synthetase by recombinant expression techniques.

Bose Research Institute, Calcutta, India (Summer Intern) Summer 2002

- Characterized active sites of TIM barrel proteins using Rasmol, Protein Blast, and Homology screening.

Technical Proficiencies and Research Skills

- Over eight years of experience in LCMS (Agilent 6460 QQQ, ABI 4000 QTrap) and MALDI-TOF (Voyager DE-PRO). Skilled in ESI, APCI, Nanospray, and Direct infusion applications. Used H/D exchange analysis of small molecules. Skilled in bottom up mass spectrometric analysis of peptide libraries. Experienced with Masshunter and Analyst software.
- Over ten years of experience in HPLC (RP, SEC, HIC, IEX) method development for small molecule quantitations, protein/peptide purifications, and separations. Experienced with Chemstation and Empower software. Executed HPLC/UPLC method transfer. Developed and validated assay, related substance, and stability indicating methods using DAD, MWD, FLD, and RI detectors.
- Three years of experience in developing and validating Type I, II, III dissolution methods for tablets and softgels.
- Expertise in GC-FID analysis of fatty acids and small molecules. Developed and validated GC-FID and GC-Head space methods under cGMP compliance.
- Over ten years of experience in methodologies of UV/VIS, Fluorescence, CD, FTIR, and NMR spectroscopies. Experienced with Antaris FTNIR.

- Skilled in AKTA FPLC method development for separation and characterization of biomolecules using size exclusion, ion exchange, hydrophobic, and affinity chromatography.
- Proficient in particle size analyzer, preparative chromatography, thin layer chromatography, dissolution, KF titration, gel electrophoresis, gel doc imaging device, hybrid plate reader, dialysis, and peptide crystallization techniques.
- Expertise in compliance (21 CFR, ICH, USP), quality by design, method validation, method transfer, and stability program (Minitab, SLIMStat).

Education

Ph.D. in Chemistry, 2006-2011, University of Vermont, Department of Chemistry, Burlington, VT
Thesis: "*Protein Design by Dynamic Combinatorial Chemistry: A High Throughput Screening Approach Elucidating Protein Sequence, Packing, and Stability Relationships"*
Adviser: Prof. Martin A. Case

M.S. in Chemistry, 2001-2003, Indian Institute of Technology, Kanpur, India
Thesis: "*Synthesis and Fluorescence Studies of Cryptand Based Fluorophore Receptor Signaling System"*
Adviser: Prof. P. K. Bharadwaj

B.S. in Chemistry, 1998-2001, Presidency College, Calcutta, India
NAAC Accredited Institution. Magna cum laude, Minor in Physics and Mathematics.

Honors and Awards

- Exceptional Ability in the National Interest: USCIS 2012
- Most Innovative Research Award: GSS University of Vermont 2011
- American Peptide Symposium Travel Award 2011
- ACS Travel Award: Division of Biological Chemistry 2011
- Graduate Student Senate Mini Grant: University of Vermont 2011
- Graduate Student Summer Research Fellowship: University of Vermont 2010
- The Roland Suiter Prize: University of Vermont 2009
- National Eligibility for Lectureship: UGC, India 2003
- Summer Research Fellowship: Indian Academy of Sciences 2002
- Academic Excellency Award: Presidency College, India 2000
- Academic Excellency Award: Presidency College, India 1999

Affiliations

- American Chemical Society: Member 2008-present
- American Peptide Society: Member 2011-present
- Bio-Science & Analytics of South Florida: Secretary 2013-present

Publications

1. Roy, L.; Harrell, C. C.; Ryan, A. S.; Thorsteinsson, T.; Sancilio, F. D. "Development and validation of a single HPLC method for analysis of purines in fish oil supplements" *Food and Nutrition Sciences.* **2013**, *4*, 1255-1259
2. Roy, L.; Case, M. A. "Recursively enriched dynamic combinatorial libraries for the self-selection of optimally stable proteins" *J. Phys. Chem. B.* **2011**, *115*, 2454-2464.

3. Roy, L.; Case, M. A. “Protein core packing by dynamic combinatorial chemistry” *J. Am. Chem. Soc.* **2010**, *132*, 8894-8896.
4. Roy, L.; Case, M. A. “Electrostatic determinants of stability in parallel 3-stranded coiled coils” *Chem. Commun.* **2009**, 192-194.

Posters and Presentations

1. “Internal standard to standard ratio in determining content of EPA and DHA for free fatty acid ethyl ester drugs” 249th American Chemical Society National Meeting, Denver, CO March 2015.
2. “Specific Enumeration tests for bacteria, yeasts, and molds for pharmaceutical determination” 100th Southeastern Microbiology Summit, Ponte Vedra, FL September 2014.
3. “Development and validation of cleaning verification method: critical aspect in food and pharmaceuticals manufacturing” 128th AOAC Annual Meeting & Exposition, Boca Raton, FL September 2014.
4. “Comparative analysis of omega-3 fish oil supplements” 128th AOAC Annual Meeting & Exposition, Boca Raton, FL September 2014.
5. “Quantitative FTIR analysis of paraben in finished dosage pharmaceuticals” 246th American Chemical Society National Meeting, Indianapolis, IN September 2013.
6. “Self-selecting proteins for optimally stable architectures” 22nd American Peptide Symposium, San Diego, CA June 2011.
7. “Isolation of most stable protein from self-selecting secondary structure elements” University of Vermont Student Research Conference, Burlington, VT April 2011.
8. “Self-selecting proteins for optimally stable architectures” 241st American Chemical Society National Meeting, Anaheim, CA March 2011.
9. “Protein design by dynamic combinatorial chemistry” University of Vermont Student Research Conference, Burlington, VT April 2010.
10. “Selecting optimally stable proteins by dynamic combinatorial chemistry” 239th American Chemical Society National Meeting, San Francisco, CA March 2010.

Ad Hoc Reviews for Journals

1. Journal of Chromatographic Science
2. Chromatographia

Brian T. Schaneberg, Ph.D.

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EDUCATION

Ph.D. in Organic Chemistry - August, 2000
Virginia Commonwealth University, Richmond, Virginia
Dissertation - Dihydroagarofuran Sesquiterpene Alkaloids from *Maytenus putterlickoides*, and the Modification of the Maytansinoid Diene Moiety.

Bachelor of Arts - May, 1995
Central College, Pella, Iowa
Major - Chemistry, Minor - Biology

WORK EXPERIENCE

Starbucks Company 2013 to present
Director of Regulatory & Scientific Affairs 2013 to present

- Manage regulatory team.
- Advise the business on regulations and science in relation to products, claims, labels, etc.
- Represent Starbucks Company and increase company visibility as subject matter experts through trade groups, committees, conferences, etc.
- Develop a global regulatory framework for the company.
- Connect cross functional teams.

Mars Botanical, Germantown, Maryland 2009 to 2013
Quality & Food Safety/Scientific & Regulatory Affairs Director 2010 to 2013
Analytical & Regulatory Manager 2010
Analytical Manager 2009

- Keep up to date on industry and regulatory changes and keep the Mars Botanical Leadership Team informed.
- Coordinate FDA regulatory review of labels and marketing pieces.
- Ensure Dietary Supplement GMPs are implemented and up-to-date.
- Maintain substantiation documentation for product claims.
- Represent the Mars Symbioscience Segment on the Global Quality & Food Safety and the Scientific & Regulatory Affairs Leadership Teams.
- Collaborations with FDA, NCNPR, AOAC, USP, AHPA, ABC, and industry leaders is common.
- Elected to the Council for Responsible Nutrition Board of Directors and sits on the National Advertising Division CRN committee.
- AOAC Working Group Chair for flavonoid analytical testing methods.
- Currently manages 2 associates.

ChromaDex. Inc., Boulder, Colorado 2004 to 2009
Director of Technical Services 2005 to 2009
Interim Manager of Isolation Services 2006 to 2009

Interim Manager of Analytical Services 2005
Senior Analytical Chemist 2004 to 2005

- Developed the quality system for the chemical and botanical reference standards.
- Negotiated vendor contracts for catalog supply and develop consignment contracts for natural product libraries.
- Reviewed and approved all technical data pertaining to marketing, such as brochures, technical literature and website information.
- Planned and coordinated seminars, shows, educational programs, and publications.
- Consulted with customers and clients while coordinating projects for the analytical and isolation departments.
- Collaborated with FDA, NIH, ODS, NCCAM, NCNPR, AOAC, USP, AHPA, ABC, AHP, and industry leaders is common.
- Extensive knowledge in natural products, including Stevia, Hoodia, Tea, and many more.
- Managed up to 15 scientists across three groups.
- Served as scientific expert witness in a class-action lawsuit.

Adjunct Faculty Member, University of Colorado Denver 2005 to 2008
Masters Research Advisor 2005 to 2008

National Center for Natural Products Research 2001 to 2003
University of Mississippi, Associate Research Scientist Nov. 2002 to 2003
University of Mississippi, Post-Doctoral Research Associate Jan. 2001 to Nov. 2002

- Analytical group leader responsible for method development of a wide range of botanical products.
- Developed methods to assess the quality and safety of botanical dietary supplements and herbals in support of FDA, NIH, USDA, AOAC and industry sponsored research projects.
- Routine technical reviewer of journal articles prior to submission for publication.

Loudon County School District Fall 2000
Substitute Teacher, Loudon County, Virginia

RESEARCH EXPERIENCE

Mars Botanical, Germantown, Maryland 2009 to 2013

Coordinate the analytical group and the procedures for product safety and quality as well as in support of product development. Ensure the methods are fit for purpose and meet the dietary supplement GMP valid testing guidelines. Established ways for working around regulatory approval of labeling and advertising content. Advised on Food and Dietary Supplement regulations while regularly watching the regulatory landscape around the globe in support of the Mars Botanical products.

- Council for Responsible Nutrition Board of Directors
- AOAC Industry Stakeholder Panel member and Working Group Chair for flavonoid analytical methodologies.
- Prepared substantiation documents and coordinated safety documentation. Served as a reviewer for scientific journals (JAOAC, and J of Chrom A).

ChromaDex Analytics, Boulder, Colorado 2004 to 2009

Developed analytical methods to assess the safety and quality of botanical dietary supplements while leading analytical support for the isolation division. Samples ranged from raw plant material, to extracts, to finished products. Coordinated R&D projects in isolation services.

- Serve as a reviewer for scientific journals (Planta Medica, JAOAC, Journal of Separation Science, Journal of Chromatography, Chromatographia).

National Center for Natural Products Research, University, Mississippi 2001 to 2003

Developed analytical methods to assess the safety and quality of botanical dietary supplements. Areas of focus were *Ephedra* (species fingerprinting and ephedrine alkaloid analysis), *Aristolochia* and *Asarum* (species and population studies of aristolochic acid content), St. John's Wort (SLV for AOAC official methods), *Senecio* and *Symphytum* (pyrrolizidine alkaloid analysis with ELSD), Viagra (independent analysis of herbal products illegally adulterated), *Coleus forskohlii* (quality analysis of market products), Ginkgo (batch to batch consistency studies), *Centella asiatica* (quality analysis of market products), lemon grass (method developed for analysis of volatiles), *Echinacea* (plant propagation analysis), Goldenseal (plant propagation analysis), purity studies of isolated compounds for standardization purposes and analysis of catfish pond water for the USDA.

- Prepared summary reports for funding agencies, proofed manuscripts and grants, aided in grant writing. Served as a reviewer for scientific journals (Planta Medica, JAOAC, and J of Chrom B).

Virginia Commonwealth University, Richmond, Virginia 1995-2000
Graduate Research Assistant

Developed synthetic methods including the modification of the diene moiety of maytansine and its homologues to improve their water solubility and decrease their toxicity for better drug delivery as well as the structural activity requirement of the diene moiety. Research also involved the isolation and elucidation of bioactive dihydroagarofuran sesquiterpene alkaloids from *Maytenus putterlickoides* by chromatographic and spectroscopic techniques. This research relied heavily on NMR.

- Published two journal articles and thirteen presentations of research results at international, national, regional, and local meetings.
- Advised undergraduates doing independent studies in the laboratory.

1995-1998 **Nuclear Magnetic Resonance Spectrometer Technician** – Main troubleshooter and technician for departmental 300 MHz GE Nuclear Magnetic Resonance Spectrometer.

1995-1998 **Teaching Assistant** - Instructor of Qualitative Organic Chemistry and Organic Chemistry Labs, and instructor of General Chemistry Recitation. Responsible for lectures, quizzes, and final grades for the students. Served as a substitute lecturer for General Chemistry.

Summer 1994 **Research Assistant Intern** - Isolation and structural elucidation of natural products (acetogenins) by chromatographic and spectroscopic techniques.
• Resulted in the publication of one journal article.

Achievements & Awards

Distinguished Scholar, 1991 - 1995
Teaching Assistantship, 1995 - 1997
Department of Chemistry Teaching Assistantship Award, 1998
Mary Kapp Research Assistantship, 1998 - 1999
University Graduate Fellowship, 1999 - 2000
Mary Kapp Service Award, 2000
Phi Kappa Phi National Honor Society Induction, 2000
Cambridge Who's Who, 2007

Leadership

Virginia Commonwealth University, Richmond, Virginia

1999-2000 **President of the Graduate Student Association at VCU**

- Developed a proposal to implement the Graduate Student Association as a governing body at VCU by working on the Student Affairs portion of the Strategic Plan for the Graduate School at VCU.
- Created a Constitution and By-Laws in which a legislative body will be formed to oversee the concerns of the graduate students.
- Served on the Priority Committee for the Institutional Review Board.
- Served on the University Council, the Graduate Council, the Graduate Dean's Advisory Committee, and the Board of Visitors.
- Appointed representatives to campus wide committees.

1998-1999 **Vice-President and Treasurer of the Graduate Student Association at VCU**

- Served on the Graduate Academic Committee, and the Office of Information and Technology Strategic Planning Committee.
- Maintained and developed the yearly budget (20K).

Laboratory Skills

Analytical Techniques – Working knowledge of various chromatographic and spectroscopic techniques (HPLC with PDA or ELS detectors, LC/MS, GC/FID, GC/MS, NMR, Karl Fisher, liquid-liquid extraction, SPE and SFE).
Synthetic Techniques - Structural modification techniques (hydrogenation, oxidation, acetylation, hydrogenolysis, hydroxylation, and reduction reactions).
Biological Techniques - Bioactivity analysis utilizing the Brine Shrimp Lethality Bioassay.
ComputerSkills -Waters Millennium, HP ChemStation, Microsoft Office, Chemdraw, Internet

Central College, Pella, Iowa

1994, 1995 **Captain of the Men's Tennis Team**
1994 **Student Assistant Coach of the Women's Volleyball Team**
1993, 1994 **Fellowship of Christian Athletes Leader**

Professional Organizations, Training, Panels

American Chemical Society (1996 - 2007)
American Society of Pharmacognosy (1997 - Present)
Phi Kappa Phi National Honors Society (2000 - Present)
Association of Analytical Chemists, International (AOAC, 2003 - Present)
SLV of Analytical Methods for Dietary Supplements (September, 2003)
Horwitz Advisor for AOAC (2004)
International Society for Horticultural Sciences (2005 - 2006)
Society for Medicinal Plant Research (GA) (2006 - 2007)
NIH NCCAM Grant Review Panel (2006)
Expert Review Panel AOAC – St. John's Wort (2004, 2013)
Lutein/Zeaxanthin (2006)
Milk Thistle and Cranberry (2009)
Turmeric and Yohimbine (2010)
AHPA cGMP Working Group – (2007)
National Toxicology Program Review Panel (2008)
Natural Health Product Research Society of Canada (2009 – 2013)
CRN Government Relations Committee (2010 – 2013)
CRN Board of Director (2012 – 2013)
AOAC Stakeholder Panel on Strategic Food Analytical Methods (2011 – Present)
Chair of Flavonoid Working Group Committee (2011 – Present)
Scientific Advisory Group Member of NCA (2013 – Present)
AOAC Assist. Chair Stakeholder Panel on Dietary Supplements (2014 – Present)
ILSI Caffeine Committee (2015 – Present)

Publications

1. Machonis, P.R.; Jones, M.A.; **Schaneberg, B.T.**; Kwik-Uribe, C. "Method for the Determination of Catechin and Epicatechin Enantiomers in Cocoa-Based Ingredients and Products by Liquid Chromatography: Single-Laboratory Validation"*Journal of AOAC International* **2012**, 95(2), 500.
2. Ma, G.; Bavadekar, S.A.; **Schaneberg, B.T.**; Khan, I.A.; Feller, D.R."Effects of Synephrine and beta-Phenethylamine on Human alpha-Adrenoceptor Subtypes," *Planta Medica* **2010**, *76*(10), 981.
3. Sorenson, W.R. and Sullivan, D. (Collaborators: Cain, T.; Chang, E.; Del Grosso, A.; Goodridge, R.; Kou, X.; La Luzerne, P.; Landreth, B.; LeVansler, K.; Neal-Kababick, J.; Paradis, B.; **Schaneberg, B.**; Shevchuk, C. "Determination of Aristolochic Acid I in Botanicals and Dietary Supplements Potentially Contaminated with Aristolochic Acid I Using LC-UV with Confirmation by LC/MS: Collaborative Study," *Journal of AOAC International* **2007**, *90*(4), 925.
4. Rimmer, C.A.; Howerton, S.B.; Sharpless, K.E.; Sander, L.C.; Long, S.E.; Murphy, K.E.; Porter, B.J.; Putzback, K.; Rearick, M.S.; Wise, S.A.; Wood, L.J.; Zeisler, R.; Hancock, D.K.; Yen, J.H.; Betz, J.M.; Nguyenpho, A.; Yang, L.; Scriver, C.; Willie, S.; Sturgeon, R.; **Schaneberg, B.**; Nelson, C.; Skamarack, J.; Pan, M.; Levanseler, K.; Gray, D.; Waysek, E.H.; Blatter, A.; Reich, E. "Characterization of a Suite of Gingko-Containing Standard Reference Materials," *Analysis of Bioanalytical Chemistry* **2007**, *389*(1), 179.
5. Ma, G.; Bavadekar, S.A.; David, Y.; Lalchandani, S.G.; Rangaswamy, N.; **Schaneberg, B.T.**; Khan, I.A.; Feller, D.R. "Pharmacological Effects of Ephedrine Alkaloids on Human α_1- and α_2- Adrenergic Receptor Subtypes," *Journal of Pharmacology and Experimental Therapeutics* **2007**, *322*(1), 214.

6. Applequist, W.L.; Avula, B.; **Schaneberg, B.T.**; Wang, Y-H.; Khan, I.A. "Comparative Fatty Acid Content of Seeds of Four *Curcubita* Species Grown in a Common (Shared) Garden," *Journal of Food Comp. and Analysis* **2006**, *19*, 606.
7. Bharathi, A.; Wang, Y-H.; Pawar, R.S.; Shukla, Y.J.; **Schaneberg, B.T.**; Khan, I.A. "Determination of the Appetite Suppressant P57 in *Hoodia gordonii* Plant Extracts and Dietary Supplements by Liquid Chromatography/Electrospray Ionization Mass Spectrometry (LC-MSD-TOF) and LC-UV Methods," *JAOAC* **2006**, *89*(3), 606.
8. **Schaneberg, B.T.**; Baugh, S.; Hoekstra, B. "The Science of Analyzing Tea," *Specialty Tea is Hot Report* **2006**, *6*, 173.
9. Kobaisy, M.; Tellez, M.R.; **Schaneberg, B.T.**; Khan, I.A. "Essential Oil Composition of Three Italian Species of *Ephedra*," *Journal of Essential Oils* **2005**, *17*(5), 542.
10. Crockett, S.L.; **Schaneberg, B.T.**; Khan, I.A. "Phytochemical Profiling of New and Old World *Hypericum* (St. John's Wort) Species," *Phytochemical Analysis* **2005**, *16*(6), 479.
11. Wei, F.; Cheng, K.L.; Ma, L.Y.; Jin, W.T.; **Schaneberg, B.T.**; Khan, I.A.; Lin, R.C. "Analysis of Aristolochic Acids and Analogues in Medicinal Plants and Their Commercial Products by HPLC-PAD-ESI/MS," *Phytochemical Analysis* **2005**, *16*(3), 222.
12. **Schaneberg, B.T.**; Khan, I.A. "Quantitative and Qualitative HPLC Analysis of Thermogenic Weight Loss Products," *De Pharmazie* **2004**, *59*(11), 819.
13. Schrader, K.K.; Foran, C.M.; Holmes, B.D.; Schlenk, D.K.; Nanayakkara, N.P.D.; **Schaneberg, B.T.** "Toxicological Evaluation of Two Anthraquinone-Based Cyanobactericides to Channel Catfish," *North American Journal of Aquaculture* **2004**, *66*, 119.
14. **Schaneberg, B.T.**; Khan, I.A. "Analysis of Products Suspected of Containing *Aristolochia* and *Asarum* Species," *Journal of Ethnopharmacology* **2004**, *94*, 245.
15. **Schaneberg, B.T.**; Molyneux, R.J.; Khan, I.A. "Evaporative Light Scattering Detection of Pyrrolizidine Alkaloids," *Phytochemical Analysis* **2004**, *15*, 36.
16. Tellez, M.R.; Khan, I.A.; **Schaneberg, B.T.**; Crockett, S.L.; Rimando, A.M.; Kobaisy, M. "Steam Distillation-Solid Phase Micro Extraction (SD-SPME) for the Identification of the Presence of *Ephedra sinica* in Herbal Preparations," *Journal of Chromatography A* **2004**, *1025*, 51.
17. Mikell, J.M.; **Schaneberg, B.T.**; Khan, I.A. "Isolation and Purification of Kava Lactones by High Performance Centrifugal Partition Chromatography," *Journal of Liquid Chromatography and Related Technologies* **2003**, *26*(18), 3069.
18. Schrader, K.K.; Nanayakkara, N.P.D.; Tucker, C.S.; Rimando, A.M.; Ganzera, M.; **Schaneberg, B.T.** "Novel Derivatives of 9,10-Anthraquinone are Selective Algicides Against the Musty-Odor Cyanobacterium *Oscillatoria perornata*," *Applied and Environmental Microbiology* **2003**, *69*(9), 5319.
19. Garrett, K.M.; Basmadjian, G.; Khan, I.A., **Schaneberg, B.T.**; Seale, T.W. "Extracts of Kava (*Piper methysticum*) Induce Acute Anxiolytic-Like Behavioral Changes in Mice," *Psychopharmacology* **2003**, *170*, 33.
20. Lata, H.; Andrade, Z.D.; **Schaneberg, B.**; Bedir, E.; Khan, I.; Moraes, R.M. "Arbuscular Mycorrhizal Inoculation Enhances Survival Rates and Growth of Micropropagated Plnatlets of *Echinacea pallida*," *Planta Medica* **2003**, *69*(7), 679.
21. **Schaneberg, B.T.** and Khan, I.A. "Qualitative Analysis of Forskolin in *Coleus forskohlii* (Lamiaceae) by Reverse Phase High Performance Liquid Chromatography," *JAOAC* **2003**, *86*(3), 467.
22. **Schaneberg, B.**; Mikel, J.; Bedir, E.; Khan, I. "An Improved HPLC Method for the Quantitative Determination of Six Triterpenes in *Centella asiatica* extracts and Commercial Products," *De Pharmazie* **2003**, *58*(6), 381.

23. Bedir, E.; Lata, H.; **Schaneberg, B.**; Khan, I.; Moraes, R. "Micropropagation of *Hydrastis canadensis*: Goldenseal a North American Endangered Species," *Plant Medica* **2003**, *69*(1), 86.
24. **Schaneberg, B.T.**; Crockett, S.; Bedir, E.; Khan, I.A. "The role of chemical fingerprinting: application to *Ephedra*," *Phytochemistry* **2003**, *62*(6), 911.
25. **Schaneberg, B.T.**; Applequist, W.L.; Khan, I.A. "The Qualitative Analysis of *Asarum* and *Aristolochia* Species for Aristolochic Acid I and II by HPLC," *De Pharmazie* **2002**, *57*(10), 686.
26. **Schaneberg, B.T.** and Khan, I.A. "Comparison of Extraction Methods for Marker Compounds in the Essential Oil of Lemon Grass by GC," *Journal of Agricultural and Food Chemistry* **2002**, *50*, 1345.
27. **Schaneberg, B.T.**; Green, D.K.; Sneden, A.T. "Dihydroagarofuran Sesquiterpene Alkaloids from *Maytenus putterlickoides*," *Journal of Natural Products* **2001**, *64*(5), 624.
28. Larson, G.M.; **Schaneberg, B.T.**; Sneden, A.T. "Two New Maytansinoids from *Maytenus buchananii*," *Journal of Natural Products* **1999**, *62*, 361.
29. Barnes, J.N.; **Schaneberg, B.T.**; Sneden, A.T. "Bistetrahydrofuranoid Acetogenins from *Rollinia sericea*," *Planta Medica* **1995**, *61*, 486.

Conference Submissions and Talks

1. "From Tree to Cup, the Journey of a Coffee Bean," **Brian Schaneberg**, 15th Annual Oxford International Conference on the Science of Botanicals, Oxford, MS, April 13-16, 2015.
2. "Coffee & Health: The Third Act," **Brian Schaneberg**, Mark Corey, Alan Leviton, Panelist, National Coffee Association Annual Convention 2015, Charleston, SC, March 13-14, 2015.
3. "The Growing Challenges Registering Product for a Global Roll Out," **Brian T. Schaneberg**, Sid Jhaveri, Anthony Pavel, Joshua Kim, James La Marta, Panelist, IFT Annual Meeting 2014, New Orleans, LA, June 21-24, 2014.
4. "Regulatory Updates on Coffee: Prop 65, FSMA and the FDA," **Brian T. Schaneberg**, Anthony Pavel, Oral, Specialty Coffee Association of America Annual Expo & Symposium, Seattle, WA, April 23-27, 2014.
5. "Method for the Determination of Catechin and Epicatechin Enantiomers in Cocoa-Based Ingredients and Products by Liquid Chromatography: Single-Laboratory Validation," Phil R. Machonis, Matt A. Jones, **Brian T. Schaneberg**, Poster, 125th AOAC International Annual Meeting & Exposition, New Orleans, NO, September 18-21, 2011.
6. "Science Behind Nutraceuticals: Compounds and Bioactives," **Brian T. Schaneberg**, Oral, IFT Online Course, September 17, 2010.
7. "Botanical Phytonutrients & Supply Chain Management," **Brian T. Schaneberg**, Oral, IFT Annual Meeting and Food Expo, Chicago, IL, July 17-20, 2010.
8. "From Confectionary to Cardiovascular Health," **Brian T. Schaneberg**, Oral, 7th Natural Health Products Research Society of Canada Conference, Halifax, Canada, May 23-26, 2010.
9. "Phytochemicals and Nutraceticals," **Brian T. Schaneberg**, Oral, US Pet R&D Competence Week, Franklin, TN, May 10-14, 2010.
10. "Analytical Methodologies for Cocoa Flavanols," **Brian T. Schaneberg**, Oral, International Conference and Exhibition on Nutraceuticals and Functional Foods, San Francisco, CA, October 31-November 4, 2009.
11. "Botanical Quality – A Case Study in Cocoa," **Brian T. Schaneberg**, Oral, USP Annual Scientific Meeting, Toronto, Canada, September 22-25, 2009.

12. "An Optimized Method for the Determination of Catechin and Epicatechin Enantiomers," Philip Machonis, Mollie Grover, Curtis Lawrence, Matt Jones, **Brian Schaneberg**, Poster, 123rd AOAC International Annual Meeting & Exposition, Philadelphia, PA, September 13-16, 2009.
13. "Challenges in Flavanol Analysis of Model Food Systems," Mollie Grover, Matt Jones, **Brian Schaneberg**, Poster, 123rd AOAC International Annual Meeting & Exposition, Philadelphia, PA, September 13-16, 2009.
14. "Reference Material Characterization and the Quality of Your Product," **Brian T. Schaneberg**, Oral, 99th AOCS Annual Meeting & Expo, Seattle, WA, May 18-21, 2008.
15. "An Improved HPLC Method for the Analysis of Tea Constituents," **Brian T. Schaneberg**, Oral, 5th Annual Natural Health Products Research Society of Canada Conference and Tradeshow, Toronto, Canada, March 26-29, 2008.
16. "Botanical Product Quality by HPLC Methods of Analysis," **Brian T. Schaneberg**, Oral, 121st AOAC International Annual Meeting & Exposition, Anaheim, CA, September 16-20, 2007.
17. "Simultaneous Determination of Xanthines, Catechins, and Theaflavins, in Tea Extracts and Beverages by HPLC," Brant Hoekstra, Brad Thoempke, Steve Baugh, **Brian T. Schaneberg**, Poster, 121st AOAC International Annual Meeting & Exposition, Anaheim, CA, September 16-20, 2007.
18. "An Improved HPLC Method for the Analysis of Diterpenoid Glycosides in *Stevia rebaudiana*," Brant Hoekstra, **Brian T. Schaneberg**, Poster, 121st AOAC International Annual Meeting & Exposition, Anaheim, CA, September 16-20, 2007.
19. "An Improved HPLC/MS Method for the Analysis of Escins in Common Horse-Chestnut (*Aesculus hippocastanum*)," Peter A. Perrone, **Brian T. Schaneberg**, Oral, 55th International Congress & Annual Meeting of the Society for Medicinal Plant Research, Graz, Austria, EU, September 2-6, 2007.
20. "An Improved HPLC Method for the Analysis of Diterpenoid Glycosides in *Stevia rebaudiana*," Brant Hoekstra, **Brian T. Schaneberg**, Poster, 55th International Congress & Annual Meeting of the Society for Medicinal Plant Research, Graz, Austria, EU, September 2-6, 2007.
21. "Analytical Techniques for the Quality and Safety of Botanicals," **Brian T. Schaneberg**, Oral, 17th Annual Society of Biomedical Research, Restin, VA, August 10, 2007.
22. "An Improved HPLC/MS Method for the Analysis of Escins in Common Horse Chestnut (*Aesculus hippocastanum*)," Peter A. Perrone, **Brian T. Schaneberg**, Poster, 48th Annual Meeting of the American Society of Pharmacognosy, Portland, ME, July 14-18, 2007.
23. "The Basics of Analytical Testing for Tea," **Brian T. Schaneberg**, Oral, World Tea Expo, Atlanta, GA, June 9-11, 2007.
24. "Determination of the Appetite Suppressant P57 in *Hoodia gordonii* Plant Extracts and Dietary Supplements by Liquid Chromatography/Electrospray Ionization Mass Spectrometry (LC-MSD-TOF) and LC-UV Methods," Bharathi Avula, Yan-Hong Wang, Rahul Pawar, Yatin Shukla, **Brian T. Schaneberg**, and Ikhlas A. Khan, Poster, The 47th Meeting of the American Society of Pharmacognosy, Arlington, VA, August 5-August 9, 2006.
25. "Isolation and Purification of Oleanane Triterpene Saponins From *Aesculus hippocastanum*," Peter A. Perrone, Qingwen Zhang, and **Brian T. Schaneberg**, Poster, The 47th Meeting of the American Society of Pharmacognosy, Arlington, VA, August 5-August 9, 2006.
26. "A Short and Efficient Synthesis of N-Methyltyramine Found In *Citrus aurantium*," Chongming Wu, Geewananda Gunawardana, **Brian T. Schaneberg**, James McChesney, Poster, 47th Annual Meeting of the American Society of Pharmacognosy, Arlington, VA, Aug. 5-9, 2006.

27. "Phytochemical Investigation of *Hoodia gordonii*, a South African Succulent Plant with Anorectic Activity," Yatin Shukla, **Brian Schaneberg**, Rahul Pawar, Bharathi Avula, and Ikhlas Khan, Poster, International Conference Quality and Safety Issues Related to Botanicals, Oxford, MS, August 15-18, 2005.
28. "Herbal Products from the Internet: Evaluation of Nephrotoxicity and Aristolochic Acid Content," Premalatha Balachandran, **Brian Schaneberg**, Ikhlas Khan, and David Pasco, Poster, 2004 International Congress on Natural Products Research, Phoenix, AZ, July 31-August 4, 2004.
29. "Single Lab Validation for the Determination of Components in St. John's Wort Raw and Finished Products by High Performance Liquid Chromatography with Photodiode Array Detection," **Brian Schaneberg**, Bharathi Avula, and Ikhlas Khan, Poster, 2004 International Congress on Natural Products Research, Phoenix, AZ, July 31-August 4, 2004.
30. "St. John's Wort Single Lab Validation," **Brian T. Schaneberg**, Oral, Supply Side East, Baltimore, MD, May 5, 2004.
31. "Analytical Testing of Dietary Supplements and Herbals," **Brian T. Schaneberg**, Oral, ChromaDex, Inc. Boulder, CO, November, 2003.
32. "Quantitative and Qualitative HPLC Analysis of Thermogenic Weight Loss Products," **Brian T. Schaneberg**, and Ikhlas A. Khan, Poster, 117th AOAC Int. Annual Meeting and Expo., Atlanta, GA, Sept. 14-18, 2003.
33. "Consistency/Variability Studies in Batches of 13 *Ginkgo biloba* Products by HPLC," **Brian T. Schaneberg**, Guoyi Ma, Erdal Bedir, Shabana Khan, Peter Goldman, Ikhlas A. Khan, Poster, 117th AOAC Int. Annual Meeting and Expo., Atlanta, GA, Sept. 14-18, 2003.
34. "Analysis of Products Suspected of Containing *Aristolochia* and *Asarum* Nephrotoxicity," **Brian T. Schaneberg**, Premalatha Balachandran, David Pasco, Ikhlas A. Khan, Poster, 117th AOAC Int. Annual Meeting and Expo., Atlanta, GA, Sept. 14-18, 2003.
35. "HPLC Chemical Profiling of Species Known or Suspected of Containing Aristolochic Acid: *Aristolochia*, *Asarum* Etc.," **Brian T. Schaneberg**, Premalatha Balachandran, David Pasco, Ikhlas A. Khan, Poster, 117th AOAC Int. Annual Meeting and Expo., Atlanta, GA, Sept. 14-18, 2003.
36. "Essential Oil Composition of Three Italian Species of *Ephedra*," Mozaina Kobaisy, Mario R. Tellez, Ikhlas A. Khan, **Brian T. Schaneberg**, Poster, 226th ACS National Meeting, New York City, NY, Sept. 7-11, 2003.
37. "Herbal Sexual Enhancers, Not So Herbal!," **Brian T. Schaneberg**, Markus Ganzera, Shabana Khan, Ikhlas A. Khan, Poster, 44th Annual Meeting of the American Society of Pharmacognosy, Chapel Hill, NC, July 13-16, 2003.
38. "Isolation and Purification of Kava Lactones by High Performance Centrifugal Partition Chromatography," Julie R. Mikell, **Brian T. Schaneberg**, Ikhlas A. Khan, Poster, 44th Annual Meeting of the American Society of Pharmacognosy, Chapel Hill, NC, July 13-16, 2003.
39. "Phytochemical Profiling of New and Old World *Hypericum* L. (Clusiaceae) Species," Sara L. Crockett, **Brian Schaneberg**, Ikhlas A. Khan, Poster, 44th Annual Meeting of the American Society of Pharmacognosy, Chapel Hill, NC, July 13-16, 2003.
40. "Lypophilic Constituents From *Ephedra sinica*," Erdal Bedir, **Brian Schaneberg**, Ikhlas Khan, Poster, 44th Annual Meeting of the American Society of Pharmacognosy, Chapel Hill, NC, July 13-16, 2003.
41. "HPLC Fingerprinting of *Ephedra* Species," **Brian T. Schaneberg**, Sara Crockett, Erdal Bedir, and Ikhlas A. Khan, Poster, 43rd Annual Meeting of the American Society of

Pharmacognosy and 3rd Monroe Wall Symposium, New Brunswick, NJ, July 27-31, 2002, Abstr. No. 7.

42. "Evaporative Light Scattering Detection of Pyrrolizidine Alkaloids and Some Corresponding *N*-Oxides," **Brian T. Schaneberg**, Russell J. Molyneux, and Ikhlas A. Khan, Poster, 43rd Annual Meeting of the American Society of Pharmacognosy and 3rd Monroe Wall Symposium, New Brunswick, NJ, July 27-31, 2002, Abstr. No. 8.
43. "Quantitative Analysis of Forskolin in *Coleus forskohlii* (Lamiaceae) by RP High Performance Liquid Chromatography," **Brian T. Schaneberg** and Ikhlas A. Khan, Poster, 43rd Annual Meeting of the American Society of Pharmacognosy and 3rd Monroe Wall Symposium, New Brunswick, NJ, July 27-31, 2002, Abstr. No. 6.
44. "Analysis of North American *Ephedra* Species for the Presence of Ephedrine Alkaloids," **Brian Schaneberg**, Martha Gay, Sara Crockett, Steven Musser, and Ikhlas Khan, Poster, 2nd Interim Meeting of the American Society of Pharmacognosy, Asilomar, CA, November 8-11, 2001.
45. "The Qualitative Analysis of *Asarum* and *Aristolochia* Species for Aristolochic Acid I and II by HPLC," **Brian T. Schaneberg**, Wendy, L. Applequist, and Ikhlas, A. Khan, Poster, 2nd Interim Meeting of the American Society of Pharmacognosy, Asilomar, CA, November 8-11, 2001.
46. "An Improved HPLC Method for Quantitative and Qualitative Determination of Six Triterpenes in Gotu Kola," **Brian T. Schaneberg**, Julie R. Mikell, Erdal Bedir, and Ikhlas A. Khan, Poster, 2nd Interim Meeting of the American Society of Pharmacognosy, Asilomar, CA, November 8-11, 2001.
47. "A Comparison of Extraction Methods for Marker Compounds in the Essential Oil of Lemon Grass by GC," **Brian T. Schaneberg** and Ikhlas A. Khan, Poster, 2nd Interim Meeting of the American Society of Pharmacognosy, Asilomar, CA, November 8-11, 2001.
48. "Evaluation of Genetic and Phytochemical Diversity Within and Among American Ginseng (*Panax quinquefolius*) Populations," Jennifer Cruse-Sanders, Sara Crockett, **Brian Schaneberg**, and Ikhlas Khan, Poster, 2nd Interim Meeting of the American Society of Pharmacognosy, Asilomar, CA, November 8-11, 2001.
49. "Genetic and Phytochemical Differentiation of Various Species of *Hypericum*," Sara Crockett, **Brian Schaneberg**, Andy Douglas, Sula Vanderplank, and Ikhlas Khan, Poster, 2nd Interim Meeting of the American Society of Pharmacognosy, Asilomar, CA, November 8-11, 2001.
50. "Modification of the Maytansinoid Diene Moiety," **Brian T. Schaneberg** and Albert T. Sneden, Oral, 28th Annual MALTO Medicinal Chemistry-Pharmacognosy Meeting-in-Miniature, University, Mississippi, May 20-22, 2001.
51. "Dihydroagarofuran Sesquiterpene Alkaloids from *Maytenus putterlickoides*," **Brian T. Schaneberg**, David K. Green, and Albert T. Sneden, Poster, 220th National Meeting of the American Chemical Society, Washington, DC, August 20-24, 2000, Division of Organic Chemistry.
52. "Dihydroagarofuran Sesquiterpene Alkaloids from *Maytenus putterickoides*," **Brian T. Schaneberg**, David K. Green, and Albert T. Sneden, Poster, 41th American Society of Pharmacognosy Meeting, Seattle, Washington, July 22-26, 2000.
53. "Dihydroagarofuran Sesquiterpene Alkaloids from *Maytenus putterlickoides*, and the Modification of the Maytansinoid Diene Moiety," **Brian T. Schaneberg**, Oral, Seminar at the National Cancer Institute at Fort Detrick, Frederick, Maryland, July 6, 2000.
54. "Modification of the Diene Moiety of Maytansine and its Homologues," **Brian T. Schaneberg** and Albert T. Sneden, 3rd Annual Graduate Research Symposium & Exhibit, Richmond, Virginia, April 14, 2000.

55. "Modification of the Diene Moiety of Maytansine and its Homologues," **Brian T. Schaneberg** and Albert T. Sneden, 218th National Meeting of the American Chemical Society, New Orleans, Louisiana, August 22-26, 1999, Division of Organic Chemistry, Abstr. No. 161.
56. "Modification of the Diene System of Maytansinoids," **Brian T. Schaneberg** and Albert T. Sneden, The 2nd Annual Graduate Research Symposium & Exhibit, Richmond, Virginia, April 9, 1999.
57. "Modification of the Diene System of Maytansinoids," **Brian T. Schaneberg** and Albert T. Sneden, Oral, 50th Southeast Regional Meeting of the American Chemical Society, Research Triangle Park, North Carolina, November 4-7, 1998, Abstr. No. 398.
58. "Modification of the Diene System of Maytansinoids," **Brian T. Schaneberg** and Albert T. Sneden, 15th Daniel T. Watts Student Research Symposium, Richmond, Virginia, October 20-22, 1998.
59. "Modification of the Diene System of Maytansinoids," **Brian T. Schaneberg** and Albert T. Sneden, 39th American Society of Pharmacognosy Meeting, Orlando, Florida, July 19-24, 1998, Abstr. No. P-122.
60. "Chemical and Phytochemical Investigation of Principles of *Maytenus putterlickoides*," **Brian T. Schaneberg** and Albert T. Sneden, 1st Annual Graduate Research Symposium & Exhibit, Richmond, Virginia, April 17, 1998.
61. "Chemical and Phytochemical Investigation of Principles of *Maytenus putterlickoides*," **Brian T. Schaneberg** and Albert T. Sneden, 14th Daniel T. Watts Student Research Symposium, Richmond, Virginia, October 21-23,1997.
62. "Chemical and Phytochemical Investigation of Principles of *Maytenus putterlickoides*," **Brian T. Schaneberg** and Albert T. Sneden, 49th Southeast Regional Meeting of the American Chemical Society, Roanoke, Virginia, October 19-22, 1997, Abstr. No. 365.
63. "Constituents of *Rollinia sericea* (Annonaceae)," Albert T. Sneden, James N. Barnes, Barbara L. Gilbride, and **Brian T. Schaneberg**, 46th Southeast Regional Meeting of the American Chemical Society, Birmingham, Alabama, October 16-19, 1994, Abstr. No. 365.

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CURRICULUM VITAE

HIGHLIGHTS OF QUALIFICATION

- 30+ years of experience in development, validation, troubleshooting and documentation of analytical methods
- 25+ years experience in laboratory management
- Broad based background in instrumental and wet analytical techniques

PROFESSIONAL EXPERIENCE

GAAS Corporation
Tucson, Arizona

Founder, CEO and CSO **1995-present**

- Supervising and conducting the analysis of dietary supplements, botanicals, pharmaceuticals and food products, including raw materials and finished products
- Analytical method development and validation
- Consulting and training

ProlX Pharmaceuticals/Oncothyreon
Tucson, Arizona

Manager of Analytical Services **2007-2008**

- Developed and validated new assay methods according to cGLP regulations to quantify novel cancer drugs in plasma and urine using QQQ LC/MS technique
- Identified metabolites of new cancer drugs in plasma and urine using TOF LC/MS technique
- Calculated pharmacokinetic parameters

Department of Pharmacology and Toxicology/Department of Pharmacology
College of Pharmacy/College of Medicine, University of Arizona
Tucson, Arizona

Director of Analytical Core, Arizona Center for Phytomedicine Research **1999-2006**
Project coordinator for NIEHS N01-ES-45529 (Chemical Disposition in Mammals) **2004-2006**
Associate Research Scientist **2001-2006**
Assistant Research Scientist **1994-1999**
Research Associate **1992-1994**

- Studied natural products
  - developed analytical procedures for the isolation, identification and quantification of the active

components in natural products (HPLC, HPLC-MS, HPLC-MS-MS)
  - developed bioactivity guided preparative separation methods for complex botanical mixtures
- Studied chemical disposition in mammals
  - developed analytical procedures for the separation, identification and quantification of the metabolites of different xenobiotics from blood, urine, hepatocyte media and microsomal suspension (HPLC, HPLC-MS, HPLC-MS-MS, GC-MS)
  - served as a technical liaison to the Analytical Core and the Synthetic Chemistry Core of the Southwest Environmental Health Sciences Center
  - contributed to the development and publication of reports and manuscripts
- Characterized promising anticancer compounds
  - developed methods for HPLC, HPLC-MS and HPLC-MS-MS to determine qualitative and quantitative composition of the synthesized organic compounds
  - developed methods for and measured Quantitative Structure Activity Relationship (QSAR) of new compounds
  - measured and evaluated MS, HPLC-MS and HPLC-MS-MS UV, VIS and IR spectra
  - measured and calculated pKa an logP
- Managed the analytical laboratory in compliance with GLP, GMP and FDA regulations
  - supervised laboratory personnel (students and employees)
  - planned budget
  - wrote SOP-s
  - maintained the database of analytical data

ANALTRON Applied Research Company
Budapest, Hungary **1989-1992**

Co-Founder and Director of Engineering

- Principal investigator of a photoacoustic (PAS) gas detector development project for trace gas analysis in ambient air
  - developed a new PAS sensor for trace gas detection
  - designed an analytical instrument based on the PAS sensor
- Lead the design and construction of the calibration system for photoacoustic spectroscopy through all its stages, from grant proposal to final report
- Successfully applied for Hungarian OTKA and OMFB grants (similar to NSF and SBIR grants, respectively) to fund the development of the instrument

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Central Research Institute for Physics of Hungarian Academy of Sciences
Budapest, Hungary

Research Scientist, Director of Analytical Laboratory **1986-1991**
Research Associate **1984-1986**
Research Assistant **1981-1984**

- Developed methods characterizing metallic glasses for:
  - atomic absorption spectroscopy (AAS)
  - graphite furnace atomic absorption spectroscopy (GF-AAS)
  - inductively coupled plasma emission (ICP)
  - nuclear magnetic resonance (NMR)
  - electron microscopy
  - X-ray fluorescence spectroscopy (XRF)
  - method optimization based on mathematical statistics
- Applied various chemical and physical techniques for qualitative and quantitative analysis of metallic glasses:
  - quantitative determination of main components
  - qualitative and quantitative determination of impurities
  - statistical analysis of the test results
- Managed the analytical and quality control laboratory supporting metallic glass development
  - supervised laboratory personnel
  - planned budget

OTHER WORK EXPERIENCE

Department of Chemistry, University of Arizona
Tucson, Arizona **1991 – 1992**

Visiting scientist

- Calibrated and improved the trace gas detection system based on photoacoustic spectroscopy developed by ANALTRON Applied Research Company

Laser Photoacoustic Laboratory, Agricultural University of Wageningen
Wageningen, The Netherlands **1990, 1991**

Visiting scientist

- Applied the photoacoustic system that was developed by ANALTRON Applied Research Company in agricultural, environmental and medical fields

Department of Chemistry, University of Oulu
Oulu, Finland **1986**

Visiting scientist

- Developed method for graphite furnace atomic absorption spectrometry (GFAA) to determine arsenic in geological samples

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Helsingin Kauppiaat Oy (HK)
Helsinki, Finland **1981**
Visiting scientist

- Analyzed beef and pork meat products and ready meats in the Quality Control Laboratory of HK, the fifth largest food manufacturer in Europe

EDUCATION

Technical University of Budapest, *Budapest, Hungary* **1981 - 1984**
Doctor of Philosophy of Analytical Chemistry
Dissertation: Application of Optical Spectroscopic Methods for the Analysis of Metallic Glasses

Technical University of Budapest, *Budapest, Hungary* **1979 - 1981**
Master of Sciences of Chemical Engineering
Thesis: Critical Investigation of Atomic Absorption Techniques for Mercury Determination

Technical University of Budapest, *Budapest, Hungary* **1976 - 1979**
Bachelor of Sciences of Chemical Engineering
Major: Organic Chemistry

ADDITIONAL INFORMATION

Publications: 44 professional publications in refereed periodicals and books
1 patent
49 conference posters and 9 conference lectures

Honors:

1981	Predoctoral Fellowship - Helsingin Kauppiaat Oy, Helsinki, Finland
1980	Recipient of the "PHARE" Travel Award
1990-1992	Recipient of the "Szechenyi Istvan" Research Scholarship for investigating photoacoustic effects in gases
2004	Member, Special Emphasis Review Panel – Botanical Research Centers (ZAT1-DB17), NIH-NCCAM/ODS
2001-2005	Voting member - Presidential Task Force on Dietary Supplements, AOAC
2004-2008	Horwitz Advisor, AOAC
2008-	Reviewer for The Journal of AOAC
2014-	Voting member of the Stakeholder Panel on Dietary Supplements, AOAC
2014-	Member of AOAC's Anthocyanins and Chondroitin Working Groups
2014-	Member of the Dietary Supplement Subcommittee of ALACC (Analytical Laboratory Accreditation Criteria Committee)

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Professional training, continuing education:

- Official Methods of Analysis Program: Collaborative Study of Chemicals and Methods (AOAC)
- Single Laboratory Validation of Analytical Methods for Dietary Supplement (AOAC)
- Agilent TOF LC/MS Techniques and Operation (Agilent Technologies)
- Agilent 6410 QQQ LC/MS Techniques and Operation (Agilent Technologies)
- Advanced LC/MSD-Trap Application (Agilent Technologies)
- Fundamentals of Mass Spectrometry and Interpretation of Mass Spectra (University of Arizona)
- Drug Metabolism and Disposition (University of Arizona)
- Optimizing Quality Control of Pharmaceuticals and Biopharmaceuticals (American Chemical Society)
- Combinatorial Chemistry I and II (Fahad Al-Obeidi, Selectide Co.)
- Engineering Statistics (University of Arizona)
- Introduction to Probability and Statistics (University of Arizona)
- Nucleic Acids (University of Arizona)

Other training:

- The University Leadership Institute – The Center for Professional Development
- Bloodborne Pathogens
- Protection Study Volunteers in Research
- IACUC Certifications: "Laws and Regulations", "Handling, Restraint and Techniques of Laboratory Rodents", "Introduction to the Animal Hazards Program" and "Zoonotic Diseases of Laboratory Rodents"
- Basic Radiation Protection Course

Memberships: American Chemical Society,
Division of Analytical Chemistry and Chromatography
Southern Arizona Section of ACS
Women's Chemistry Group
AOAC International
Technical Division on Reference Materials
Technical Division for Laboratory Management

Computer skills: LC and LC-MS software (ChemStation, Chrom Manager, MS Manager), ChemSketch, SigmaPlot, SigmaStat, Reference Manager, Microsoft Office (Word, Excel, PowerPoint), Mathlab, InDesign

Languages: Hungarian (native), Russian and Latin

Citizenship: Naturalized citizen

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LIST OF PUBLICATIONS

Peer reviewed publications

J. Q. Gu, **A. M. Sólyom**, V. P. Rodriguez, Y. Wang, S.G. Franzblau, G. Montenegro, B. N. Timmermann:
Dereplication of Pentacyclic Triterpenoids in Plants with Potential Antitubercular Activity by HPLC-PAD-APCI/MS/MS
Submitted to *Phytochemistry*

J.L. Funk, J.A. Frye, J.N. Oyarzo, P.R. Kiela, N. Kuscuoglu, J. Wilson, G. McCaffrey, G. Stafford, G.J. Chen, R.C. Lantz, S.D. Jolad, **A. M. Sólyom**, B.N. Timmermann:
Ancient Herbal Remedy Prevents Arthritis by Blocking Transcription Factor Activation
Submitted to *Journal of Clinical Investigations*

K.L. Prudic, K. Smriti, **A.M. Sólyom,** B.N. Timmermann:
Isolation, Identification and Quantification of Potential Defensive Compounds in the Viceroy Butterfly and its Larval Host Plant, *Carolina willow.*
J. Chem. Ecology, **33**, 1149-1159 (2007)

W.R. Sorensen, D. Sullivan: (Collaborators: S. Baugh, M. Collison, R. Das, A. Erickson, T. Harmon, S. Heathman, D. Ji, B. Khandelwal, A. Kohn, S. Morris, D. Norden, T. Peng, B. Post, E. Powers, K. Reif, G. Schulzki, C. Shevchuk, **A. M. Sólyom**):
Determination of Campesterol, Stigmasterol, and Beta-Sitosterol in Saw Palmetto Raw Materials and Dietary Supplements by Gas Chromatography: Collaborative Study.
J. of AOAC International, **90(3)**, 670-678 (2007)

D. Gray, K. LeVanseler, M. Pan, E. Waysek: (Collaborators: S. Baugh, A. Chandra, R. Meibos, T. Peng, R. Perez, K. Reif, M. Roman, J. Rousch, J. Skamarack, **A. M. Sólyom,** D. Sullivan, K. Young):
Evaluation of a Method to Determine Flavonol Aglycones in *Ginkgo biloba* Dietary Supplement Crude Materials and Finished Products by High –Performance Liquid Chromatography: Collaborative Study.
J. of AOAC International, **90(1)**, 43-53 (2007)

R.K. Kuester, **A. M. Sólyom**, V.P. Rodriguez, I.G. Sipes:
The Effect of Dose, Route, and Repeated Dosing on the Disposition and Kinetics of Tetrabromobisphenol A in Male F-344 Rats
Toxicological Sciences, **96(2)**, 237-45 (2007)

E. Pfeiffer, S.I. Hohle, S.G. Walch, A. Riess, **A. M. Sólyom**, M. Metzler:
Curcuminoids Form Reactive Glucuronides *in vitro*
Journal of Agricultural and Food Chemistry, **55(2)**, 538-544 (2007)

R. C. Lantz, G. J. Chen, M. Sarihan, **A. M. Sólyom**, S. D. Jolad, B. N. Timmermann:
The Effect of Extracts from Ginger Rhizome on Inflammatory Mediator Production
Phytomedicine, **14(2-3)**, 123-128 (2007)

S.I. Hohle, E. Pfeiffer, **A. M. Sólyom**, M. Metzler:
Metabolism of Curcuminoids in Tissue Slices and Subcellular Fractions from Rat Liver
Journal of Agricultural and Food Chemistry, **54(3)**, 756-764 (2006)

J.L. Funk, J.N. Oyarzo, J.A. Beischel, G.J. Chen, R.C. Lantz, S.D. Jolad, **A. M. Sólyom**, B.N. Timmermann:
Turmeric Extracts Containing Curcuminoids Prevent Experimental Rheumatoid Arthritis
Journal of Natural Products, **69(3)**, 351-355 (2006)

J.L. Funk, J.B. Frye, J.N. Oyarzo, N. Kuscuoglu, J. Wilson, G. McCaffrey, G. Stafford, G.J. Chen, R.C. Lantz, S.D. Jolad, **A. M. Sólyom**, P.R. Kiela, B.N. Timmermann:

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Efficacy and Mechanism of Action of Turmeric Supplements in the Treatment of Experimental Arthritis
Arthritis and Rheumatism, **54(11)**, 3452-3464 (2006)

H. Jiang, **A.M. Sólyom, B.N.** Timmermann, D.R. Gang:
Characterization of gingerol-related compounds in ginger rhizome (*Zingiber officinale* Rosc.) by high performance liquid chromatography/electrospray ionization mass spectrometry.
Rapid Communications in Mass Spectrometry, **19**, 2957-2964 (2005)

D. Z. Zhou, T. Waszkuc, F. Mohammed: (Collaborators: M. Blumhorst, R. Buren, R. Das, L. Huang, J. Jabusch, X. Kou, M. Nagarajan, H. Nguyen, K. Orellana, T. Peng, B. Podhola, C. Ray, K. Reif, C. Shevchuk, **A. M. Sólyom,** D. Sullivan, J. Wang, W. Wang, Q. Yang, Q. Zheng):
Determination of Glucosamine in Raw Materials and Dietary Supplements Containing Glucosamine Sulfate and/or Glucosamine Hydrochloride by High-Performance Liquid Chromatography with FMOC-Su Derivatization: Collaborative Study.
J. of AOAC International, **88(4)**, 048-1058 (2005)

S.D. Jolad, R.C. Lantz, **A.M. Solyom**, C.J. Chen, R.B. Bates and B.N. Timmermann:
Commercially processed dry ginger (Zingiber officinale): Composition and effects on LPS-induced PGE2 production.
Phytochemistry, **66(13),** 1614-1635. (2005) PMID: 15996695.

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In vitro Glucuronidierung von Curcuminoiden mit mikrosomalen UDP-Glucuronyltransferasen.
Lebensmittelchemie, **59**, 16. (2005)

P. R. Kiela, A.J. Midura, N. Kuscuoglu, S.D. Jolad, **A. M. Sólyom,** D.G. Besselsen, B.N. Timmermann, F.G. Ghishan:
The Effects of Boswellia serrata in Mouse Models of Chemically Induced Colitis
AJP-GI and Liver Physiology, **288**, G798-G808, (2005)

R.C. Lantz, G.J. Chen, **A.M. Sólyom**, S. D. Jolad and B.N. Timmermann:
The Effect of Turmeric Extracts on Inflammatory Mediator Production.
Phytomedicine, **12(6-7)**, 445-452 (2005)

B. Jagadish, B.S. Iyengar, **A. M. Sólyom**, W.A. Remers, R.T. Dorr, J.S. Yu, S. Gupta, E.A. Mash:
Synthesis of [^{14}C]-imexon
J. Label. Compd. Radiopharm. **48**, 165-170 (2005)

S. D. Jolad, R.C. Lantz, **A.M. Sólyom**, G.J. Chen, R.B. Bates and B.N. Timmermann:
Fresh Organically Grown Ginger (*Zingiber officinale*): Composition and Effects on LPS-induced PGE_2 Production
Phytochemistry, 65(13) 1937-1954 (2004)

C. J. Sweet, **A. M. Sólyom,** I.G, Sipes:
Absorption and Elimination of D&C Red28 in Male F-344 Rats
Food and Chemical Toxicology, 42(4) 641-8 (2004)

E. Pfeiffer, H. Esch, S. Höhle, **A.M. Sólyom**, B. N. Timmermann and M. Metzler:
In vitro Studies on the Estrogenic Activity and the Metabolism of Curcumin.
In: G. Eisenbrand et al. Eds.), Functional Food: Safety Aspects, Deutsche Forschungsgemeinschaft, Senate Commission on Food Safety. ISBN 3-527-27765-X. Wiley-VCH Verlag Weinheim, 324-329 (2004)

P.R. Kiela, A.J. Midura, N. Kuscuoglu, S.D. Jolad, A.M. Solyom, D.G. Besselsen, B.N. Timmermann, and F.K. Ghishan:
Boswellia serrata does not offer protection and is potentially hepatotoxic in mouse models of chemically induced colitis.

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Am J Physiol Gastrointest 288:G798-G808.(2004)

E. Pfeiffer, S. Höhle, **A.M. Sólyom**, M. Metzler:
Studies on the Stability of Turmeric Constituents.
Journal of Food Engineering, **56** (2-3) 257-259 (2003)

S. M. Sami, R. T. Dorr, D. S. Alberts, **A. M. Sólyom**, W. A. Remers:
Analogues of Amonafide and Azonafide with Novel Ring System
J. Med. Chem., **43**(16), 3067-3073 (2000)

W. A. Remers , R. T. Dorr, S. M. Sami, D. S. Alberts, S. Bear, C. A. Mayr **A. M. Sólyom:**
A New Class of Antitumor Agent: 2-Substituted -1,2-dihydro-3*H*-dibenz[*de,h*]isoquinoline-1,3-diones.
Current Topics in Medicinal Chemistry., 2, 45-61 (1997)

B. S. Iyengar, R . T. Dorr, D. S. Alberts, **A. M. Sólyom**, M. Krutzsch, W. A. Remers:
1,4-Disubstituted Anthracene Antitumor Agents
J. Med. Chem., 40, 3734-3738 (1997)

S. M. Sami, R. T. Dorr, D. S. Alberts, **A. M. Sólyom**, W. A. Remers:
2-[2'-(Dimethylamino)ethyl]-1,2-dihydro-3*H*-dibenz[*de,h*]isoquinoline-1,3-diones with Substituents at Positions 4, 8, 9, 10 and 11. Synthesis, Antitumor Activity, and Quantitative Structure-Activity Relationship
J. Med. Chem., 39, 4978-4987 (1996)

S. M. Sami, R. T. Dorr, **A. M. Sólyom**, D. S. Alberts, B. S. Iyengar, W. A. Remers:
6- and 7-Substituted 2-[2'-(Dimethylamino)ethyl]-1,2-dihydro-3*H*-dibenz[*de,h*]isoquinoline-1,3-diones. Synthesis, Nucleophilic Displacements, Antitumor Activity, and Quantitative Structure-Activity Relationship
J. Med. Chem., 39, 1609-1618 (1996)

S. M. Sami, R. T. Dorr, **A. M. Sólyom**, D. S. Alberts, W. A. Remers:
Amino-Substituted 2-[2'-(Dimethylamino)ethyl]-1,2-dihydro-3*H*-dibenz[*de,h*]isoquinoline-1,3-diones. Synthesis, Antitumor Activity, and Quantitative Structure-Activity Relationship
J. Med. Chem., 38, 983-993 (1995)

D. D. Bicanic, **A. M. Sólyom**, Gy. Z. Angeli, Hillion Wegh, Maarten Posthumus and Henk Jalink:
The Extent of Unwanted Infrared Photoacoustic Signals from Polymer Sampling Tubings Exposed to Ultraviolet Radiation
Infrared Phys. Technol., 35, 637-644 (1994)

A. M. Sólyom, Gy. Z. Angeli, D. D. Bicanic, M. Lubbers:
Determination of Ammonia Using Carbon Dioxide Laser - Photoacoustic Spectroscopy Compared with Conventional Spectrophotometry
The Analyst, 117, 379-382 (1992)

Gy. Z. Angeli, **A. M. Sólyom**, A. Miklós, D. D. Bicanic:
Calibration of A Windowless Photoacoustic Cell for Detection of Trace Gases
Analytical Chemistry, 64, 155-158 (1992)

Gy. Z. Angeli, **A. M. Sólyom**, A. Miklós, D. D. Bicanic:
Dependence of the Photoacoustic Cell Constant on The Material Choice
Photoacoustic and Photothermal Phenomena III. (Ed. D. Bicanic) Springer Series in Optical Sciences, Vol. 69., p. 596., Springer Verlag, Berlin (1992)

A. M. Sólyom, D. D. Bicanic, Gy. Z. Angeli, A. Miklós, M. Lubbers:
Use of an Open Photoacoustic Cell for Some Applications in Agriculture
Photoacoustic and Photothermal Phenomena III. (Ed. D. Bicanic) Springer Series in Optical Sciences, Vol 69., p. 88., Springer Verlag, Berlin (1992)

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D. D. Bicanic, H. Jalink, M. Chirtoc, H. Sauren, M. Lubbers, J. Quist, E. Gerkema, C. van Asselt, A. Miklós, **A. M. Sólyom**, Gy. Z. Angeli, P. Helander, H. Vargas
Interfacing Photoacoustic and Photothermal Techniques for New Hyphenated Methodologies and Instrumentation Suitable for Agricultural, Environmental and Medical Applications
Photoacoustic and Photothermal Phenomena III. (Ed. D. Bicanic) Springer Series in Optical Sciences, Vol 69., p. 20., Springer Verlag, Berlin (1992)

A. M. Sólyom, A. Miklós, Gy. Z. Angeli, A. Lörincz:
Photoacoustic Spectroscopy I.: New Analytical Method for Environmental Trace Gas Analysis
Acta Chimica Hungarica, 128, 877-889 (1991)

Gy. Z. Angeli, A. Miklós, **A. M. Sólyom**, A. Lörincz:
Photoacoustic Spectroscopy II.: New Instrument for Continuous Monitoring of Environmental Trace Gases
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A. Sólyom, P. Fodor, S. Kemény:
Application of Optimization Methods in Analytical Atomic Spectroscopy (In Hungarian)
Magyar Kémikusok Lapja, 46. 107-114 (1991)

L. Illgen, H. Mühlbach, S. Roth, G. Konczos, J. Takács, **A. Sólyom**:
Zum Einfluss von Verunreinigungen auf die Duktilitat und die Magnetischen Eigenschaften amorpher Bander aus Eisen-Bor-Silizium
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E. Tóth-Kádár, I. Bakonyi, J. Lóránth, **A. Sólyom**, L. Pogány, T. Dankházi, J. Tóth, G. Konczos, P. Fodor and H.H. Liebermann:
Determination of the Phosphorus Content in Ni-P Alloys
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E. Tóth-Kádár, I. Bakonyi, **A. Sólyom**, J. Hering, G. Konczos, and F. Pavlyák:
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Surface and Coating Technology, 31, 31-43 (1987)

I. Bakonyi, L. K. Varga, A. Lovas, E. Tóth-Kádár, **A. Sólyom**:
Magnetization and NMR Study of Amorphous Ni-P Alloys in the Paramagnetic Concentration Range
Journal of Magnetism and Magnetic Materials, 50, 111-118 (1985)

A. Lovas, L. F. Kiss, G. Konczos, **A. Sólyom**:
Influence of Amorphous Ribbon Processing on the Magnetic Properties of Heat Treated Wound Cores
Hung. Acad. Sci. Centr. Res. Inst. Phys. KFKI Report. KFKI-1985-94 (1985)

S. Antus, E Baitz-Gács, F. Boros, M. Nógrádi, **A. Sólyom**:
Oxidation of 1,3-Diphenyl-1,3-Propanediones with Thallium(III)-Nitrate in Methanol
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Book chapter

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Chemist, mass spectrometry and research lead.

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Chemist, Regulatory Program Expert: Developed methods to detect drug adulteration in dietary supplements by LC/MS-MS; developed methods to detect phthalates, pesticides, and chemotherapeutics in food.
Reviewed analytical packets from private lab testing of FDA regulated products.

Aug. 2007 - Oct. 2008, Agriculture Research Service, USDA, Beltsville, MD. 20705
Research Chemist: Developed method to evaluate quality of herbs by liquid Chromatography (LC), LC/MS, MALDI-MS and principle component analysis.

Sept. 2006-Aug. 2007, Branch of Spectroscopy and Mass Spectrometry, Center for Food Safety and Applied Nutrition, FDA, 5100 Paint Branch Parkway, College Park, MD. 20704
Visiting Research Scientist (ORISE Fellow): Developed methods to detect food allergen and food toxin by MALDI-MS and LC/MS-MS.

Jan. 2006 – Aug 2006, Meddata Research Inc, Walkersville, 21793 and NIAAA, National Institute of Health, Rockville MD 20852.
Contract Research Chemist: Developed methods to study protein–protein interactions in vivo by chemical cross-linking and western blotting; developed methods to immunopreciptate signal transduction proteins; identified interacting proteins by LC/MS-MS and database Search.

Jan. 1999 - Dec. 2006, CARB, University of Maryland Biotechnology Institutes, Rockville, MD.

Specialist: Analyzed protein, DNA, RNA and small molecules by Electrospray-MS, MALDI-MS; synthesized/purified oligoribonucleotides, oligonucleotides, and peptide nucleic acids by HPLC; developed new methods to study protein-protein complexes and enzyme-inhibitor complexes by MALDI-MS.

Sept. 1997-Dec. 1998, CARB, University of Maryland Biotechnology Institutes, Rockville, MD.
Postdoctoral Research Associate: Synthesized/purified ribonucleoside phosphoramidites and oligoribonucleotides.

1991-1997, Johns Hopkins University, Baltimore, MD,
Research Assistant: Designed and synthesized heterocyclic compounds including anti-cancer drugs; studied the reaction mechanisms of anti-cancer drugs based on heterocyclic diazonium ions by FT-NMR, FT-IR, TLC.
Synthesized aliphatic nitroso- and nitro-compounds and triazenes; studied the thermal and photochemical decomposition of these compounds by NMR.

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DARRYL SULLIVAN, COVANCE LABORATORIES

Chair, AOAC Stakeholder Panel on Dietary Supplements

Darryl Sullivan is a Fellow of AOAC and has been an active member since 1980. He has served terms as secretary, president-elect, president, past president, and director of the Board of Directors, and previously served a three-year term as chair of the Official Methods Board, and is currently serving as Chair of the AOAC Stakeholder Panel on Infant Formula and Adult Nutritionals. In 2012 Darryl lead a very successful AOAC engagement with government and industry thought leaders in India and China on behalf of SPIFAN. He is also active with the Stakeholder Panel for Strategic Food Analytical Methods and the Stakeholder Panel for Agent Detection Assays. Sullivan also served a three-year term as a director on the AOAC Research Institute Board of Directors. He was a founding member and chair of the Presidential Task Force on Dietary Supplements and a member of the Task Force on *Bacillus anthracis*, as well as the AOAC Task Force on Nutrition Labeling and the AOAC Task Force on Sulfites. Prior to chairing the OMB, he served as a member and chair of the Methods Committee on Commodity Foods and Commodity Products. Sullivan was a founding member of the AOAC Technical Division on Reference Materials and served three terms on the Division's Executive Board. A staunch supporter of the Association, Sullivan was active in the e-CAM and Scholar I projects at AOAC, has exhibited at the annual meetings for many years, has presented hundreds of papers and posters at AOAC meetings and regularly publishes his research in the journal of the AOAC. He has also presented a significant number of papers on behalf of AOAC at other scientific meetings in many different parts of the world.

Jerry Zweigenbaum

Objective

Become member of AOAC expert panel on anthocyanins and PDE-5 inhibitors

Education

June, 1999, PhD in Environmental Toxicology, Cornell University

July, 1982, MS in Analytical Chemistry, Murray State University

June, 1975, BSc in Chemistry, Stockton College

Positions Held

2011-Present, Senior Research Scientist

Agilent Technologies

Work with Food Scientists on Analysis of Food using LC/MS

2002-2011, Market Development Specialist

Agilent Technologies

Develop applications in environmental, forensic, and food using LC/MS

1988-2002, Senior Research Scientist

Eastman Kodak Company

Research and development on and with analytical methods to support imaging, clinical, and fine chemical products

1982-1988, Supervisor of Environmental Organic Analytical Laboratory

Eastman Kodak Company

Provide analysis of water, soil, and air to support manufacturing facility including water treatment plant, hazardous waste incinerator, groundwater, and air emission.

1975-1980, Forensic Chemist

Cape May County Prosecutor's Office

Analysis of drugs-of-abuse and some arson samples, expert witness in criminal court.

Recent Publications

Avula, B.; Smillie, T. J.; Wang, Y. H.; Zweigenbaum, J.; Khan, I. A., Authentication of true cinnamon (Cinnamon verum) utilising direct analysis in real time (DART)-QToF-MS. Food additives & contaminants. Part A, Chemistry, analysis, control, exposure & risk assessment **2015**, 32, 1-8.

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Recent Publications

Avula, B.; Sagi, S.; Wang, Y.-H.; Wang, M.; Ali, Z.; Smillie, T. J.; Zweigenbaum, J.; Khan, I. A., Identification and Characterization of Indole and Oxindole Alkaloids from Leaves of *Mitragyna speciosa* Korth Using Liquid Chromatography–Accurate QToF Mass Spectrometry. *Journal of AOAC International* **2015,** *98*, 57-21.

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Conference Presentations

"Quality Control/Quality Assurance for Qualitative Analysis using High Resolution and Accurate Measurement Mass Spectrometry," NACRW, St. Pete's Beach, Fl, July 21, 2014

"Identification of Imidacloprid Metabolites in Onion using High Resolution Mass Spectrometry and Accurate Mass Tools," 61st ASMS, Minneapolis, Mn, June 11, 2013

"*Contaminants in our Food, How to Mine Unknown Compounds and Determine their Identity for Food Defense*," Asilomar Conference on Mass Spectrometry in Food Testing & Safety, Pacific Grove, Ca, October 6, 2012

"*Plenary Keynote Lecture: Contaminants in our food? How to detect untargeted compounds and determine their identity*" 7th Conference Rapid Methods Europe, January 25, 2011

Professional Organizations

American Chemical Society

American Society for Mass Spectrometry

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