

FABRICIO MEDINA-BOLIVAR, Ph.D.

Professor of Plant Metabolic Engineering
Department of Biological Sciences and Arkansas Biosciences Institute
Arkansas State University, Jonesboro, Arkansas
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EDUCATION

- 1997 Ph.D. Plant Physiology, The Pennsylvania State University (State College, PA)
Thesis: Regulation of Constitutive and Inducible Secondary Metabolites in Hairy Root Cultures of *Hyoscyamus muticus*.
(H. Flores, advisor)
- 1992 Licentiate. Title of Biologist. Cayetano Heredia University and International Potato Center (www.cipotato.org). Lima, Peru
Thesis: *In Vitro* Organogenesis from Leaves, Roots and Internodes of Nine Cultivars of Sweet Potato (*Ipomoea batatas*): Hormonal and Anatomical Studies.
(J. Dodds, advisor)
- 1992 B. S. Biology. Universidad Peruana Cayetano Heredia. Lima, Peru.

PROFESSIONAL EXPERIENCE

Academic:

- 2016-present Professor. Dept. of Biological Sciences, Arkansas State University, Jonesboro, AR
- 2009-2016 Associate Professor (Tenured in 2009). Arkansas Biosciences Institute/ Dept. of Biological Sciences, Arkansas State University, Jonesboro, AR
- 2005-2009 Assistant Professor, Arkansas Biosciences Institute/ Dept. of Biological Sciences, Arkansas State University, Jonesboro, AR
- 2002-2005 Research Director (VaTech's component) of The Virginia Consortium for Mucosal Therapy of Infectious and Autoimmune Diseases. Virginia Tech, Blacksburg, VA
- 2002-2005 Research Assistant Professor. Department of Plant Pathology, Physiology and Weed Science. Virginia Tech, Blacksburg, VA
- 1997-2002 Research Scientist. Department of Plant Pathology, Physiology and Weed Science. Fralin Biotechnology Center. Virginia Tech, Blacksburg, VA
- 1995-1997 Graduate Research Assistant. Department of Plant Pathology. The Pennsylvania

State University, University Park, PA

1992-1995 Graduate Research Assistant. Biotechnology Institute. The Pennsylvania State University, University Park, PA

1989-1991 Undergraduate Research Assistant. Tissue Culture Laboratory, Department of Genetic Resources. International Potato Center. Lima, Peru

Corporate and Other Affiliations:

2018-2019 Executive Director, American Council for Medicinally Active Plants

2017-present Chair, Northeast Arkansas Hispanic Professional Network

2016-2017 Arkansas State University-Liaison, Northeast Arkansas Hispanic Professional Network

2016-present Board Member, Hispanic Community Services Inc.

2015-present Co-Founder, ParNative Inc., Jonesboro, AR

2014-2015 President, American Council for Medicinally Active Plants

2013-present Adjunct Professor (Profesor Visitante). Departamento de Fitotecnia. Universidad Nacional Agraria La Molina, Lima, Peru.

2012-2013 Vice-President. American Council for Medicinally Active Plants

2005-present Co-Founder and Chief Scientific Officer. Nature West Inc., Jonesboro, AR

2001-2010 Co-Founder and Vice President for Plant Diagnostics. Nature Diagnostics Inc., Blacksburg, VA.

2001-2002 Consultant. Yoder Brothers Inc., Alva, FL.

2000 Consultant. Intellibridge Corporation. Washington, DC.

1999-2002 Plant Biotechnology Consultant. CropTech Corporation, Blacksburg, VA.

Service to Arkansas State University:

2017-present Department of Biological Sciences – Biotechnology Committee

2017-present Member, Arkansas Biosciences Institute Advisory Committee

2017-present Member, Biological Sciences Promotion, Retention and Tenure Committee

2017-present Chancellor Search Committee

2016-present Graduate Council

2015 Research Strategic Planning Committee

2015-present Faculty Achievements Award Committee

2015 Intellectual Property Ad Hoc Committee

2013-2015 Chair, Patent Force Task Faculty Senate Committee

2012-2016 Faculty Senator, College of Sciences and Mathematics

2013-present Chair, Institutional Biosafety Committee

2006-2017 Chair, Plant Biotechnology Discussion Group

2012-present Member, Molecular Biosciences Graduate Program Committee

2012-2015 Member, Biological Sciences Promotion, Retention and Tenure Committee

2013-2014 Member, Aquatic Ecologist Faculty Search Committee

HONORS AND AWARDS (2006-PRESENT)

2018 Elected Executive Director, American Council for Medicinally Active Plants

2017 Elected Chair, Northeast Arkansas Hispanic Professional Network

2017 Invited TEDx Speaker. Arkansas State University

2017 Research Professor of the Month. January 2017. Arkansas State University

2016 Elected Member, International Scientific Committee, IX Latin American and Caribbean Agricultural and Biotechnology Meeting, REDBIO 2016-PERU

2016 Program Chair and Organizer, 7th International Conference of the American Council for Medicinally Active Plants, Lima, Peru

2016 Invited Piano Performer. Doctors in Concert. Fundraiser event for St. Jude

Children's Research Hospital, Memphis , TN

- 2015 Statewide Arkansas Biosciences Institute Investigator of the Year
- 2015 Re-Elected President, American Council for Medicinally Active Plants
- 2014-present Associate Editor, Journal of Medicinally Active Plants
- 2014 Elected President, American Council for Medicinally Active Plants
- 2013 Faculty Achievement Award-Professional Services, College of Sciences and Mathematics, Arkansas State University
- 2013 Collaborative research paper (“Neuroprotective effect of peanut hairy root extract against oxidative stress in PC12 derived neurons”) between Dr. Malathi Srivatsan and Dr. Fabricio Medina-Bolivar received the 2013 Senior Investigator Award at the Arkansas Biosciences Institute Fall Research Symposium. Little Rock, AR
- 2013 Faculty Achievement Award-Professional Services, College of Sciences and Mathematics, Arkansas State University
- 2012 Host and Program Chair, 3rd Annual Conference of the American Council for Medicinally Active Plants, Jonesboro, AR
- 2012-2013 Elected Vice-President, American Council for Medicinally Active Plants
- 2012 Feature Speaker, “A Tribute to Spanish Culture” – HOLA (Hispanic Outreach and Latino Outreach Appreciation). Certificate of Appreciation – “An Inspiring Man Who is a Role Model for Hispanic students at Arkansas State University”.
- 2011 Outstanding Hispanic Achiever of the Year, Hispanic Community Services of Jonesboro, AR
- 2011 Invited Chair, session “Biotechnology of Medicinally Active Plants”. 2nd Annual Conference of ACMAP, Huntsville, AL
- 2011 Faculty Achievement Award-Scholarship, College of Sciences and Mathematics, Arkansas State University
- 2010 Invited Chair, session “Biotechnology of Medicinally Active Plants”. 1st Annual Conference of ACMAP, New Brunswick, NJ
- 2008 NIH Special Emphasis Panel, Scientific Review group member, “Transcriptomics of Medicinal Plants”.
- 2008 Invited Chair, session “New Strategies for the Production of Specialized

- Metabolites”, Congress on In Vitro Biology, Tucson, AZ
- 2008 Invited Chair, session “Develop Bioprocesses for the Production of High Value Medicines”, Congress of International Drug Discovery Science and Technology, Beijing, CHINA
- 2008 Co-editor, special issue “Hairy Roots: Applications in Biotechnology, Elec. J. Int. Biosciences
- 2007 Coordinated research agreement between Arkansas State Univ. and Univ. Agraria, PERU
- 2007 Coordinated research agreement between Arkansas State Univ. and Cassara Foundation, ARGENTINA
- 2007 Elected member of the American Consortium for Aromatic and Medicinal Plants
- 2006 Co-organizer of the 1st International Workshop on Hairy Roots, Jonesboro, AR
- 2006 Recipient of the Arthur Neish Award from the Phytochemical Society of North America

Proposal Reviewer:

American Institute of Science, US Army Medical Research and Materiel Command
 Austrian Science Fund
 Binational Agricultural Research and Development Fund (BARD)
 North Carolina Biotechnology Center
 NIH Special Emphasis Panel

Manuscript Reviewer:

Applied Biochemistry and Bioengineering
 Archives of Microbiology
 Bioprocess and Biosystems Engineering
 Biotechnology Advances
 Engineering in Life Sciences
 In Vitro Plant Cellular and Developmental Biology
 Journal of Agricultural and Food Chemistry
 Journal of Agricultural and Food Science
 Journal of Medicinally Active Plants
 Journal of Bioprocessing and Biotechniques
 Plant Cell Reports
 Plant Cell Tissue and Organ Culture
 Plant Physiology
 Plant Physiology and Biochemistry

Planta Medica
Scientific Research and Essays
Transgenic Research

PROFESSIONAL AND HONOR SOCIETY MEMBERSHIPS

American Council of Medicinally Active Plants
American Chemical Society
American Society of Plant Biologists
American Society for Biochemistry and Molecular Biology
Phi Beta Delta - Honor Society of International Scholars (*Elected membership*)
Sigma Xi – The Scientific Research Society (*Elected membership*)
Gamma Sigma Delta - Honor Society of Agriculture (*Elected membership*)
Who's Who in Agriculture Higher Education (*Elected membership*)
Cambridge Who's Who (*Elected membership*)

PUBLICATIONS

Peer-reviewed Publications:

1. Porobo Dessai A, Gosukonda R, Blay E, Dumenyo C, **Medina-Bolivar F**, Prakash C. 1995. Plant regeneration of sweet potato (*Ipomoea batatas* L.) from leaf explants in vitro using a two-stage protocol. *Scientia Horticulturae*. 62: 217-224.
2. **Medina-Bolivar F**, Flores H. 1995. Studies on the manipulation of tropane alkaloid biosynthesis in hairy roots of *Hyoscyamus muticus*. *In: Phytochemicals and Health*. D.L. Gustine and H. Flores (eds). American Society of Plant Physiology, MD. pp 297-299.
3. Flores H, **Medina-Bolivar F**. 1995. Root culture and plant natural products: "Unearthing" the hidden half of plant metabolism. *Plant Tissue Culture and Biotechnology*. 1: 59-74.
4. **Medina-Bolivar F**, Flores H. 1995. Selection for hyoscyamine and cinnamoyl putrescine overproduction in cell and root cultures of *Hyoscyamus muticus*. *Plant Physiology*. 108: 1553-1560.
5. **Medina-Bolivar F**, Flores H. 1998. Biosynthesis of constitutive versus inducible metabolites in hairy root cultures of *Hyoscyamus muticus*. *In: Radical Biology: Advances and Perspectives on the Function of Plant Roots*. H.E. Flores, J.P. Lynch, D. Eissenstat (eds), American Society of Plant Physiologists, Rockville, MD, pp. 430-431.
6. **Medina-Bolivar F**, Wright R, Sentz D, Barroso L, Wilkins T, Petri Jr. W, Cramer C. 2003. A non-toxic lectin for mucosal antigen delivery of plant-based vaccines. *Vaccine*. 21:997-1005.

7. Lorence A, **Medina-Bolivar F**, Nessler C. 2004. Camptothecin and 10-hydroxycamptothecin from *Camptotheca acuminata* hairy roots. *Plant Cell Reports*. 22:437-441.
8. **Medina-Bolivar F**, Cramer C. 2004. Production of recombinant proteins in hairy roots cultured in plastic sleeve bioreactors. *In: Recombinant Gene Expression: Reviews and Protocols*. P. Balbas and A. Lorence, (eds.). Humana Press, Totowa, pp 351-363.
9. Reed D, Nopo-Olazabal L, Woffenden B, Funk V, Reidy M, Cramer C, **Medina-Bolivar F**. 2004. Expression of functional hexahistidine-tagged ricin B in tobacco. *Plant Cell Reports*. 24:15-24
10. Zhang C, **Medina-Bolivar F**, Buswell S, Cramer C. 2005. Purification and stabilization of ricin B from tobacco hairy root cultures by aqueous two phase extraction. *Journal of Biotechnology*. 117:39-48
11. Buswell S., **Medina-Bolivar F**, Van Cott K, Zhang C. 2005. Expression of porcine prorelaxin in transgenic tobacco. *Annals of the New York Academy of Sciences*. 1041:77-81.
12. **Medina-Bolivar F**. 2006. Rooting for new medicines. In: J. Trauth and A. Romero (eds.). *Adventures in the Wild: Tales from Biologists of the Natural State*. The University of Arkansas Press. pp. 83-88.
13. **Medina-Bolivar F**, Condori J, Rimando A, Hubstenberger J, Shelton K, Bennett S, Dolan M. 2007. Production and secretion of resveratrol in hairy root cultures of peanut. *Phytochemistry*. 68:1992-2003.
14. **Medina-Bolivar F**, Nopo-Olazabal C, Nopo-Olazabal L, Sivakumar G, Condori J. 2007. Screening for bioactives stilbenes in the genus *Nicotiana*. *Recent Advances in Tobacco Science*. 33:93-100.
15. Woffenden B, Nopo L, Cramer C, Dolan M, **Medina-Bolivar F**. 2008. Expression of a ricin B:F1:V fusion protein in tobacco hairy roots: steps toward a novel pneumonic plague vaccine. *Electronic Journal of Integrative Biosciences*. 3:10-19.
16. Pitta-Alvarez S, **Medina-Bolivar F**, Alvarez M, Scambatto A, Marconi P. 2008. *In vitro* shoot culture and antimicrobial activity of *Berberis buxifolia* Lam. *In Vitro Cellular & Developmental Biology*. 44:502-507.
17. Condori J, Medrano G, Sivakumar G, Nair V, Cramer C, Medina-Bolivar F. 2009. Functional characterization of a stilbene synthase gene using a transient expression *in planta*. *Plant Cell Reports* 28:589-599.
18. Sivakumar G, Vail D, Nair V, **Medina-Bolivar F**, Lay J. 2009. Plant-based corosolic acid: Future anti-diabetic drug? *Biotechnology Journal*. 4:1704-1711.

19. Sivakumar G, Christopher S, **Medina-Bolivar F**, Uccella N. 2009 Plant-based small molecules and proteins: A source for natural medicines. In: Plant Secondary Terpenoids, Eds. Javier Palazon and Rosa Cusido, Research Signpost.
20. Condori J, Sivakumar S, Hubstenberger J, Dolan MC, Sobolev VS, **Medina-Bolivar F**. 2010. Induced biosynthesis of resveratrol and the prenylated stilbenoids arachidin-1 and arachidin-3 in hairy root cultures of peanut: Effects of culture medium and growth stage. *Plant Physiology and Biochemistry*. 48:310-318.
21. Abbott J, **Medina-Bolivar F**, Martin E, Engelberth AS, Villagarcia H, Clausen EC, Carrier DC. 2010. Purification of resveratrol, arachidin-1 and arachidin-3 from hairy root culture of peanut (*Arachis hypogaea*) and determination of their antioxidant activity and cytotoxicity. *Biotechnology Progress*. 26(5):1344-1351
22. **Medina-Bolivar F**, Condori J, Nopo-Olazabal C, Carrier J, Abbott J, Nair V, Atwill R, Baker J, Nopo-Olazabal L, Dolan M. 2010. Controlled production of stilbenoids in hairy root cultures of peanut (*Arachis hypogaea*). *Polyphenols Communications*. 1: 42-43.
23. Joshee N, Parajuli P, **Medina-Bolivar F**, Rimando AM, Yadav AK. 2010. *Scutellaria* biotechnology: achievements and future prospects. *Bulletin UASVM Horticulture*. 67(1)/2010.
24. Sivakumar G, **Medina-Bolivar F**, Lay J, Dolan MC, Condori J, Wright SM, Baque MDA, Lee E-J, Paek KY. 2011. Bioprocess and bioreactor: Next generation technology for production of potential plant-based antidiabetic and antioxidant molecules. *Current Medicinal Chemistry*. 18:79-90.
25. Condori J, Nopo-Olazabal C, Medrano G, **Medina-Bolivar F**. 2011. Selection of reference genes for qPCR in hairy roots cultures of peanut. *BMC Research Notes*. 4:392
26. Nopo L, Woffenden B, Reed D, Buswell S, Zhang C, **Medina-Bolivar F**. 2012. Super-promoter: TEV, a powerful gene expression system for tobacco hairy roots. (In: *Recombinant Gene Expression: Reviews and Protocols*, Third Edition, A. Lorence (Ed.), Springer). *Methods in Molecular Biology*. 824:501-526.
27. Brents LK, **Medina-Bolivar F** (*), Seely KA, Nair V, Bratton SM, Gallus-Zawada A, Ñopo-Olazabal L, Patel RY, Liu H, Doerksen RJ, Prather P, Radomska-Pandya A. 2012. Natural prenylated resveratrol analogs, arachidin-1 and -3, demonstrate an improved glucuronidation profile and have affinity for cannabinoid receptors. *Xenobiotica*. 42:139-156. [***First two authors share first authorship**]
28. Prabhu P, **Medina-Bolivar F**, Condori J, Sivakumar G, Srivatsan M. 2012. Neuroprotective effect of peanut hairy root extract against oxidative stress in PC12 derived neurons. *Journal of Medicinally Active Plants*. 1(4):125-133.
29. Joshee N, Tascan A, **Medina-Bolivar F**, Parajuli P, Rimando AM, Shannon DA, Adelberg JW. 2013. *Scutellaria*: Biotechnology, Phytochemistry and its Potential as a Commercial Medicinal Crop. In: *Biotechnology for Medicinal Plants: Micropropagation and Improvement*,

Eds. Suman Chandra, Hemant Lata and Ajit Varma, Springer-Verlag, Heidelberg Germany. pp. 69-99.

30. Nopo-Olazabal C, Hubstenberger J, Nopo-Olazabal L, **Medina-Bolivar F**. 2013. Antioxidant activity of selected stilbenoids and their bioproduction in hairy root cultures of muscadine grape (*Vitis rotundifolia* Michx.). *Journal of Agricultural and Food Chemistry*. 61(48):11744-11758.
31. Nopo-Olazabal C, Condori J, Nopo-Olazabal L, **Medina-Bolivar F**. 2014. Differential induction of antioxidant stilbenoids in hairy roots of *Vitis rotundifolia* treated with methyl jasmonate and hydrogen peroxide. *Plant Physiology and Biochemistry*. 74:50-69.
32. Zhai B, Clark J, Ling T, Connelly M, **Medina-Bolivar F**, Rivas F. 2014. Antimalarial evaluation of the chemical constituents of hairy root culture of *Bixa orellana*. *Molecules*. 19(1):756-766.
33. Marsh Z, Yang T, Nopo-Olazabal L, Wu S, Ingle T, Joshee N, **Medina-Bolivar F**. 2014. Effect of light, methyl jasmonate and cyclodextrin on production of polyphenolic compounds in hairy root cultures of *Scutellaria lateriflora*. *Phytochemistry*. 107:50-60.
34. Yang T, Fang L, Nopo-Olazabal C, Condori J, Nopo-Olazabal L, **Medina-Bolivar F**. 2015. Enhanced production of resveratrol, piceatannol, arachidin-1 and arachidin-3 in hairy root cultures of peanut co-treated with methyl jasmonate and cyclodextrin. *Journal of Agricultural and Food Chemistry*. 63(15):3942-50.
35. Ball JM, **Medina-Bolivar F**, Defrates K, Hambleton E, Hulburt M, Fang L, Yang T, Nopo-Olazabal L, Atwill RL, Ghai P, Parr RD. 2015. Investigation of stilbenoids as potential therapeutic agents for rotavirus infections. *Advances in Virology*. doi: 10.1155/2015/293524.
36. Condori J, **Medina-Bolivar F**. 2016. Perspectives of peanut phytoalexins: biosynthesis, bioproduction and their applications in human health. In: *Peanut bioactives and allergens*. Eds. Alice Lee, Rao Rachaputi and Graeme Wright. DEStech Publications, Lancaster, USA. 47-81 pp.
37. Yang T, Fang L, Rimando A, Sobolev V, Mockaitis K, **Medina-Bolivar**. 2016. A stilbenoid-specific prenyltransferase utilizes dimethylallyl pyrophosphate from the plastidic terpenoid pathway. *Plant Physiology*. 171: 2483–98.
38. Gershlak J, Hernandez S, Fontana G, Perreault L, Hansen K, Binder B, Larson S, Yang T, Dominko T, Rolle M, Weathers P, **Medina-Bolivar F**, Cramer C, Murph W, Gaudette G. 2017. Crossing kingdoms: Exploiting decellularized plants as pre-vascularized scaffolds for tissue engineering. *Biomaterials*. 125: 13–22.
39. Yang T, Fang L, Medina-Bolivar F. 2017. Biosynthesis and bioproduction of bioactive stilbenoids in hairy root cultures. In: *Production of plant derived natural compounds through hairy root culture*. Ed. Sonia Malik. Springer. (in press).

Patents:

Medina-Bolivar F, Dolan M, Bennett S, Condori J, Hubstenberger J. “Production of stilbenes in hairy roots”.

US Patent No. 7666677 (Application 2006; Patent Approved 2009; Issued February 23, 2010)
European Patent Application No. 07799286.5 (March 2009; International Patent Application N. PCT/US07/72756).

Medina-Bolivar F, Dolan M. “Production of stilbenes in plant hairy root cultures and other root cultures”

US Patent Application (continuation-in-part application) No. 12638490 (filed Dec. 15, 2009).

Radomska-Pandya F, Prather P, **Medina-Bolivar F**, Mayeux P. “Stilbenoid derivatives and their uses.

US Provisional Patent Application No. 61427614 (filed December 28, 2010).

US Patent Application No. 13/339,163 (filed December 28, 2011).

US Continuation Patent Application No. 14721551 (filed May 26, 2015)

US Patent Issue No. 9095598 B2 (August 4, 2015)

Medina-Bolivar F, Yang T. “Method to increase the yield of products in plant material”.

US Provisional Patent Application No. 61729659 (filed November 26, 2012).

US Patent Application No. 13784877 (filed on March 5, 2013).

US Patent Issue No. 9,598,707 B2 (March 31, 2017).

European Patent Application EP13194534.7 (filed on November 26, 2013).

Medina-Bolivar F, Parr R. “Therapeutic applications of prenylated stilbenoids against rotavirus infections”

Invention Disclosure to Arkansas State University (September 23, 2014)

Provisional US Patent Application No. 52144390 (filed April 8, 2015)

US Patent Application No. 15/091,758 (filed April 7, 2016)

PCT Application No. PCT/US16/26346 (filed April 7, 2016)

Jershlak J, Gaudette G, Weathers P, Dominko T, Rolle Marsha, Hernandez S, Murphy B, Cramer C, **Medina-Bolivar F**. “Plant based decellularization”

US Provisional Patent Application No. 62318953 (filed April 6, 2016)

Medina-Bolivar F, Yang T, Mockaitis T. “Stilbenoid prenyltransferases from peanut”.

US Provisional Patent Application No. 62351117 (filed June 16, 2016).

Gene Registers:

Condori J, **Medina-Bolivar F**. 2006. *Agrobacterium rhizogenes* strain ATCC 15834 plasmid pRi 15834 3-indoleacetamide hydrolase (*aux2*) and tryptophan 2-monooxygenase (*aux1*) genes, complete cds. Accession DQ782955. Published Aug 20, 2006.

Condori J, **Medina-Bolivar F.** *Arachis hypogaea* cultivar Andru II chalcone synthase gene, complete cds. NCBI Accession N. EU418492. Published online 12 Feb 2008.

Condori J, **Medina-Bolivar F.** *Arachis hypogaea* cultivar Andru II resveratrol synthase gene, complete cds. NCBI Accession N. EU384706. Published online 4 Feb 2008.

Condori J, **Medina-Bolivar F.** Binary vector pBIB-Kan, complete sequence. NCBI Accession N. GU982971. Published online 30 Mar 2010.

Condori J, **Medina-Bolivar F.** Binary vector pBIB-Hyg, complete sequence. NCBI Accession N. JX625145. Published online 31 Oct 2012.

Condori J, **Medina-Bolivar F.** *Arachis hypogaea* clone JC2 putative stilbene synthase gene, complete cds. NCBI Accession KF241168. Published online 1 Jan 2014.

Condori J, **Medina-Bolivar F.** *Arachis hypogaea* clone 05_08E putative stilbene synthase mRNA, partial cds. NCBI Accession KF241167. Published online 1 Jan 2014.

Condori J, **Medina-Bolivar F.** *Arachis hypogaea* clone 04_07D putative stilbene synthase mRNA, partial cds. NCBI Accession KF241166. Published online 1 Jan 2014.

Condori J, **Medina-Bolivar F.** *Arachis hypogaea* clone 03_11D putative stilbene synthase mRNA, partial cds. NCBI Accession N. KF241164. Published online 1 Jan 2014.

Condori J, **Medina-Bolivar F.** UNVERIFIED: *Arachis hypogaea* clone 04_06E putative stilbene synthase-like mRNA, partial sequence. NCBI Accession N. KF241165. Published online 1 Jan 2014.

Articles and Videos:

Medina-Bolivar F. *Plant roots offer pharmaceutical potential.* Jonesboro Sun. Oct 15, 2005
(I recorded a radio interview following this article, Oct 27, 2005)

Medina-Bolivar F. *From “hairy roots” to pharmaceutical drugs: a tale of metabolic engineering.* 2005 ASU Foundation Annual Report.

Medina-Bolivar F. *Rooting for resveratrol.* 2006 Annual Report of the Arkansas Biosciences Institute.

Medina-Bolivar F. 2007. *ASU scientists find source for anti-aging compound.* Jonesboro Sun. April 22, 2007

Medina-Bolivar F. 2011. *Why Plant Research?* MeASUre. The Research Publication of Arkansas

State University. Article and YouTube video highlights Medina-Bolivar's research.

Medina-Bolivar F. 2012. *3rd Annual Conference of the American Council for Medicinally Active Plants*. YouTube video highlighting the Arkansas Biosciences Institute and the conference at Arkansas State University. The event was organized and chaired by F. Medina-Bolivar.
<http://www.youtube.com/watch?v=9VEwO6fYCgQ>

Medina-Bolivar F. 2013. *Stilbenoid symphony*. YouTube video focusing on the research of Dr. Medina-Bolivar. This video also features his piano composition.
http://www.youtube.com/watch?v=sm6_p6DBJRg

Medina-Bolivar F. 2013. *Arkansas ASSET's Special Hispanic Heritage Tribute Publication*. This issue highlights the research profile of Dr. Medina-Bolivar.

Medina-Bolivar F. 2017. TEDx talk. *Peanut and Piano: How great things can results from a little stress*. Arkansas State University. <https://www.youtube.com/watch?v=cCO9BTRjLEA>

RESEARCH SUPPORT

Funded Grant Proposals:

Medina-Bolivar F (PI)

“Metabolic engineering for the overproduction of medicinal phytochemicals”

Arkansas Biosciences Institute

\$ 200,000

07/01/05-6/30/08

Medina-Bolivar F (PI), Grippo A.

“Effects of resveratrol-containing extracts from peanut hairy roots on human leukemia cells”

Arkansas State University, Undergraduate Research Proposal

\$ 1,000

07/01/06-12/31/06

Medina-Bolivar F (PI)

“Advanced training in HPTLC techniques for phytochemical analyses”

Arkansas State University/Eleanor Lane Travel Award

\$ 750

Sep 2006

Lorence A, **Medina-Bolivar F (Co-PI)**, Redeker K.

“Collaborative Seed Grant: Mechanisms of Toxicity and Remediation of Superfund Environmental Toxicants”

Arkansas Biosciences Institute at Arkansas State University

\$ 34,500

07/01/06-06/30/08

Medina-Bolivar F (PI)

“Development of Transgenic Sorghum Root Cultures for Production of Herbicides”

Arkansas State University

\$ 7,000

07/01/06-06/30/07

Gilbert K (AR Children’s Hospital Research Institute), Blossom S, Przyyla B, Pumford N, Fuscoe J, **Medina-Bolivar F**, Redeker K, Lorence A

“Developing an immunotoxicology center in Arkansas”

Arkansas Biosciences Institute at Arkansas Children’s Hospital Research Institute

\$ 200,000 (*Note:* funding provided to AR Children’s Hospital Res. Inst.)

07/01/07-06/30/08

Nirmal J (Fort Valley State Univ.), Prahlad P (Karmanos Cancer Inst. at Wayne State Univ.), **Medina-Bolivar F** (Co-PI, ASU), Shannon D. (Auburn Univ.), Ellis B. (USDA), Rimando A (USDA)

“*Scutellaria* as a medicinal crop: Cryopreservation, hairy root culture, organic farming and anticancer activity”

United States Department of Agriculture (USDA), Cooperative State Research, Education and Extension Service (CSREES), 1890 Capacity Building Grant, National Competitive Proposal

\$ 434,258

10/01/08-09/30/11

Medina-Bolivar F (PI), Carrier J (Univ. of Arkansas, Fayetteville), Dolan M.

“Regulation, production and purification of bioactive stilbenoids from hairy root cultures of peanut”

National Science Foundation, EPSCoR-P3 Center for Plant-Powered Production Competitive Proposal

\$ 248,250

05/16/08-11/15/09

Gilbert K, Lorence A, **Medina-Bolivar F** (Co-PI), Cramer C.

Phytoremediation of trichloroethylene

Arkansas Children’s Hospital Research Institute

\$ 180,000

07/01/08-06/30/10

Khodakovskaya M (PI, UALR), **Medina-Bolivar F** (Co-PI, ASU).

“Enhancing abiotic stress tolerance and production of antioxidant in plants for Advanced Life Support in Space Exploration”.

Arkansas Space Grant Consortium

\$ 45,000

04/15/08-4/14/11

Khodakovskaya M (PI, UALR), Grace S (Co-PI, UALR), Ali N (Co-PI, UALR), **Medina-Bolivar F** (Co-PI, ASU).

“Regulation of secondary metabolism in tomato by genetic manipulation of the phosphoinositol pathway”.

NSF-EPSCoR P3

\$ 149,928

04/01/09-3/31/10

Hannigan R (PI), Buchanan R (Co-PI), Cramer C (Mentor), Dolan M (Mentor), Bouldin J (Mentor), Christian A (Mentor), Lorence A. (Mentor), **Medina-Bolivar F** (Mentor), Anh S (Mentor), Green S (Mentor), Dowling C (Mentor), Phillips G (Mentor), Young N (Mentor)

“Undergraduate Research and Mentoring in the Biological Sciences: Cross-disciplinary Research at the Intersection of Biotechnology and the Environment”

National Science Foundation

\$ 1,112,685

01/15/08-12/15/13

Note: **Dr. Medina-Bolivar** was in charge of writing the Metabolite Identification section; Project 4, subproject 1 (“Development of chemical markers for black cohosh”)

Cramer C (PI), Thompson G, Korth K

Note: This proposal includes 21 scientists. Dr. **F. Medina-Bolivar** was involved in writing Objective II/Project 2 (“Manipulating of the terpenoid pathway for discovery and bioproduction of valuable phytochemicals in hairy roots”) and Objective III/Objective 2/Aim 2 (“Elicitation as a gene discovery tool for master regulators of terpenoid biosynthesis in hairy roots”).

“Arkansas ASSET Initiative” – Plant Bioproduction Project

National Science Foundation EPSCoR Research Infrastructure Improvement Program

\$ 9,000,000

05/01/07-04/30/10

Medina-Bolivar F (PI)

“Root cultures of *Veratrum californicum* as a sustainable source of cyclopamine and related steroidal alkaloids” – Feasibility Study

Infinity Pharmaceuticals

3/13/11-3/13/12

\$ 72,271

Medina-Bolivar F (PI)

“Root cultures of *Veratrum californicum* as a sustainable source of cyclopamine and related steroidal alkaloids”

Infinity Pharmaceuticals

3/13/12-3/13/13

\$ 215,659

Nirmal J (Fort Valley State Univ.), Prahlad P (Karmanos Cancer Inst. at Wayne State Univ.), **Medina-Bolivar F** (Co-PI, ASU), Ellis D. (USDA), Rimando A (USDA-ARS)

“Germplasm conservation, anti-adipocytic and anticancer activity, and metabolic engineering in the genus *Scutellaria*”

United States Department of Agriculture (USDA), Cooperative State Research, Education and Extension Service (CSREES), 1890 Capacity Building Grant, National Competitive Proposal
\$ 455,589

09/01/11-08/31/14

Atwill R (student), **Medina-Bolivar F** (PI; advisor)

“Production of resveratrol and its prenylated analogs in 1 liter peanut hairy root cultures and their purification using high performance counter current chromatography”.

Arkansas Department of Higher Education; Student Undergraduate Research Fund (SURF)

\$ 2,750

01/01/12-04/30/12

Marsh Z (student), **Medina-Bolivar F** (PI; advisor)

“Development of root cultures of *Veratrum californicum* for sustainable production of the antitumor alkaloid cyclopamine”

Arkansas Department of Higher Education; Student Undergraduate Research Fund (SURF)

\$ 4,000

01/01/12-12/31/12

Ogutu L (student), **Medina-Bolivar F** (PI; advisor)

“Biosynthesis enhancement and neuroprotective activity of stilbenoids from hairy root cultures of peanut”

Arkansas State University; Student Undergraduate Research Fund (SURF)

\$ 2,750

01/01/13-04/30/13

Ogutu T (student), **Medina-Bolivar F** (Co-PI), Compadre C (PI)

“Characterization of tocotrienols in hairy root cultures of annatto”

ASTA

2013 UAMS/AState Summer Internship

Medina-Bolivar (PI)

A transcriptomic approach to elucidate the biosynthesis of stilbenoids in peanut

P3 Center Next-Gen Sequencing Pilot Award

\$ 1,670

Medina-Bolivar (PI), Mockaitis K (Co-PI; University of Indiana)

“Elucidating the biosynthesis of stilbenoids in peanut”

USDA-AFRI

\$ 138,513

12/15/13-12/14/15

Savary (PI), **Medina-Bolivar** (Co-PI), Xu (Co-PI), Lee (Co-PI; University of Arkansas),
“Development of separations chemistry to isolate and identify bioactive components in rice bran
fractions for characterizing their colon-promoting benefits”

P3

\$ 83,980

8/1/14-6/30/15

Creameans (student); **Medina-Bolivar** (PI)

“Production of tocotrienols in hairy root cultures of annatto”

ASSET

1/22/15-9/19/15

\$ 6,000

Creameans (student); **Medina-Bolivar** (PI)

“Production of bioactive compounds in hairy root cultures of annatto”

College of Sciences and Mathematics, A-State

1/15/15-8/15/15

\$ 2,750

Tollett (student); **Medina-Bolivar** (PI)

“Bioproduction of stilbenoids in peanut hairy root cultures and their purification by high
performance counter current chromatography”

College of Sciences and Mathematics/SURF, A-State

1/15/15-8/15/15

\$ 2,750

Knapp (student); **Medina-Bolivar** (PI)

“Production of stilbenoids in hairy root cultures of muscadine grape: Effect of methyl jasmonate
and cyclodextrin”

SURF, State of Arkansas

1/22/15-9/19/15

\$ 2,125

Savary (PI), **Medina-Bolivar** (Co-PI), Xu (Co-PI), Lee (Co-PI; University of Arkansas),
“Development of separations chemistry to isolate and identify bioactive components in rice bran
fractions for characterizing their colon-promoting benefits”

P3

\$ 83,980

8/1/14-6/30/15

Medina-Bolivar (PI)

“Bioproduction and metabolic engineering of prenylated stilbenoids in hairy roots”

Advanced Institute for Research Development. A-State

\$ ~ 1,500

Medina-Bolivar (PI)

Provost's Faculty Development Award, A-State
\$ ~ 1,400

Savary (PI), **Medina-Bolivar** (Co-PI), Xu (Co-PI)

Preparation and Analysis of Feruloylated Arabinoxylan Oligosaccharides from Rice Bran to Establish their Colon-Health Promoting Benefits
Arkansas Biosciences Institute
7/01/15-6/30/17
\$ 95,938

Medina-Bolivar (PI)

“Innovative plant products for the prevention and treatment of obesity”
Arkansas Biosciences Institute
\$ 99,452
7/01/15-6/30/17

Lee (student); **Medina-Bolivar** (PI)

“Hairy roots as potential scaffolds for mammalian cell cultures”
SURF, State of Arkansas
1/15/16-9/15/16
\$ 2,125

Medina-Bolivar (PI)

“Prenylated stilbenoids as chemopreventive and therapeutic agents for breast cancer”
Arkansas Biosciences Institute
1/1/17-6/30/18
\$ 59,497

Funded Grant Proposals From Previous Appointment (at Virginia Tech):

Cramer C (BioDefense Technologies, PI), **Medina-Bolivar F** (Virginia Tech, PI), Dolan M.

“Nasally-delivered mucosal vaccine for plague”

Sub-Contract from NIH/Small Business Technology Transfer (STTR) national competitive grant (STTR, R41 AI 52958-01) to BioDefense Technologies, Inc.

\$ 108,121 (to Medina-Bolivar)

1/1/03-12/31/03

Petri Jr. W (Univ. of Virginia), Buck G. (VA Commonwealth Univ.), Nessler C. (VA Tech)

“The Virginia Consortium for Mucosal Therapy of Infectious and Autoimmune Diseases”

State of Virginia, Commonwealth Technology Research Fund

\$ 3.6 Million (\$ 1.2 Million to Medina-Bolivar)

1/1/02-5/30/05

Note: Dr. **Medina-Bolivar** participated in writing part of this proposal. He was appointed as Research Director for the Virginia Tech component of this project.

Medina-Bolivar (PI)

“Hairy root cultures as bioproduction systems for metabolites produced in tobacco leaf and smoke”
(Subcontract from grant “On the presence of monoamine oxidase inhibitors in tobacco and tobacco smoke” awarded to N. Castagnoli, PI, Dept. of Chemistry, Virginia Tech)

Phillip Morris

09/01/03-12/31/04

PRESENTATIONS

1992

1. **Medina-Bolivar F**, Flores H. 1992. Selection of high alkaloid-producing "hairy root" clones of *Hyoscyamus muticus*. International Symposium in the Molecular Genetics of Root Development. New York City, NY. (poster)
2. **Medina-Bolivar F**, Dodds J. 1992. Efficient shoot organogenesis from leaves, roots and internodes of sweet potato. Annual Meeting American Society of Plant Physiologists. Pittsburg, PA (poster; Plant Physiology. Abstract 99: 49)
3. **Medina-Bolivar F**, Dodds J. 1992. Development of plant regeneration and transformation systems in sweet potato (*Ipomoea batatas*). Congress on In Vitro Biology. Arlington, VA. (poster)
4. Lowe J, Newell C, Buitron F, **Medina-Bolivar F**, Dodds J. 1992. Development of plant regeneration and transformation systems in sweet potato (*Ipomoea batatas*). Congress on In Vitro Biology. Arlington, VA. [poster; In Vitro Cellular and Developmental Biology. Abstract 28:121A]

1993

5. **Medina-Bolivar, F.** and H. Flores. 1993. A novel approach for tropane alkaloid overproduction from hairy roots of *Hyoscyamus muticus*. Annual Meeting American Society of Plant Physiologists. Minneapolis, MN [Plant Physiology. Abstract 102:98]
6. **Medina-Bolivar, F.** and H. Flores. 1993. Genetic engineering of secondary metabolites. New method for hyoscyamine overproduction from hairy roots. Phytochemical Society of North America. Monterey, CA.

1994

7. **Medina-Bolivar, F.** and H. Flores. 1994. Biochemical manipulations of constitutive and inducible secondary metabolites in hairy roots of *Hyoscyamus muticus*. Phytochemical Society of North America, Mexico City, Mexico.
8. **Medina-Bolivar, F.**, Gruver, M. and H. Flores. 1994. Regulation of constitutive and inducible metabolites in hairy root cultures of *Hyoscyamus muticus*. Annual Meeting American Society of Plant Physiologists. [Plant Physiology. Abstract 105: 89]
9. **Medina-Bolivar, F.** and H. Flores. 1994. Biochemical manipulations to increase alkaloid production in hairy roots. First Annual Industry Liaison Days Research Exhibition. State College, PA.

1995

10. **Medina-Bolivar, F.** and H. Flores. 1995. Studies on the manipulation of tropane alkaloid biosynthesis in hairy roots of *Hyoscyamus muticus*. 10th Annual Penn State Symposium in Plant Physiology. State College, PA

1997

11. **Medina-Bolivar, F.** and H. Flores. 1997. Metabolic engineering of the sesquiterpene pathway in hairy roots of *H. muticus*. Annual Meeting American Society of Plant Physiologists. [Plant Physiology. Abstract 114(3): 150]
12. **Medina-Bolivar, F.** and H. Flores. 1997. Regulation of tropane alkaloid vs. sesquiterpene biosynthesis in hairy root cultures of *Hyoscyamus muticus*. 12th Annual Penn State Symposium in Plant Physiology. State College, PA.
13. **Medina-Bolivar, F.** and H. Flores. 1997. Tropane alkaloid vs. sesquiterpene biosynthesis in hairy roots of *Hyoscyamus muticus*. Annual Meeting American Society of Plant Physiologists. Plant Physiology. Abstract 114(3): 232.

1998

14. **Medina-Bolivar, F.**, Lang, S., Denbow, C. and C. Cramer. 1998. Compartmentalization of the isoprenoid pathway: Channelling metabolites for sterol vs. phytoalexin biosynthesis. Keystone Symposium in Plant Cell and Molecular Biology. Taos, NM.
15. **Medina-Bolivar, F.**, Lang, S., Denbow, C. and C. Cramer. 1998 Metabolic engineering of the isoprenoid pathway. Southern Section - American Society of Plant Physiologists. Roanoke, VA.
16. Rohrbaugh, A., **Medina-Bolivar, F.** and C. Cramer. 1998. Does glycosylation play a role in HMG2 localization? Southern Section - American Society of Plant Physiologists. Roanoke, VA.

1999

17. **Medina-Bolivar, F.** and C. Cramer. 1999. Constitutive expression of tomato *hmg2* in tobacco accelerates production of sesquiterpene phytoalexins associated with enhanced disease resistance. Annual Meeting American Society of Plant Physiologists. Baltimore, MD. (Plant Physiology, Abstract. 120S: 101)
18. Denbow, C., Daniel, A., **Medina-Bolivar, F.** and C. Cramer. 1999. Mutation of a potential ER retrieval signal in 3-hydroxy-3-methylglutaryl coenzyme A reductase and its effects on localization in Xanthi tobacco cells. Annual Meeting American Society of Plant Physiologists. Baltimore, MD (Plant Physiology, Abstract 120S: 86)
19. **Medina-Bolivar, F.** and C. Cramer. 1999. "Hairy roots" a tool for metabolic engineering. Congress on In Vitro Biology. New Orleans, LA. June 5-9, 1999. [In Vitro Cellular & Developmental Biology, Abstract 35(3): 38-A]
20. Ni, H., McCarthy, A., **Medina-Bolivar, F.**, Grabau, E. and C. Cramer. 1999. Production of human protein C in root cultures of transgenic tobacco. Congress on In Vitro Biology. New Orleans, LA. June 5-9, 1999. [In Vitro Cellular & Developmental Biology. Abstract 35(3): 48-A]

2000

21. **Medina-Bolivar, F.**, Verbiest, L., Sentz, D., Barroso, L., Cramer, C. and T. Wilkins. 2000. Plant-based vaccine development: Ricin B–GFP as a model for adjuvant antigen production. Sixth International Congress of Plant Molecular Biology. Quebec City, Canada. June 18-24, 2000.
22. Denbow, C., **Medina-Bolivar, F.** and C. Cramer. 2000 Mutation of an ER targeting sequence alters subcellular localization of HMGR. Sixth International Congress of Plant Molecular Biology. Quebec City, Canada. June 18-24, 2000.
23. **Medina-Bolivar, F.**, Sentz, D., Verbiest, L., Petri Jr., W., Wilkins, T., Cramer, C. Strategies for developing a co-expressed adjuvant for plant-based vaccine bioproduction. International Centers for Tropical Disease Research, National Institutes of Health. Bethesda, MD.

2001

24. Stroup, S., Kumar, S., **Medina-Bolivar, F.**, Cramer, C., Timko, M. and C. Cramer. 2001. Expression of Gal/GalNAc lectin of *Entamoeba histolytica* in transgenic plants. International Centers for Tropical Disease Research, National Institutes of Health. Bethesda, MD. May 7-9, 2001. (Abstract)

- 25. Medina-Bolivar, F.,** Wright, R., Sentz, D., Petri Jr., W., Wilkins, T. and C. Cramer. Plant-based mucosal vaccines. International Centers for Tropical Disease Research, National Institutes of Health. Bethesda, MD. May 7-9, 2001. (Abstract)
- 26. Medina-Bolivar, F.,** Wright, R., Sentz, D., Petri Jr., W., Wilkins, T. and C. Cramer. 2001. Ricin B-GFP: A model for plant-based mucosal vaccines Congress on In Vitro Biology. St. Louis, MS. June 16–20, 2001. (Abstract)
27. Denbow, C., **Medina-Bolivar, F.** and C. Cramer. 2001. Retention of tomato 3-hydroxymethylglutaryl CoA reductase within the endoplasmic reticulum is controlled by an N-terminal arginine motif. Plant Biology 2001 Annual Meeting. Providence, RI. July 21-25, 2001. (Abstract 45).
- 28. Medina-Bolivar, F.,** Wright, R., Sentz, D., Petri Jr., W., Wilkins, T. and Cramer, C. 2001. An adjuvant-antigen model for plant-based mucosal vaccine production. IV Annual Congress in Vaccine Research. Arlington, VA. (Abstract)
- 2002**
29. Zhang, C., **Medina-Bolivar, F.** and C. Cramer. 2002. Purification of ricin B from hairy root culture medium by aqueous two-phase extraction.” Annual Meeting of the American Institute of Chemical Engineers. Indianapolis, IN.
30. Cramer, C. and **F. Medina-Bolivar.** 2002. Mucosal immunology and the mean green vaccine. 19th Annual Mid-Atlantic Plant Molecular Biology Society Meeting. Beltsville, MD. August 19-20, 2002.
31. Dolan, M., Bennett, S., **Medina-Bolivar, F.,** Applewhite L. and P. Green. 2002. Species identification of pasteurized crabmeat by a discriminating PCR-based diagnostic. Institute of Food Technologists. Annual Meeting and Food Expo. Anaheim, CA. (Abstract 56-9)
- 32. Medina-Bolivar, F.,** Funk, V., Wright, R., Petri Jr., W. and C. Cramer. 2002. Application of inducible plant-expression systems for unstable proteins. 10th International Association of Plant Tissue Culture and Biotechnology Congress. Orlando, FL.
- 33. Medina-Bolivar, F.,** Dolan, M., Funk, V., Wright, R., Russell, M. and C. Cramer. 2002. Transgenic plants for bioexpression of mucosal vaccine antigens, adjuvants and immunomodulators. Conference on Immunopotentiators in Modern Vaccines. Prague, Czech Republic.
- 34. Medina-Bolivar, F.,** Funk, V., Wright, R., Sentz, D., Petri Jr., W., Wilkins, T. and C. Cramer. 2002. A galactose/galactosamine binding lectin as a mucosal adjuvant/carrier from plant-based vaccines. Fifth Annual Conference on Vaccine Research. Baltimore, MD. May 6-8, 2002. (Abstract S20-5)

35. Lorence, A., **Medina-Bolivar, F.** and C. Cramer. 2002. Production of camptothecin and 10-hydroxycamptothecin from *Camptotheca acuminata* hairy roots. First International Congress on Plant Metabolomics. Wageningen, Netherlands. April 7-11, 2002.

2003

36. Stroup, S., Teli, N., **Medina-Bolivar, F.**, Barroso, L., Timko, M., Mann, B. 2003. Development of a plant-based vaccine for amebiasis. American Society of Tropical Medicine and Hygiene. 2003. 52nd Annual Meeting. Philadelphia, PA. December 3-7, 2003. (Abstract)
37. **Medina-Bolivar, F.**, Funk, V., Wright, R., Mann, B., Stroup, S., Petri Jr., W. and C. Cramer. 2003. Novel plant-based vaccine strategies for amebiasis. 7th International Congress of Plant Molecular Biology. Barcelona, Spain. June 23-28. (Abstract S26-32)
38. **Medina-Bolivar, F.**, Funk, V., Wright, R., Mann, B., Strop, S., Petri Jr., W. and C. Cramer. 2003. A plant-based mucosal vaccine for amebiasis". Sixth Annual Conference on Vaccine Research. Arlington, VA. May 5-7, 2003. (Abstract P29).
39. Woffenden, B., Cramer, C. and **F. Medina-Bolivar**. 2003. Plant-based production of a subunit mucosal vaccine for pneumonic plague". The Congress on In Vitro Biology. Portland, OR. May 31-June 4, 2003. (Abstract)
40. **Medina-Bolivar, F.**, Funk, V., Wright, R., Petri Jr., W. and C. Cramer. 2003. Plant-based production of mucosal vaccines. Conference on Plant-Made Pharmaceuticals. Quebec City, Canada.

2004

41. Buswell, S., **Medina-Bolivar, F.**, Van Cott, K. and C. Zhang. 2004. Expression of porcine prorelaxin in transgenic tobacco. Relaxin 2004: Relaxin and Related Peptides, Jackson Lake Lodge, Grand Teton National Park, Wyoming. September 5-10, 2004.
43. Hampton, J., Livingstone, D., Boluarte-Medina, T., **Medina-Bolivar, F.**, Shew, B., Hollowell, J., Phipps, P. and E. Grabau. 2004. Growth and oxalic acid production in liquid cultures by isolates of *Sclerotinia minor*. 21th Mid-Atlantic Plant Molecular Biology Society Conference. August 19-29, 2004.
44. Zhang, C., **Medina-Bolivar, F.** and C. Cramer. 2004. Recovery and improvement of the stability of ricin B from hairy root culture medium. American Society for Agricultural Engineers, Annual International Meeting. Ontario, Canada. August 1-4, 2004
45. **Medina-Bolivar, F.**, Reed, D. Reidy, M. and C. Cramer 2004. Tobacco-produced hexahistidine-tagged ricin B as a mucosal adjuvant". Seventh Annual Conference on Vaccine Research. Arlington, VA.

2005

46. Nopo-Olazabal, L., Woffenden, B., Reed, D., Buswell, S., Zhang, C., Cramer, C., **Medina-Bolivar, F.** 2005. Identification of a highly active and inducible promoter for hairy roots of tobacco, p. 305. In: Abstracts of the Annual Meeting of the American Society of Plant Biologists, Seattle, WA. 16-20 July. (poster)
47. Reed, D., Nopo-Olazabal, L., Woffenden, B., Cramer, C., **Medina-Bolivar, F.** 2005. Post-translational processing of ricin B is affected by its expression source in tobacco, p. 275. In: Abstracts of the Annual Meeting of the American Society of Plant Biologists, Seattle, WA. 16-20 July. (poster)
48. Lorence, A., Woffenden, B., Smith, M., Nessler, C., **Medina-Bolivar, F.** 2005. Over-expression of transcription factors to manipulate specialized metabolism, Abstract 47. In: Abstracts of the Phytochemical Society of North America 2005 Annual Meeting, Integrative Plant Biochemistry as We Approach 2010, La Jolla, CA. 30 July-3 August. (poster)
49. **Medina-Bolivar, F.**, Dolan, M., Bennett, S. 2005. Development of a streamlined DNA-based diagnostics platform for black cohosh authentication, P-17. In: Abstracts of the International Conference Quality and Safety Issues Related to Botanicals, National Center for Natural Products Research, Oxford, MS, 15-18 August. (poster)
50. **Medina-Bolivar, F.** 2005. Hairy Roots and Plant-derived Pharmaceuticals: Rediscovering the Hidden Half of Specialized Metabolism. Arkansas Biosciences Institute Fall Research Symposium. Little Rock, AR. Sep 29, 2005. (invited talk)
51. **Medina-Bolivar, F.** 2005. Hairy roots as biological factories from natural products to recombinant proteins. National Center for Natural Products Research. Oxford MS. Oct 17, 2005. (invited talk)

2006

52. **Medina-Bolivar, F.**, Nopo-Olazabal, L. 2006. Production of secondary metabolites and recombinant proteins in hairy roots cultured in the Liquid Lab™ bioreactor. In Vitro Biology Meeting, Minneapolis, MN, Jun 3-7. (poster)
53. Nopo-Olazabal, L., Simeon, S., Hannigan, R., Lorence, A., **Medina-Bolivar, F.** 2006. Elicitation and secretion of sesquiterpenes in hairy roots cultured in the Liquid Lab™ bioreactor. 2006 Phytochemical Society of North America Annual Meeting, Oxford, MS, July 8-12. (poster)
54. **Medina-Bolivar, F.**, Hubstenberger, J., Condori, J., O'Keefe, S., Bennett, S., Dolan, M. Resveratrol production in hairy roots of peanut. Phytochemical Society of North America Annual Meeting, Oxford, MS, July 8-12, 2006. (talk)
55. Lorence, A., Woffenden, B., Nopo-Olazabal, L., Martinez, J., C. Nessler, **Medina-Bolivar, F.** 2006. Enhanced production of specialized metabolites in tobacco over-expressing an AP2-

type transcription factor. Phytochemical Society of North America Annual Meeting, Oxford, MS, July 8-12. (talk)

56. **Medina-Bolivar, F.** 2006. Hairy roots: novel applications for plant biotechnology. In: Abstracts of the First International Workshop on Hairy Roots, Jonesboro, AR, July 13, 2006. (invited talk)
57. **Medina-Bolivar, F.** 2006. Hairy roots: harnessing the biosynthetic potential of plant roots for agriculture and medicine. Symposium on Medicinal Plants. American Society of Horticultural Sciences Annual Meeting, New Orleans, LA, 25 July 25. (invited talk)
58. **Medina-Bolivar, F.,** Nopo-Olazabal, L., Simeon, S., Shelton, K., Condori, J., Hannigan, R., Lorence, A. 2006. HPTLC as a tool to rapidly assess the elicitor responsiveness of hairy roots cultured in the Liquid Lab™ reactor. International Symposium for High Performance Thin-Layer Chromatography. Berlin, **GERMANY**. October 9-11. (poster)
59. **Medina-Bolivar, F.** 2006. Production and secretion of resveratrol and resveratrol analogues in hairy roots of peanut. Aging Work Group at University of Arkansas for Medical Sciences. Little Rock, AR. November 16, 2006. (invited talk)
60. **Medina-Bolivar, F.** 2006. Production of resveratrol in hairy roots. Universidad Peruana Cayetano Heredia. Lima, **PERU**. December 22, 2006 (invited talk)

2007

61. **Medina-Bolivar, F.** 2007. Hairy roots as chemical factories: Rooting for resveratrol. University of Arkansas at Little Rock. Little Rock, AR. January 29, 2007. (invited talk)
62. **Medina-Bolivar, F,** Dolan, M., 2007. Bioproduction scale-up of enhanced resveratrol products. Consortium for Plant Biotechnology Research Symposium. Washington, DC. Feb 12. (poster)
63. Simeon, S., Hannigan, R., **Medina-Bolivar, F.,** Martinez-Quintana, J., Lorence, A. 2007. HPTLC method for simultaneous cellular redox and energy state determination of plant samples. 58th Pittsburg Conference on Analytical Chemistry and Applied Spectroscopy. Chicago, IL. Feb 25-Mar 2. (poster)
64. **Medina-Bolivar, F.** 2007. Hairy roots: novel approaches for the production of specialized metabolites and proteins. International Symposium on Medicinal and Nutraceutical Plants, Fort Valley, GA. Mar 21. (invited talk)

65. **Medina-Bolivar, F.** 2007. Hairy roots: a source for a highly defined resveratrol product. In: International Symposium on Medicinal and Nutraceutical Plants. Fort Valley, GA. Mar 23. (invited talk)
66. Freeburg, E., Nopo-Olazabal, L., Hannigan, R., **Medina-Bolivar, F.** 2007. Extraction and identification of formononetin from black cohosh (*Actaea racemosa*) utilizing gas-chromatography couple mass-spectrometry and ultraviolet detection of high performance thin layer chromatography, American Chemical Society 233rd National Meeting and Exposition. Chicago, IL. Mar 25-29. (poster)
67. Freeburg, E., Nopo-Olazabal, L., Hannigan, R., **Medina-Bolívar, F.** 2007. Phytochemical profiling and chemical marker development of Black cohosh (*Actaea racemosa*) and Sheng ma (*A. cimicifuga*) utilizing ultraviolet detection coupled high-performance thin layer chromatography. 21st National Conference on Undergraduate Research (NCUR), San Rafael, CA, April 12-14. (poster)
68. Brown, K., Nopo-Olazabal, L., Condori, J., **Medina-Bolivar, F.** 2007. Analysis of inducible metabolites in potato hairy roots. 21st National Conference on Undergraduate Research (NCUR), San Rafael, CA, April 12-14. (poster)
69. Spulecki, S., Condori, J., Shelton, K., Nopo-Olazabal, L., Grippo, A., **Medina-Bolivar, F.** 2007. Resveratrol and resveratrol derivatives produced from peanut hairy roots. 21st National Conference on Undergraduate Research (NCUR), San Rafael, CA, April 12-14. (poster)
70. Cramer, C., Dolan, M., Lorence, A., **Medina-Bolivar, F.**, Weathers, P. 2007. Biotechnology at the Interface of Agriculture and Medicine. XII National Congress of Biotechnology and Bioengineering, Morelia, Mexico, Jun 25-29. (talk)
71. **Medina-Bolivar, F.**, Nopo-Olazabal, C., Sivakumar, G., Nopo-Olazabal, L., Hannigan, R., Redeker, K., Lorence, A., Purnell, C., Harris, S., Simeon, S. 2007. Trichloroethylene induced stilbenoid compounds and antioxidant activity in peanut roots. Annual Meeting of the Phytochemical Society of North America. St. Louis, MO. Jul 21-25. (talk)
72. Sivakumar, G., Condori, J., Hannigan, R., Dolan, M., **Medina-Bolivar, F.** 2007. HPLC-MS screening for resveratrol and its derivatives in hairy root cultures of peanut. Annual Meeting of the Phytochemical Society of North America. St. Louis, MO. Jul 21-25. (talk)
73. Condori, J., Medrano, G., Sivakumar, G., Cramer, C., **Medina-Bolivar, F.** 2007. Cloning and characterization of resveratrol synthase from peanut using a transient expression system. Annual Meeting of the Phytochemical Society of North America. St. Louis, MO. Jul 21-25. (poster)
74. Nopo-Olazabal, C., Nopo-Olazabal, L., Sivakumar, G., Condori, J., Hannigan, R., **Medina-Bolivar, F.** 2007. Screening for stilbenes in hairy roots of *Nicotiana benthamiana*. Annual Meeting of the Phytochemical Society of North America. St. Louis, MO. Jul 21-25. (poster)

75. **Medina-Bolivar, F.**, Nopo-Olazabal, C., Sivakumar, G., Nopo-Olazabal, L., Condori, J. 2007. Screening for bioactive stilbenes in the genus *Nicotiana* and other Solanaceae species. 61st Tobacco Science Research Conference. Charlotte, NC. Sep 23-26. (invited talk)
76. **Dolan, M.**, Medina-Bolivar, F., Bennett, S. 2007. Production of bioactive stilbenes in hairy root cultures of plants. Biocontact Quebec 2007. Ontario, **CANADA**. Oct. 3-5, 2007 (talk).
77. **Medina-Bolivar, F.** 2007. Harnessing plant and chemical diversity for the production of medicinal and nutritional compounds. In: Abstracts of the Latin American and Caribbean Congress on Agricultural Biotechnology – REDBIO. Vina del Mar. **CHILE**. Oct 22-26. (invited talk)
78. **Medina-Bolivar, F.** 2007. “Induction and biological activity of resveratrol and its derivatives from hairy root bioreactors”
 [Note, this talk was presented in Spanish with the title: “*Inducción y actividad biológica del resveratrol y sus derivados en bioreactores de "hairy roots"*”; see <http://www.fundacioncassara.org.ar/?es/docencia/seminarios/agenda/Pablo> Cassara Foundation. Buenos Aires, **ARGENTINA**. October 31, 2007 (invited talk).

2008

79. **Medina-Bolivar, F.** 2008. Production of Bioactive Resveratrol Analogues in Hairy Roots of Peanut”. Meeting of the Southern Association of Agricultural Scientists. Dallas, TX. Feb 4, 2008. (invited talk)
80. **Medina-Bolivar, F.** 2008. Stilbenoid phytoalexins: Harnessing plant defense metabolism for human health. University of Arkansas, Fayetteville, AR. February 19, 2008. (invited talk)
81. Sawalha, A., **Medina-Bolivar, F.** 2008. Characterization of stilbenoids in Japanese knotweed (*Polygonum cuspidatum*) by HPLC AND HPTLC. National Conference on Undergraduate Research. Salisbury, MD. April 10-12. (poster)
82. Sivakumar, G., Villagarcia, H., Condori, J., Hubstenberger, J., Dolan, M., **Medina-Bolivar, F.** 2008. Production of resveratrol analogues in hairy root bioreactors: A biotechnological source for phytopharmaceuticals. PharmaForum . Little Rock, AR., May 18-20. (talk)
83. **Medina-Bolivar, F.**, Srivatsan, M., Condori, J., Sivakumar, G., Badanavalu, M., Dolan, M. 2008. Production and neuroprotective properties of natural resveratrol analogues from peanut hairy roots. World Congress on In Vitro Biology. Tucson, AZ. Jun 14-18. (invited talk)
84. Sivakumar, G., Dolan, M., Condori, J., Bennett, S., Bacchetta, L., **Medina-Bolivar, F.** Air lift balloon type bioreactor: Platform for commercial production of plant-based small molecules and tissues. World Congress on In Vitro Biology, Tucson, AZ. Jun 14-18 (talk)

85. **Medina-Bolivar, F.** Induced Biosynthesis and Biological Activity of Natural Resveratrol Analogues from Hairy Root Cultures. 6th Annual Congress of International Drug Discovery Science and Technology. Beijing, **CHINA**. Oct. 18-22. (invited talk)
86. **Medina-Bolivar, F.** 2008. Biosynthesis of Bioactive Resveratrol Analogues in Hairy Root Cultures. National Key Laboratory of Biochemical Engineering, Chinese Academy of Sciences. Beijing, **CHINA**. Oct. 22, 2008. (invited talk)
87. Condori, J., Sivakumar, G., Dolan, M., **Medina-Bolivar, F.** 2008. Expression of stilbene synthase and stilbenoid production in hairy roots of peanut. ABI Fall Research Symposium. Little Rock, AR. Oct 7. (poster)

2009

88. Abbott J, Carrier DJ, **Medina-Bolivar F**, Clausen E. 2009. Determination of biological activity of stilbenoids resveratrol, piceatannol, arachidin-1 and arachidin-3. International Food Technology Annual Meeting. Anaheim, CA. June 6-9. (poster)
89. Condori J, **Medina-Bolivar F.** 2009. Functional characterization of stilbene synthase using a transient expression system and production of resveratrol and prenylated stilbenoids in hairy roots of peanut. Gordon Conference on Metabolic Engineering. Waterville Valley, NH. July 12-17 (poster)
90. **Medina-Bolivar F, Dolan M,** Srivatsan M, Carrier J, Sivakumar G, Ganapathy, Condori J, Villagarcia H, Nopo-Olazabal C, Nopo-Olazabal L, Abbott J, Hubstenberger J. 2009. Production and bioactivity of natural resveratrol analogues from hairy root cultures. 238th American Chemical Society National Meeting and Exposition. Washington, DC. August 16-20, 2009. (invited talk)
91. Nopo-Olazabal C, Hubstenberger J, **Medina-Bolivar F.** 2009. Elicitation of stilbenoids in hairy roots of muscadine grape. International Plant Molecular Biology Meeting. St. Louis, MS. October 26-30. (poster)
92. Condori J, Dolan M, **Medina-Bolivar F.** 2009. Characterization of a resveratrol synthase gene family in hairy roots of peanut. International Plant Molecular Biology Meeting. St. Louis, MS. October 26-30. (poster)
93. Nopo-Olazabal L, Wu S, Allen T, Baker J, **Medina-Bolivar F.** 2009. Characterization of inducible phenolics in hairy roots cultures of the Japanese knotweed (*Polygonum cuspidatum*). International Plant Molecular Biology Meeting. St. Louis, MS. October 26-30. (poster)
94. Malatesta M, Nopo-Olazabal L, **Medina-Bolivar F.** 2009. Characterization of constitutive and inducible specialized metabolites in hairy roots of annatto (*Bixa orellana*). International Plant Molecular Biology Meeting. St. Louis, MS. October 26-30. (poster)

95. Khodakovskaya M, de Silva K, Nopo-Olazabal C, Laska B, Ali N, **Medina-Bolivar F**, Grace S. 2009. Regulation of primary and secondary metabolism in plant cells by genetic manipulation of phosphoinositol pathway. International Plant Molecular Biology Meeting. St. Louis, MS. October 26-30. (poster)
96. Sivakumar G, Lay J, **Medina-Bolivar F**, Xu J. 2009. Botanical insulin: A plant-powered potential antidiabetic molecule. International Plant Molecular Biology Meeting. St. Louis, MS. October 26-30. (poster)
97. Abbott J, Engelberth A, Martin B, Clausen E, **Medina-Bolivar F**, Villagarcia H, Carrier DJ. 2009. Purification and determination of antioxidant activity of bioactive stilbenoids from hairy root cultures of peanut. International Plant Molecular Biology Meeting. St. Louis, MS. October 26-30. (poster)

2010

98. Condori J, Nopo-Olazabal C, **Medina-Bolivar F**. 2010. Bioinformatic tools for cloning and characterizing the stilbenoid pathway in peanut and muscadine grape. 7th Annual Conference of the MidSouth Computational Biology and Bioinformatics Society (MCBIOS). Jonesboro, AR. February 19-20. (poster).
99. Sivakumar G, **Medina-Bolivar F**, Lay JO. 2010. Natural corosolic acid: Future phytoinsulin? CHI 17th International Molecular Medicine Tri-Conference. San Francisco, CA. February (poster)
- 100. Medina-Bolivar, F.** Resveratrol: Harvesting healthy chemicals from hairy roots. 2010. Dept. of Biochemistry. University of Arkansas for Medical Sciences. Little Rock, AR. March 10, 2010. (Invited speaker).
101. Anna Radomska-Pandya A, Nair V, Bratton SM, Gallus-Zawada A, Prather PL, **Medina-Bolivar F**. 2010. Human UDP-glucuronosyltransferases (UGTs) are involved in the metabolism of the natural resveratrol analogues arachidin-1, arachidin-3 and piceatannol. Experimental Biology Meeting. Anaheim, CA. April 2010. (poster).
102. Greenway M, **Medina-Bolivar F**, Dolan M, Nopo-Olazabal L, Phillips IC, Lloyd MN, Hubstenberger J, Phillips GC. 2010. Characterization of hairy root cultures and elicitation of coumaric acid in raspberry, *Rubus idaeus*. 2010. Society for In Vitro Biology Congress. St. Louis, MO. June 6-11 (poster).
- 103. Medina-Bolivar F**, Condori J, Nopo-Olazabal C, Nopo-Olazabal L, Baker J, Atwill R, Abbot J, Dolan M, Carrier J, Sivakumar G, Nair V, Hubstenberger J. 2010. Distinct biosynthesis of resveratrol analogues in hairy root cultures of peanut and muscadine grape. 12th International Association for Plant Biotechnology Congress. St. Louis, MO. June 6-11 (invited talk).
104. Nopo-Olazabal L, Wu S, Rimando A, Joshee N, **Medina-Bolivar F**. 2010. Production of antitumor flavonoids in hairy roots of *Scutellaria lateriflora*. 1st Annual Conference of the American Council for Medicinally Active Plants. New Brunswick, NJ. July 20-23 (talk)

105. Nopo-Olazabal C, Villagarcia H, Khodakovskaya M, **Medina-Bolivar F**. 2010. Manipulation of secondary metabolism in hairy roots of tomato transformed with a mammalian polyphosphate 5-phosphatase. 1st Annual Conference of the American Council for Medicinally Active Plants. New Brunswick, NJ. July 20-23 (poster)
106. Condori J, Nopo-Olazabal C, Atwill R, Baker J Nopo-Olazabal L, **Medina-Bolivar F**. 2010. Comparison of sodium acetate- and methyl jasmonate-mediated elicitation of bioactive stilbenoids in hairy root cultures of peanut. 1st Annual Conference of the American Council for Medicinally Active Plants. New Brunswick, NJ. July 20-23 (poster; *1st Place Poster Award Competition by J. Condori*)
- 107. Medina-Bolivar F**, Condori J, Carrier J, Srivatsan M, Radomska-Pandya A, Sivakumar G, Nair V, Dolan M. 2010. Natural resveratrol analogs from root cultures of peanut and muscadine grape: bioproduction, biotransformation and bioactivity. 1st Annual Conference of the American Council for Medicinally Active Plants. New Brunswick, NJ. July 20-23 (invited talk)
108. Condori J, Atwill R, Nopo-Olazabal L, **Medina-Bolivar F**. 2010. Cyclodextrin regulates stilbenoid biosynthesis leading to high levels of resveratrol and its prenylated analogs in hairy root cultures of peanut. Plant Powered-Production-P3 Symposium. Morrilton, AR. August 15-17. (poster)
- 109. Medina-Bolivar F**, Condori J, Nopo-Olazabal C, Nopo-Olazabal L, Dolan M, Carrier DJ, Srivatsan M, Sivakumar G, Nair V, Hubstenberger J. 2010. Biosynthesis of monomeric and oligomeric stilbenoids in hairy root cultures of peanut and muscadine grape. International Conference on Polyphenols. Montpellier, FRANCE. August 24-27. (talk).
110. Prather P, Cortez L, Nopo-Olazabal L, Nair V, **Medina-Bolivar F**, Radomska-Pandya A. 2010. Natural resveratrol analogs arachidin-1, arachidin-3 and piceatannol bind human and mice cannabinoid receptors CB1 and CB2. 9th International Society for the Study of Xenobiotics. 2010. Istanbul, TURKEY. September 4-8. (poster)
- 111. Medina-Bolivar F**, Condori J, Nopo-Olazabal L, Nopo-Olazabal C, Carrier J, Srivatsan M, Sivakumar G, Dolan M. 2010. Natural prenylated resveratrol analogues from root cultures: Induced biosynthesis, purification and biological activity. 1st International Conference of Resveratrol and Health. Helsingor, DENMARK. September 13-16. (poster)
- 112. Medina-Bolivar F**, Condori J, Atwill RL, Nopo C, Nopo L, Carrier DJ, Srivatsan M, Nair V, Sivakumar G, Dolan M. 2010. Bioproduction of bioactive prenylated resveratrol analogs in root cultures. ABI Fall Research Symposium. Little Rock, AR. September 29. (poster)
113. Gilbert K, Blossom SJ, Gomez-Acevedo H, Cooney C, Plumford N, **Medina-Bolivar F**, Lorence A. 2010. Environmental pollutants as triggers of autoimmune disease: Collaborative research into mechanism of action and remediation. ABI Fall Research Symposium. Little Rock, AR. September 29. (talk)
114. Joshee N, Parajuli P, Rimando AM, **Medina-Bolivar F**, Yadav AK. 2010. Scutellaria biotechnology: Achievements and future prospects. 9th International Symposium "Prospects

for the 3rd Millennium Agriculture. Cluj Napoca, ROMANIA, September 30-October 2. (talk)

115. Condori J, Atwill RL, Nopo-Olazabal L, **Medina-Bolivar F**. 2010. Effect of cyclodextrin on production of resveratrol and its prenylated analogs in hairy root cultures of peanut. Arkansas NSF EPSCoR Project Annual Conference. Little Rock, AR, October 4-5. (poster)
116. Condori J, Nopo-Olazabal C, Atwill RL, **Medina-Bolivar F**. 2010. Reference gene selection for qPCR in hairy root cultures of peanut. qPCR and Data Mining Symposium, San Francisco, CA, November 1-5. (poster; *2nd Place Poster Award Competition by J. Condori*)
117. **Medina-Bolivar F**. 2010. Harvesting healthy chemicals from hairy roots. St. Jude Children's Research Hospital. Memphis, TN, November 1. (invited talk)

2011

118. **Medina-Bolivar F**. 2011. Hairy root cultures of *Veratrum californicum* for the production of cyclopamine and related steroidal alkaloids. Veratrum Summit. Park City, UT, June 28-30. (invited talk)
119. Balmaceda C, Atwill RL, Nopo-Olazabal L, Marsh Z, **Medina-Bolivar F**. 2011. Synergistic effect of cyclodextrin and methyl jasmonate on production of resveratrol and its prenylated analogues arachidin-1 and arachidin-3 in hairy root cultures of peanut. 2nd Annual Conference of the American Council for Medicinally Active Plants. July 17-20. (poster: *1st Place Poster Award Competition by C. Balmaceda*)
120. Nopo-Olazabal C, Nopo-Olazabal L, Condori J, Patel A, Hubstenberger J, **Medina-Bolivar F**. 2011. Differential elicitation of stilbenoids in hairy root cultures of muscadine grape and peanut. 2nd Annual Conference of the American Council for Medicinally Active Plants. July 17-20. (invited talk)
121. Zhai B, Rivas F, Clark J, Ferrand MI, Nopo L, **Medina-Bolivar F**. 2011. Characterization of methyl-jasmonate inducible metabolites in hairy root cultures of annatto (*Bixa orellana*): Towards the identification of novel antimalarial phytochemicals. Arkansas P3 Symposium. Heber Springs, AR. July 26-28. (poster)
122. Atwill RL, Nopo L, **Medina-Bolivar F**. 2011. Production of resveratrol and its prenylated analogs in 1 liter hairy root cultures of peanut and their purification by high performance counter current chromatography. Arkansas P3 Symposium. Heber Springs, AR. July 26-28. (poster)
123. Condori J, **Medina-Bolivar F**. 2011. Identification and characterization of a stilbene synthase gene family in peanut hairy roots. Arkansas P3 Symposium. Heber Springs, AR. July 26-28. (poster)

124. Joshee N, Parajuli P, Rimando A, **Medina-Bolivar F**. 2011. *Scutellaria ocmulgee* small: An endangered plant with limited distribution but unlimited potentials. 23rd Annual Meeting of the Association for the Advancement of Industrial Crops (AAIC): Challenges and Opportunities for Industrial Crops), Fargo, ND. September 11-14. (invited talk).
125. Atwill RL, Balmaceda C, Nopo L, Condori J, **Medina-Bolivar F**. 2011. Bioproduction and purification of arachidin-1 and arachidin-3 by high performance counter current chromatography from hairy root cultures of peanut. Arkansas Biosciences Institute Fall Research Symposium. Little Rock, AR. September 21. (poster)
126. Woodard, A., Hubstenberger J, **Medina-Bolivar F**, Phillips G, Marsico T. 2011. Biosynthesis of defense-priming volatiles from *Opuntia* associated with cactus boring moth (Lepidoptera: Pyralidae) herbivory. 59th Annual Meeting of the Entomological Society of North America, Reno, NV. November 13-16. (poster).

2012

127. Woodard, A., Hubstenberger J, **Medina-Bolivar F**, Phillips G, Marsico T. 2012. Biosynthesis of defense-priming volatiles from *Opuntia* associated with cactus boring moth (Lepidoptera: Pyralidae) herbivory. Plant Volatiles Gordon Research Conference. Ventura, CA. January 29-February 3. (poster)
128. Marsh Z, Nopo-Olazabal L, Joshee N, **Medina-Bolivar F**. 2012. Production of specialized metabolites in hairy root cultures of *Scutellaria lateriflora* treated with cyclodextrin and methyl jasmonate. Create @ State. Jonesboro, AR. April 5. (poster)
129. Atwill R, Nopo-Olazabal L, **Medina-Bolivar F**. 2012. Purification of the prenylated resveratrol analogs arachidin-1 and arachidin-3 from hairy root cultures of peanut by high performance counter current chromatography. Create @ State. Jonesboro, AR. April 5. (poster)
130. Zhai B, Rivas F, Connelly M, Clark J, Ferrand MI, Nopo L, **Medina-Bolivar F**. 2012. Antimalarial evaluation of hairy root cultures of *Bixa orellana*. 3rd Annual Conference of the American Council for Medicinally Active Plants. Jonesboro, AR. May 22-25. (poster)
131. Bratton SM, Dates C, Nair V, Nopo-Olazabal L, Francisdevaraj F, **Medina-Bolivar F**, Radomska-Pandya A. 2012. Natural prenylated resveratrol analogs arachidin-1 and arachidin-3: Altered glucuronidation could lead to enhanced bioavailability. 3rd Annual Conference of the American Council for Medicinally Active Plants. Jonesboro, AR. May 22-25. (poster).
132. Marsh Z, Nopo-Olazabal L, Yang T, Joshee N, **Medina-Bolivar F**. Elicitation and secretion of specialized metabolites in *Scutellaria lateriflora* hairy root cultures treated with cyclodextrin and methyl jasmonate. 3rd Annual Conference of the American Council for Medicinally Active Plants. Jonesboro, AR. May 22-25. (poster)

133. Nopo-Olazabal C, Nopo-Olazabal L, Hubstenberger J, **Medina-Bolivar F**. 2012. Induction of stilbenoids in hairy root cultures of peanut and muscadine grape treated with methyl jasmonate and hydrogen peroxide and determination of the antioxidant capacity of selected stilbenoids by the ABTS assay. 3rd Annual Conference of the American Council for Medicinally Active Plants. Jonesboro, AR. May 22-25. (poster)
134. Nopo-Olazabal C, Khodakovskaya M, **Medina-Bolivar F**. 2012. Expression of a mammalian polyphosphate 5-phosphatase in tomato hairy roots affects root growth and antioxidant levels. 3rd Annual Conference of the American Council for Medicinally Active Plants. Jonesboro, AR. May 22-25. (poster)
135. Yang T, Joshee N, Martin C, **Medina-Bolivar F**. 2012. Metabolic engineering of flavonoid biosynthesis in *Scutellaria lateriflora* hairy roots by ectopic expression of the AtMYB12 transcription factor. 3rd Annual Conference of the American Council for Medicinally Active Plants. Jonesboro, AR. May 22-25. (poster)
136. Marsico T, Bennet B, Huss M, **Medina-Bolivar F**. 2012. Recent advances in formal botanical education at Arkansas State University: An eye to the future. 3rd Annual Conference of the American Council for Medicinally Active Plants. Jonesboro, AR. May 22-25. (poster)
137. Zhang N, **Medina-Bolivar F**, Xu J. 2012. Plant hairy roots as a unique platform to study plant hydroxyproline-*O*-glycosylation process. 3rd Annual Conference of the American Council for Medicinally Active Plants. Jonesboro, AR. May 22-25. (poster)
- 138. Medina-Bolivar F**, Balmaceda C, Atwill R, Yang T, Marsh Z, Nopo-Olazabal C, Nopo-Olazabal C, Joshee N. 2012. Root cultures as bioproduction systems of health-beneficial compounds. 3rd Annual Conference of the American Council for Medicinally Active Plants. Jonesboro, AR. May 22-25. (invited talk)
139. Parr R, Ball J, Nopo-Olazabal L, Atwill RL, Ghai P, **Medina-Bolivar F**. 2012. Inhibition of rotavirus infection in a human intestinal cell line by specialized metabolites of peanut hairy root cultures. 31st Annual Meeting of the American Society of Virology. Madison, WI. July 21-25. (poster)
140. Marsh Z, Nopo-Olazabal L, Yang T, Joshee N, **Medina-Bolivar F**. 2012. Induction of specialized metabolites in hairy roots of *Scutellaria lateriflora* treated with cyclodextrin and methyl jasmonate. International Congress on Natural Products Research. New York, NY. July 29-August 1. (poster)
141. Atwill R, Nopo-Olazabal L, **Medina-Bolivar F**. 2012. Bioproduction and purification of prenylated resveratrol analogs from hairy root cultures of peanut. International Congress on Natural Products Research. New York, NY. July 29-August 1. (poster)
142. Marsh Z, Nopo-Olazabal L, Yang T, Joshee J, **Medina-Bolivar F**. 2012. Effect of methyl jasmonate and cyclodextrin on production of specialized metabolites in hairy root cultures

- of *Scutellaria lateriflora* 2012 Arkansas EPSCoR Annual meeting, Springdale, AR. August 13-14. (poster)
143. Nopo-Olazabal C, Nopo-Olazabal L, Condori J, Hubstenberger J, **Medina-Bolivar F**. 2012. Bioproduction of stilbenoids in hairy root cultures of peanut: Induced gene expression and antioxidant activity. 2012 Arkansas EPSCoR Annual meeting, Springdale, AR. August 13-14. (poster)
- 144. Medina-Bolivar F**, Balmaceda C, Atwill R, Yang T, Marsch Z, Nopo-Olazabal C, Nopo-Olazabal L, Joshee N. 2012. Elicitation and metabolic engineering strategies to increase the levels of health-related polyphenols in root cultures. 244th American Chemical Society National Meeting. Philadelphia, PA. August 19-23. (invited talk)
145. Greer AK, Bratton SM, Vo D, Ostojic N, Pyrek S, Francisdevaraj F, **Medina-Bolivar F**, Haun R, Radomska-Pandya A. 2012. Human UDP-Glucuronosyltransferases: Role in modulation of pancreatic cancer cell proliferation and drug toxicity. 18th North American Regional International Society for the Study of Xenobiotics (ISSX) Meeting. Dallas, TX. October 14-18. (poster)
146. Dates C., Yao-Borengasser A, Bratton SM, Pyrek S, Bernock LJ, **Medina-Bolivar F**, Kadlubar S, Borrelli MJ, Mackenzie P, Radomska-Pandya A. 2012. Human UDP-Glucuronosyltransferases: Role in modulation of breast cancer cell proliferation and drug toxicity. 18th North American Regional International Society for the Study of Xenobiotics (ISSX) Meeting. Dallas, TX. October 14-18. (poster)
147. Yang T, Marsh Z, Nopo-Olazabal L, Joshee N, **Medina-Bolivar F**. 2012. Metabolic engineering and elicitation strategies to manipulate the levels of bioactive flavonoids in hairy roots of *Scutellaria lateriflora*. Arkansas Biosciences Institute Fall Research Symposium. Fayetteville, AR. October 23. (poster)
148. Zhang N, **Medina-Bolivar F**, Savary B, Xu J. 2012. Plant hairy roots as a unique platform to study plant hydroxyproline-O-glycosylation process. Arkansas Biosciences Institute Fall Research Symposium. Fayetteville, AR. October 23. (poster)
- 149. Medina-Bolivar F**. 2012. "Hairy roots a source of unique medicinal compounds". University of Arkansas for Medical Sciences. Little Rock, Arkansas. November 9. (invited seminar)
- 150. Medina-Bolivar F**. 2012. "Harvesting a healthy future from hairy roots". John Innes Centre. Norwich, United Kingdom. December 3. (invited lecture)
- 151. Medina-Bolivar F**, Radomska-Pandya A, Atwill, Nopo-Olazabal C, Srivatsan M, Nopo-Olazabal L, Prather P, Doerksen R. 2012. Bioproduction and biological activity of the natural prenylated resveratrol analogs arachidin-1 and arachidin-3. 2nd International Conference of Resveratrol and Health. Leicester, United Kingdom. December 5-7. (poster).

2013

152. **Medina-Bolivar F.** 2013. Elicitation and metabolic engineering strategies to increase the levels of bioactive compounds in hairy root cultures. Southern Illinois University. Carbondale, IL. March 7. (invited seminar).
153. Marsh Z, Yang T, Nopo-Olazabal L, Joshee J, **Medina-Bolivar F.** 2013. Bioproduction of bioactive flavonoids in hairy roots of *Scutellaria lateriflora*. Southern Regional Honors Council Conference. Louisville, KY. April 4-6. (poster)
154. Patel A, Chang Y-K, Nopo-Olazabal C, Yang T, Ogutu L, Condori J, Nopo-Olazabal L, **Medina-Bolivar F.** 2013. Constitutive expression of resveratrol synthase and its effect on the biosynthesis of stilbenoids in hairy root cultures of peanut (*Arachis hypogea*). Annual Meeting of the American Society of Plant Biology – Southern Section. Little Rock, AR. April 6-8. (poster)
155. Tollett CA, Ogutu L, Chang Y-K, Nopo-Olazabal L, **Medina-Bolivar F.** 2013. Biotransformation of piceatannol to its prenylated analog arachidin-1 in hairy roots cultures of peanut. Annual Meeting of the American Society of Plant Biology – Southern Section. Little Rock, AR. April 6-8. (poster)
156. Yang T, Joshee N, Medina-Bolivar F. 2013. Regulation of flavone biosynthesis by expression of the AtMYB12 transcription factor in *Scutellaria lateriflora* hairy roots. Annual Meeting of the American Society of Plant Biology – Southern Section. Little Rock, AR. April 6-8. (talk)
157. Ogutu L, Nopo-Olazabal L, Srivatsan M, **Medina-Bolivar F.** 2013. Biosynthesis enhancement and neuroprotective activity of stilbenoids from hairy root cultures of peanut. 245th American Chemical Society National Meeting & Exposition. New Orleans, LA. April 7-11. (invited talk by Linda Ogutu).
158. Medina-Bolivar F. 2013. Biotechnological approaches to increase the levels of bioactive stilbenoids and flavonoids in hairy root cultures. Arkansas Center for Plant Powered Production-P3 Annual Meeting. Little Rock, AR. April 9. (invited talk)
159. Marsh Z, **Medina-Bolivar F.** 2013. Secondary metabolite enhancement in hairy root cultures of *Scutellaria lateriflora* by treatment with cyclodextrin and methyl jasmonate. Create@Astate. Jonesboro, AR. April 11. (talk by Zachary Marsh)
160. Nopo-Olazabal C, **Medina-Bolivar F.** 2013. Bioproduction in hairy root cultures of muscadine grape (*Vitis rotundifolia* Michx.). Create@Astate. Jonesboro, AR. April 11. (poster)

161. Ogutu L, Nopo-Olazabal L, Marsh Z, Srivatsan M, **Medina-Bolivar F**. 2013. Arachidin-1: bioproduction in hairy root cultures of peanut and evaluation of its neuroprotective properties. Create@Astate. Jonesboro, AR. April 11. (talk by Linda Ogutu)
162. Yang T, Medina-Bolivar F. 2013. Metabolic engineering approach to increase the level of anticancer flavonoids in *Scutellaria lateriflora* hairy roots. Create@Astate. Jonesboro, AR. April 11. (poster)
163. Ogutu L, Nopo-Olazabal L, **Medina-Bolivar F**. 2013. Biosynthesis enhancement of stilbenoids from hairy root cultures of peanut. In Vitro Biology Meeting. Providence, RI. June 15-19. (poster).
164. Marsh Z, Yang T, Nopo-Olazabal L, Joshee J, **Medina-Bolivar F**. 2013. Effect of methyl jasmonate and cyclodextrin on production of specialized metabolites in hairy root cultures of *Scutellaria lateriflora* 2012 Southern Regional Honors Council Conference. Louisville, KY AR. April 4-6. (poster)
- 165. Medina-Bolivar F**, Radomska-Pandya, Bratton S, Smith K, Karydis A, Garcia-Godoy F, Nopo-Olazabal L, Ogutu L, Yang T, Marsh Z, Joshee N, Patel A, Tollett CA, Nopo-Olazabal C. 2013. Biotechnological approaches to discover and produce health beneficial hairy roots. 4th Annual Conference of the American Council for Medicinally Active Plants. Amherst, MA. June 2-5. (invited talk)
166. Yang T, Joshee N, **Medina-Bolivar F**. 2013. Expression of the AtMYB12 transcription factor in *Scutellaria lateriflora* hairy roots and its effect on the biosynthesis of the anticancer flavone wogonin. 4th Annual Conference of the American Council for Medicinally Active Plants. Amherst, MA. June 2-5. (poster)
- 167. Medina-Bolivar F**, Nopo-Olazabal L, Atwill L, Tollett A, Campbell A, Nopo-Olazabal C, Radomska-Pandya A, Prather P, Srivatsan M. 2013. Purification of bioactive prenylated stilbenoids from hairy root cultures of peanut by high performance counter current chromatography. 246th Fall National Meeting and Exposition. Indianapolis, IN. September 8-12. (invited talk).
168. **Medina-Bolivar F**. 2013. Hairy roots as production and discovery platforms for natural products with health benefits. Department of Molecular and Cellular Biochemistry. Indiana University. Bloomington, IN. September 13. (invited seminar).
169. Dates C, Francisdevaraj F, Greer A, Bratton S, Pyrek S, Fahmi T, **Medina-Bolivar F**, Prather P, Radomska-Pandya A. 2013. Use of natural and synthetic cannabinoids to establish cannabinoid receptors as novel targets for the treatment of breast cancer. 10th International Society for the Study of Xenobiotics Meeting. Toronto, CANADA. September 29-October 3. (poster)
170. Radomska-Pandya A, FransisDevaraj F, Dates C, Greer A, Bratton S, Pyrek Sebastian, Fahmi T, **Medina-Bolivar F**, Haun R, Prather P. 2013. A previously unexplored link

between cannabinoid receptors and UDP-glucuronosyltransferases in cancer. 10th International Society for the Study of Xenobiotics Meeting. Toronto, CANADA. September 29-October 3.

171. Nopo-Olazabal C, Nopo-Olazabal L, **Medina-Bolivar, F.** 2013. Differential biosynthesis of stilbenoids in hairy root cultures of muscadine grape and peanut. Arkansas Biosciences Institute Fall Research Symposium. Little Rock, AR. October 15. (poster)
172. Tollet CA, Knapp T, Nopo-Olazabal L, **Medina-Bolivar F.** 2013. Biosynthesis enhancement and purification of arachidin-1 from hairy root cultures of peanut. ACS Strengthening Bonds Undergraduate Symposium. American Chemical Society Southeast Regional Chapter. Memphis, TN. October 21. (poster)

2014

173. Tollett CA, Nopo-Olazabal L, **Medina-Bolivar F.** 2014. Production and purification of the anticancer compounds arachidin-1 from hairy root cultures of peanut. Undergraduate Research Posters at the Arkansas State Capitol. Little Rock, AR. March 7. (invited poster)
174. Tollet CA, Nopo-Olazabal L, **Medina-Bolivar F.** 2014. Production of stilbenoids in hairy roots cultures of peanut and their purification by high performance counter current chromatography. 247th American Chemical Society National Meeting. Dallas, TX, March 16-20. (invited talk; First Place Award by CA Tollett)
175. Tollet CA, Nopo-Olazabal L, **Medina-Bolivar F.** 2014. Biosynthesis and purification of arachidin-1 from hairy root cultures of peanut. Create@AState. Jonesboro, AR. April 10. (talk)
176. Creameans J, **Medina-Bolivar F.** 2014. Annatto hairy roots: A potential sustainable source of tocotrienols. Create@AState. Jonesboro, AR. April 10. (poster)
177. Yang T, **Medina-Bolivar F.** 2014. Elucidation of the biosynthesis of stilbenoids in peanut. Create@AState. Jonesboro, AR. April 10. (talk)
178. Knapp T, Burrows J, **Medina-Bolivar F.** 2014. Production of stilbenoids in hairy root cultures of muscadine grape treated with methyl jasmonate and cyclodextrin. Create@AState. Jonesboro, AR. April 10. (poster)
179. Yang T, Joshee N, Medina-Bolivar F. 2014. Metabolic engineering and biotransformation of flavonoids in hairy root cultures of *Scutellaria lateriflora*. Meeting of the Society for In Vitro Biology. Savannah, GA. May 31-June 4. (poster)
180. Yang T, Fang L, Nopo-Olazabal C, Nopo-Olazabal L, Tollett, CA, **Medina-Bolivar F.** 2014. Elucidating the biosynthesis of stilbenoids in peanut. Meeting of the Society for In Vitro Biology. Savannah, GA. May 31-June 4. (poster)

181. **Medina-Bolivar F.** 2014. Biotransformation, elicitation and metabolic engineering strategies to produce bioactive compounds from root cultures. 5th Annual Conference of the American Council for Medicinally Active Plants, Fargo, ND. June 15-18. (invited talk)
182. Yang T, Fang L, Nopo-Olazabal C, Condori J, **Medina-Bolivar F.** 2014. High level production of arachidin-1 and arachidin-3 upon the treatment with methyl jasmonate and cyclodextrin in peanut hairy root cultures. Arkansas Center for Plant Powered Production Symposium. Petit Jean, AR. July 28-30. (poster).
183. Yang T, Joshee N, **Medina-Bolivar F.** 2014. Biotechnological strategies to produce bioactive flavonoids in hairy root cultures of *Scutellaria lateriflora*. Arkansas Center for Plant Powered Production Symposium. Petit Jean, AR. July 28-30. (poster).
184. Creameans J, Fang L, McGregory D, **Medina-Bolivar F.** 2014. Annatto hairy roots: A potential sustainable source of bioactive compounds. Arkansas Center for Plant Powered Production Symposium. Petit Jean, AR. July 28-30. (poster).
185. Knapp T, Nopo-Olazabal C, **Medina-Bolivar F.** 2014. Effect of methyl jasmonate and cyclodextrin on production of stilbenoids in hairy roots of muscadine grape. Arkansas Center for Plant Powered Production Symposium. Petit Jean, AR. July 28-30. (poster).
186. **Medina-Bolivar F.** 2014. Unravelling the biosynthesis of prenylated stilbenoids in peanut. Arkansas Center for Plant Powered Production Symposium. Petit Jean, AR. July 28-30. (invited talk).
187. **Medina-Bolivar F,** Yang T, Tollet C, Nopo-Olazabal L, Fang L, Nopo-Olazabal C. 2014. Bioproduction and biological activities of arachidin-1 and arachidin-3: Potential functional ingredients derived from peanut. 248th American Chemical Society National Meeting & Exposition, San Francisco, CA. August 10-14. (invited talk).
188. Yang T, Fang L, Nopo-Olazabal C, Condori J, Tollett CA, **Medina-Bolivar F.** 2014. Co-treatment of methyl jasmonate and cyclodextrin enhances production of arachidin-1 and arachidin-3 and expression of resveratrol synthase in hairy root cultures of peanut. Arkansas Biosciences Institute Fall Research Symposium. Arkansas State University. Jonesboro, AR October 7. (poster)
189. Creameans J, Fang L, McGregory D, **Medina-Bolivar F.** 2014. Elicitation of bioactive compounds in hairy root cultures of annatto. Arkansas Biosciences Institute Fall Research Symposium. Arkansas State University. Jonesboro, AR October 7. (poster)
190. Knapp T, Nopo-Olazabal C, Nopo-Olazabal L, **Medina-Bolivar F.** 2014 Production of stilbenoids in elicitor-treated hairy root cultures of muscadine grape. Arkansas Biosciences Institute Fall Research Symposium. Arkansas State University. Jonesboro, AR October 7. (poster)

2015

191. Knapp T, **Medina-Bolivar F**. 2015. Hairy root cultures of muscadine grape: A sustainable bioproduction and discovery platform for therapeutic agents. STEM Posters at the Capitol. Little Rock, AR. Feb 11 (poster)
192. Knapp T, Luis Nopo-Olazabal L, **Medina-Bolivar F**. 2015. Production of stilbenoids in hairy root cultures of muscadine grape: Effect of methyl jasmonate and cyclodextrin. 249th American Chemical Society National Meeting & Exposition, Denver, CO. March 22-25. (invited talk by undergraduate student T. Knapp)
193. **Medina-Bolivar F**, Yang T, Fang L, Mockaitis K, Joshee N. 2015. Hairy roots and human health: Production and discovery of bioactive compounds. Symposium on “Medicinal and Aromatic Crops: Production, Phytochemistry, & Utilization”. Division of Agricultural and Food Chemistry. 249th American Chemical Society National Meeting & Exposition, Denver, CO. March 22-25. (invited talk)
194. Creameans J, Fang L, McGregory D, **Medina-Bolivar F**. 2015. Hairy root cultures of annatto: a potential sustainable source of bioactive compounds. Create@AState. Jonesboro, AR. April 12. (poster)
195. Brooks J, Yang T, Fang L, **Medina-Bolivar F**. 2015. Effect of sucrose on the production of stilbenoids in hairy root cultures of peanut. Create@AState. Jonesboro, AR. April 12. (poster)
196. Yang T, Fang L, Nopo-Olazabal C, Condori J, **Medina-Bolivar F**. 2015. High level production of arachidin-1 and arachidin-3 in hairy root cultures of peanut co-treated with methyl jasmonate and cyclodextrin. Create@AState. Jonesboro, AR. April 12. (poster)
197. Knapp T, **Medina-Bolivar F**. 2015. Stilbenoid production in hairy root cultures of muscadine grape: effects of methyl jasmonate and cyclodextrin. Create@AState. Jonesboro, AR. April 12. (oral)
198. **Medina-Bolivar F**. Innovations on the use of plant genetic resources for the production and discovery of bioactive compounds for human health (Talk in Spanish: Innovaciones en el uso de recursos biologicos de plantas para la produccion y descubrimiento de compuestos para la salud humana). First Workshop on Protection and Innovation in Peruvian Natural Products. Lima, Peru. May 19. (invited talk)
199. Savary B, Xu J, Zhang N, Teoh K, Yu S, **Medina-Bolivar F**. 2015. Preparation, analysis, and bioassay of functional oligosaccharides isolated from rice bran fiber. 2015 In Vitro Biology Meeting. Tucson, AZ. May 30-June 3 (poster).
200. Savary B, Xu J, Zhang N, Teoh K, Yu S, **Medina-Bolivar F**. 2015. Generation of feruloylated oligosaccharides from rice bran fiber for functional analysis. 6th Annual Conference of the American Council for Medicinally Active Plants (ACMAP). Spokane, WA. June 9-12 (poster).

201. **Medina-Bolivar F**, Mockaitis K, Yang T, Fang L, Nopo-Olazabal L. 2015. Transcriptomic and targeted metabolomics approaches to elucidate the biosynthesis of arachidins: Cannabinoid receptor modulators from peanut. 6th Annual Conference of the American Council for Medicinally Active Plants (ACMAP). Spokane, WA. June 9-12 (talk).
202. Knapp T, Nopo-Olazabal C, Nopo-Olazabal L, **Medina-Bolivar F**. 2015. Enhanced and sustainable production of stilbenoids in hairy root cultures of muscadine grape co-treated with methyl jasmonate and cyclodextrin. 6th Annual Conference of the American Council for Medicinally Active Plants (ACMAP). Spokane, WA. June 9-12 (poster).
203. Creameans J, Fang L, McGregory D, Nopo-Olazabal L, **Medina-Bolivar F**. 2015. Annatto hairy roots: A sustainable source of bioactive compounds with applications in human health. 6th Annual Conference of the American Council for Medicinally Active Plants (ACMAP). Spokane, WA. June 9-12 (poster).
204. Creameans J, Yang T, Joshee N, **Medina-Bolivar F**. 2015. Characterization of inducible and secreted metabolites from hairy root cultures of *Scutellaria lateriflora*. 6th Annual Conference of the American Council for Medicinally Active Plants (ACMAP). Spokane, WA. June 9-12 (poster).
205. Yang T, Fang L, Nopo-Olazabal C, Condori J, **Medina-Bolivar F**. 2015. Production and biosynthesis of prenylated stilbenoids in hairy root cultures of peanut. Arkansas P3 Annual Research Symposium. Fayetteville, AR. June 29-July 1 (invited talk by T. Yang).
206. Tollett CA, Day C, Nopo-Olazabal L, **Medina-Bolivar F**. 2015. Biosynthesis enhancement and purification of prenylated stilbenoids from hairy root cultures of peanut. Arkansas P3 Annual Research Symposium. Fayetteville, AR. June 29-July 1 (poster)
207. Brooks J, Collier S, Najwa L, Fang L, Yang T, **Medina-Bolivar F**. 2015. High levels of sucrose enhance production of stilbenoids in peanut hairy root cultures. Arkansas P3 Annual Research Symposium. Fayetteville, AR. June 29-July 1 (poster)
208. Creameans J, Fang L, McGregory D, Nopo-Olazabal L, **Medina-Bolivar F**. 2015. Hairy root cultures of annatto: a sustainable source of tocotrienols. Arkansas P3 Annual Research Symposium. Fayetteville, AR. June 29-July 1 (poster)
209. Savary B, Xu J, Zhang N, Teoh K, Yu S, **Medina-Bolivar F**, Lee S-O. 2015. Preparations, separations chemistry, and colonocyte bioassay of feruloylated arabinoxylan oligosaccharides isolated from rice bran. AFRI Project Director's Meeting. Chicago, IL. July 10. (poster)
210. Miller J, Creameans J, **Medina-Bolivar F**. 2015. Optimizing elicitation conditions of *Bixa orellana* hairy root cultures to produce phytochemicals for potential treatment of malaria. Bridging the Divide Research Symposium. Arkansas State University. August 4. (talk by J. Miller – undergraduate student Philander Smith College)

211. Miller J, Creameans J, **Medina-Bolivar F**. 2015. Optimizing elicitation conditions of *Bixa orellana* hairy root cultures to produce phytochemicals for potential treatment of malaria. Bridging the Divide Research Symposium. Arkansas State University. August 4. (poster)
212. Creameans J, Fang L, McGregory D, Nopo-Olazabal L, **Medina-Bolivar F**. 2015. Application of annatto hairy roots for the production of bioactive compounds for human health. 54th Annual Meeting of the Phytochemical Society of North America. Urbana, IL. August 8-12. (poster)
213. Tollett CA, Day C, Yang T, Nopo-Olazabal L, **Medina-Bolivar F**. 2015. Biosynthesis enhancement and purification of bioactive prenylated stilbenoids from hairy root cultures of peanut by high performance countercurrent chromatography. 54th Annual Meeting of the Phytochemical Society of North America. Urbana, IL. August 8-12. (poster)
214. Day C, Tollett C, **Medina-Bolivar F**. 2015. Peanut hairy root cultures as bioproduction platforms for prenylated stilbenoids: Bioactive compounds relevant to human health. Arkansas Biosciences Institute Summer Internship Symposium. Arkansas State University, Jonesboro, AR. September 11. (talk)
215. Brooks J, Fang L, Collier S, Yang T, **Medina-Bolivar F**. 2015. High levels of sucrose increase production of bioactive prenylated stilbenoids in hairy root cultures of peanut. Arkansas Biosciences Institute Fall Research Symposium. Fayetteville, AR. October 6. (poster)
216. **Medina-Bolivar F**. 2015. Plants y salud humana. Nuevos avances y aplicaciones biotecnologicas (Plants and human health: New advances and biotechnological applications). Universidad Peruana Cayetano Heredia. Lima, Peru (Invited talk)

2016

217. **Medina-Bolivar F**, Yang T, Fang L, Mockaitis, K. 2016. Elucidating the biosynthesis of prenylated stilbenoids in peanut through an integrated targeted metabolomics and transcriptomics approach. USDA-NIFA Program Directors Meeting. San Diego, CA. January 8. (poster)
218. **Medina-Bolivar F**, Yang T, Fang L, Mockaitis, K. 2016. Elucidating the biosynthesis of prenylated stilbenoids in peanut through an integrated targeted metabolomics and transcriptomics approach. Plant and Animal Genome Conference. San Diego, CA. January 9-13. (poster)
219. Creameans J, Vellanki K, Dolan M, **Medina-Bolivar F**. 2016. Bioproduction and anti-inflammatory activity of delta-tocotrienol enriched extracts from hairy roots of annatto. 251st American Chemical Society National Meeting & Exposition. San Diego, CA. March 13-17. (invited talk by J. Creameans; Second Place Award)

220. Gershlak J, Hernandez S, Perreault L, Larson S, Fontana G., Yang T, Dominko T, Rolle M, Weathers P, Ashton R, **Medina-Bolivar F**, Cramer C, Murphy W, Gaudette G. 2016. Crossing kingdoms: Exploiting decellularized plants as pre-vascularized scaffolds for tissue engineering. 20th Annual Regenerative Medicine Workshop. Hilton Head, NC. March 16-19. (talk and poster)
221. Witcher C, Lockwood H, Mattila M, Havner R, Taylor J, **Medina-Bolivar F**, Ball JM, Parr R. 2016. Quantification of rotavirus particles in HT29.f8 cells treated with t-A3. ASM Microbe 2016. Boston, MA. June 16-20. (poster)
222. Lockwood H, Witcher C, Havner R, Taylor J, Clack B, **Medina-Bolivar F**, Ball JM, Parr R. 2016. Regulation of the transcriptome of rotavirus-infected HT29.f8 cells by arachidin-3. ASM Microbe 2016. Boston, MA. June 16-20. (poster)
223. Yang T, Fang L, Mockaitis K, **Medina-Bolivar F**. 2016. Bioproduction and biosynthesis of prenylated stilbenoids in peanut: Bioactive compounds for plant and human health. 7th Annual Conference of the American Council for Medicinally Active Plants (ACMAP). Lima, Peru. June 29-July 1. (poster).
224. **Medina-Bolivar F**, Yang T, Fang L, Tollett CA, Day C, Matei C, Nopo-Olazabal L, Mockaitis K. 2016. Peanut hairy roots: Sustainable systems for production and discovery of bioactive compounds for human health. 7th Annual Conference of the American Council for Medicinally Active Plants (ACMAP). Lima, Peru. June 29-July 1. (invited talk).
225. Creameans J, Vellanki K, Matei C, Nopo-Olazabal L, **Medina-Bolivar F**. 2016. Bioproduction and anti-inflammatory activity of delta-tocotrienol-enriched extracts from hairy roots of *Bixa orellana*. 7th Annual Conference of the American Council for Medicinally Active Plants (ACMAP). Lima, Peru. June 29-July 1. (invited talk; Second Place Award).
226. Lockwood H, Witcher C, Slay R, Taylor J, Clack B, Ball J, **Medina-Bolivar F**, Parr R. Discovering the mechanism of action of stilbenoids on Rotavirus Infected Cells. 7th Annual Conference of the American Council for Medicinally Active Plants. Lima, Peru, June 29-July 1, 2016. (invited talk by R. Parr).
227. Witcher CM, Lockwood HN, Strange E, Matilla M, Taylor JI, Clack B, **Medina-Bolivar F**, Parr RD. 2016. A time course analysis of the effects of stilbenoids on the ultrastructure and viral populations of rotavirus-infected cells. 7th Annual Conference of the American Council for Medicinally Active Plants. Lima, Peru, June 29-July 1, 2016. (poster).
228. Savary BJ, Teoh K, Zhang N, Xu J, **Medina-Bolivar F**, Yu S, Lee S-O, Wang Y-J. 2016. Preparation and analysis of functional oligosaccharides from rice bran arabinoxylan. 252nd American Chemical Society National Meeting & Exposition, Philadelphia, PA. August 21-25. (invited talk by B. Savary)

229. Nopo-Olazabal L, Yang T, Matei C, Philippe A, Fang L, Day C, Karouni A, **Medina-Bolivar F**. 2016. Innovative plant products for the prevention and treatment of obesity. Arkansas Biosciences Institute, Fall Research Symposium. Little Rock, AR, September 13. (poster).
230. **Medina-Bolivar, F**. 2016. Arkansas Biosciences Institute: Paving the Way for Education and Research Innovation. 2nd Meeting of the Northeast Arkansas Hispanic Professional Network. Jonesboro, AR, December 6. (invited talk).
231. Gershlak J, Hernandez S, Fontana G, Perreault L, Hansen K, Larson S, Binder B, Dolivo D, Yang T, Dominko T, Rolle M, Weathers P, **Medina-Bolivar F**, Cramer C, Murphy W, Gaudette G. 2016. Crossing kingdoms: Using decellularized plants as pre-vascularized tissue engineering scaffolds. Annual Conference and Exhibition of the Tissue Engineering & Regenerative Medicine International Society (TERMIS-Americas). San Diego, CA. December 11-14. (poster)

2017

232. **Medina-Bolivar F**. 2017. Peanut and piano: How great things can result from a little stress. TEDxArkansas State University. Jonesboro, AR., January 29. (invited talk).
233. Matei C, Philippe A, Day C, Yang T, Fang L, Nopo-Olazabal L, **Medina-Bolivar F**. 2017. Peanut: A source of bioactive compounds for the prevention and treatment of obesity. Arkansas STEM Posters at the Capitol. Little Rock, AR. February 15. (poster).
234. Philippe A, Matei C, Day C, Nopo-Olazabal L, Yang T, Fang L, Day C, Nopo-Olazabal L, **Medina-Bolivar F**. 2017. Bioproduction and anti-obesity properties of peanut stilbenoids. 31st Annual Meeting of the National Council for Undergraduate Research. Memphis, TN. April 6-8. (oral).
235. Day C, Tollett A, Yang T, Fang L, **Medina-Bolivar F**. Bioproduction of peanut stilbenoids: Bioactive compounds for human health. 31st Annual Meeting of the National Council for Undergraduate Research. Memphis, TN. April 6-8. (poster).
236. Matei C, Nopo-Olazabal L, Philippe A, Day C, Yang T, Fang L, **Medina-Bolivar F**. 2017. Prenylated stilbenoids: Potential anti-obesity compounds from peanut. 31st Annual Meeting of the National Council for Undergraduate Research. Memphis, TN. April 6-8. (poster).
237. **Medina-Bolivar F**, Yang T, Fang L, Philippe A, Day C, Nopo-Olazabal L. 2017. Prenylated stilbenoids: Potential chemopreventive and therapeutic agents for breast cancer. Spring 2017 Cancer Research Conference. Memphis, TN. May 2. (poster).
238. **Medina-Bolivar F**, Yang T, Fang L, Mockaitis K. 2017. Biosynthesis and enhanced production of functional ingredients in hairy root cultures of peanut. 8th Annual Conference

of the American Council for Medicinally Active Plants. Clemson, SC. June 20-23. (invited talk).

STUDENTS AND ADVISEES

Graduate Students (Since Fall 2005):

Jose Condori Rosales	ASU	Ph.D.	Molecular Biosciences (graduated Spring 11)
Cesar Nopo-Olazabal	ASU	Ph.D.	Molecular Biosciences (graduated Summer 13)
Luis Nopo-Olazabal	UPCH	Ph.D.	Biochem. & Molecular Biology (graduated Summer 10)
Maria Ferrand	ASU	M.S.	Biology (graduated Summer 08)
Shuchi Wu	ASU	M.S.	Biology (transferred to Ph.D. at Virginia Tech)
Swapnali Halder	ASU	M.S.	Biology, Spring-Fall 10 (co-advised; Amy Pierce, main advisor)
Bo Zhai	ASU	P.S.M.	Biotechnology (Fall 10-Summer 12)
Ananddeep Patel	ASU	P.S.M.	Biotechnology (Spring 11-Spring 13)
Tianhong Yang	ASU	M.S.	Biology (Fall 11-Spring 13)
Tianhong Yang	ASU	Ph.D.	Molecular Biosciences (Fall 13-Fall 16)

Carlos Balmaceda	UPCH	Licenciate	Biology (Spring 11-Fall 11)
Jodi Burrows	ASU	P.S.M.	Biotechnology (Summer 13)
Johnvonta Brooks	ASU	M.A.	Biology (Spring 14-Spring 16)
Mohammad Azim	ASU	M.S	Biology (Fall 15-present)
Rahul Yadav	ASU	M.S.	Biology (Fall 15-Spring 16)
Abbas Karouni	ASU	M.A.	Biology (Fall 15-present)
Patrick Roberto	ASU	M.S.	Biology (Spring 17-present)

Undergraduate Students (since Fall 2005):

Rita Diles	ASU	B.S	Nursing, Spring 06
Adam Faulkner	Worcester Polytech. Inst.		Summer 06
Eric Freeburg	Luther College		RISE Intern, Summer 06
Sarah Spulecki	Framingham State College		RISE Intern, Summer 06
Kristen Shelton	ASU	B.S.	Chemistry, Fall 07, Spring 08
Albert Sawalha	Univ. of Michigan		RISE Intern, Summer 07
John Scott Carroll	ASU	B.S.	Biology, Fall 07-Spring 08
Melissa Koetzel	Rochester Polytechn. Ins.		RISE Intern, Summer 08
Tyler Allen	ASU	B.S.	Biology, Summer 08-Fall 08
Jordan Baker	ASU	B.S.	Biology, Summer 08-Spring 10
Kristen Long	ASU	B.S.	Biology, Summer 08-Fall 08
Kari Panhorst	ASU	B.S.	Biology, Fall 08-Fall 09
Michael Young	ASU	B.S.	Biology, Summer 09
Richard Lee Atwill	ASU	B.S.	Chemistry, Spring 10-Spring 2012

Grant Cagle	ASU	B.S.	Biology, Spring 10-Fall 10 (co-advised; Amy Pierce; main advisor)
Zach Marsh	ASU	B.S.	Biology, Summer 11-Spring 13
Harold Owiti	Williams Baptist College		Biology, Summer 11
Elia Garcia	Univ. of AR, Monticello		Biology, Summer 11
Andrew Prince	ASU	B.S.	Biology, Summer 12 (2 weeks)
Linda Ogutu	ASU	B.S.	Biology, Summer 12-Spring 13
C. Aaron Tollett	ASU	B.S.	Biology/Chemistry, Spring 13-Spring 16
Tyler Knapp	ASU	B.S.	Biology, Summer 13, Spring 14
Jarrold Creameans	ASU	B.S.	Biology, Fall 13-Summer 16
Laura Ramirez	Univ. Auton. Queretaro		Biotechnology, Spring 14
Denzel McGregory	ASU	B.S.	Biology, Summer 14
Lindsey Gilbert	Univ. of Pikeville		Biology/Chem, Summer 14
Sarah Collier	ASU	B.S.	Biology, Spring 15
Najwa Lee	ASU	B.S.	Biology, Spring 15; Fall 15-Spring 16
Terrance Hendrix	ASU	B.S.	Biology, Spring 15
Jordan Miller	Philander	B.S.	Chemistry, Summer 15
Carson Day	ASU	B.S.	Biology, Summer 15-present
Krishna Vellanki	ASU	B.S.	Biology, Fall 15-present
Christine Matei	ASU	B.S.	Biology, Fall 15-present
Alexis Philippe	ASU	B.S.	Biology, Summer 16-present
Parker Knapp	ASU	B.S.	Biology, Fall 16-present
Christopher Owen	ASU	B.S.	Biology, Spring 17
Kennith Swafford	ASU	B.S.	Biology, Fall 17

High School Student:

Kelsey Brown AR School for Math., Sci. RISE Intern, Summer 06
 and the Arts

Others advisees:

Postdoctoral Research Associates:

Tianhong Yang ASU Spring 17 – to date

Luis Nopo Olazabal ASU

Taylor Ingle ASU April 12-July 12

Ganapathy Sivakumar ASU Spring 07-Spring 08

Tatiana Boluarte Virginia Tech

Bonnie Woffenden Virginia Tech

Research Assistants/Associates:

Lingling Fang ASU Spring 14-to date

Yeun-Kyung Chang ASU April 12-February 13

Visiting Scientists/Professors:

Gaston Zolla

[Visiting Scientist from Ben-Gurion University, ISRAEL; Training in hairy roots and phytochemical analyses. Fall 2006]

Jessica Yactayo

[Visiting Scientist from University of Florida; Summer 2006]

Ron Saylor

[Visiting Professor, University of Arkansas, Fayetteville; Training: Hairy roots; Nov 8, 2007]

Lourdes Tapia-Figueroa

[Visiting Professor from Universidad Nacional Agraria La Molina (UNALM), PERU; Project:

Establishment and phytochemical analyses in hairy roots; Sep 2007]

Note: Professor Tapia-Figueroa's visit was part of an International Agreement signed between ASU and UNALM. Dr. Medina-Bolivar coordinated this agreement.

Nestor Cabrera

[Visiting Student; Universidad Peruana Cayetano Heredia, PERU; May 21, 2007]

Hector Villagarcia

[Visiting Scientist from Spectra Solutions SAC, Peru; Project: Elicitation of secondary metabolites in hairy roots; Fall 2007 to Spring 2009]

Carlos Balmaceda Cuenca

[Visiting Researcher from Universidad Peruana Cayetano Heredia, Peru; Project: *Agrobacterium* transformation and peanut stilbenoids; November 2010; February 2011-August 2011]

Daria Adamenko

Project: Bioproduction and commercialization of hairy root-derived natural products.
[Fall 2011 to Summer 2012]

Raul Blas Sevillano

[Visiting Professor from Universidad Nacional Agraria La Molina, Lima, Peru: January 16-February 3, 2012]

Ayesha Siddiqua

[Visiting Medical Doctor from Bangladesh; August 2016-to date]

Graduate Student National Awards:

Jose Condori – 2010 - 1st Annual Conference of the American Council for Medicinally Active Plants, Rutgers, NJ. (1st Place Graduate Poster Award).

Jose Condori – 2011 - qPCR and Data Mining Symposium, San Francisco, CA. (2nd Place Poster Award)

Tianhong Yang – 2012 - 3rd Annual Conference of the American Council for Medicinally Active Plants. Jonesboro, AR. (1st Place Graduate Poster Award).

Undergraduate Student National Awards:

Richard Lee Atwill – 2011 Undergraduate Research Grant – American Society of Pharmacognosy; \$ 2,500

Zachary Marsh – 2012 – 3rd Annual Conference of the American Council for Medicinally Active Plants. Jonesboro, AR. Poster. First Place Undergraduate Poster Award.

Linda Ogutu – 2013 Undergraduate Travel Fund – American Chemical Society National Meeting/Division of Agricultural and Food Chemistry, New Orleans, LA - \$ 1,000

Linda Ogutu – 2013 – Undergraduate Research Symposium. American Chemical Society/Division of Agricultural and Food Chemistry, New Orleans, LA. Invited Talk. Second Place Award.

Christopher Aaron Tollett – 2014 Undergraduate Travel Fund - American Chemical Society/Division of Agricultural and Food Chemistry. Dallas, TX. \$ 1,000

Christopher Aaron Tollett – 2014. Undergraduate Research Symposium. American Chemical Society/Division of Agricultural and Food Chemistry. Invited Talk. First Place Award.

Tyler Knapp – 2015. Undergraduate Travel Fund - American Chemical Society/Division of Agricultural and Food Chemistry. Denver, CO. \$ 1,000

Jarrold Creameans – 2015. 6th Annual Conference of the American Council for Medicinally Active Plants, Spokane, WA. First Place Undergraduate Poster Award.

Jarrold Creameans – 2016. Undergraduate Travel Fund - American Chemical Society/Division of Agricultural and Food Chemistry. San Diego, CA. \$ 1,000

Jarrold Creameans – 2016. Undergraduate Research Symposium. American Chemical Society/Division of Agricultural and Food Chemistry. Invited Talk. Second Place Award.

Jarrold Creameans – 2016. 7th Annual Conference of the American Council for Medicinally Active Plants, Lima, Peru. Second Place Oral Presentation Award.

THESIS AND DISSERTATION COMMITTEES

Dissertation Committee Chair

Jose Condori

Dissertation title: “Identification and characterization of a stilbene synthase gene family in peanut hairy roots.”

Ph.D. in Molecular Biosciences

Arkansas State University

Dissertation defended in April 2011

Luis Nopo-Olazabal

Dissertation title: “Evaluation of a recombinant protein expression system based on the Super-promoter:TEV and the green fluorescent protein in tobacco (*Nicotiana tabacum* L.) leaves and hairy roots”

Ph.D. in Biochemistry and Molecular Biology

Universidad Peruana Cayetano Heredia (UPCH), Lima, Peru

Dissertation defended in February 2011

Note: F. Medina-Bolivar, Major Research Advisor

Cesar Nopo-Olazabal

Dissertation title: “Differential biosynthesis of antioxidant stilbenoids in hairy root cultures of muscadine grape and peanut treated with methyl jasmonate and hydrogen peroxide”

Ph.D. in Molecular Biosciences

Dissertation defended in June 2013

Tianhong Yang

Dissertation title: “Biosynthesis enhancement of prenylated stilbenoids and molecular cloning and characterization of stilbenoid prenyltransferases from peanut hairy roots”

Ph.D. in Molecular Biosciences

Candidacy exam defended in November 2015

Dissertation defense date expected: Fall 2016

Master Thesis Committee Chair

Maria Ferrand-Malatesta

Thesis title: “Analysis of constitutive and inducible specialized metabolites in tissues and hairy root cultures of annatto (*Bixa orellana* L.)

M.S. in Biology

Thesis defended in 2008

Tianhong Yang

Thesis title: “Metabolic engineering of flavonoid biosynthesis in *Scutellaria lateriflora* hairy roots by ectopic expression of the AtMYB12 transcription factor”

M.S. in Biology

Thesis defended in Spring 2013

Johnvonta Brooks

Research project: “Effect of sucrose on the levels of stilbenoids and resveratrol synthase in hairy roots of peanut”

M.A. in Biology

(temporal leave)

Mohammad Azim

Thesis title: “Expression of peanut resveratrol prenyltransferase in muscadine grape”

M.S. in Biology

Thesis defense date expected: May 2018

Honors Senior Thesis Chair

Carlos Balmaceda

Thesis title: “Efecto del metil jasmonato y la ciclodextrina en la producción de estilbenoides en cultivos de raíces en cabellera de maní”

Licenciate in Biology

Universidad Peruana Cayetano Heredia, Lima, Peru

Thesis defended: December 2011

Linda Ogutu

Thesis title: “Biosynthesis enhancement of arachidin-1 in peanut hairy root cultures and assessment of its cytotoxicity in pheochromocytoma (PC12) cells”

B.S. in Biology

Arkansas State University

Thesis defended: May 2013

Zach Marsh

Thesis title: “Effect of methyl jasmonate and cyclodextrin on production of polyphenolic compounds in hairy root cultures of *Scutellaria lateriflora*”

B.S. in Biology

Arkansas State University

Thesis defended: April 2013

Tyler Knapp

Thesis title: “Production of stilbenoids in hairy root cultures of muscadine grape”

B.S. in Biology

Arkansas State University

Thesis defended: Spring 2015

Jarrold Creameans

Thesis title: “Bioproduction and anti-inflammatory activity of delta-tocotrienol enriched extracts from hairy roots of annatto”

Thesis proposal defended: November 2015

Thesis defended: Spring 2016

Najwa Lee

Thesis title: “Hairy roots as potential scaffolds for mammalian stem cell cultures”

Thesis proposal defended: December 2015

Thesis defended: Spring 2016

Committee Member:

Dissertations

Haitao Zhang

Dissertation title: “Phosphor-Regulation of Mammalian CAP1 (Cyclase Associated Protein 1) Function in Actin Dynamics”

Ph.D. in Molecular Biosciences

Committee member period: Fall 2014-to date

Dissertation Defended: Fall 2016

Main advisor: Guolei Zhou

Carlos Rosado-Berrios

Dissertation title: “Water Quality Assessment of the Lower Cache River-Watershed”

Ph.D. in Environmental Sciences Committee member period: Fall 2014-to date

Committee member period: Spring 2013-to date

Expected Dissertation Defense: Fall 2016

Main advisor: Jennifer Bouldin

Swapnali Halder

Dissertation title: “Estrous Cycle and on the Ovary and Uterus of Female Sprague-Dawley Rats”

Ph.D. in Molecular Biosciences

Committee member period: Fall 2012-May 2015

Dissertation defended: Spring 2015

Main advisor: Amy Pierce

Nirman Nepal

Dissertation Title: “Phenomics and Transcriptomics Study of High Ascorbate Arabidopsis in Response to Biotic Stress”

Ph.D. in Molecular Biosciences

Committee member period: Spring 2016-to date

Expected Dissertation Defense: Spring 2018

Main advisor: Argelia Lorence

Master Thesis (Committee Member)

Ashley Flory

Thesis title: “Development of an Environmentally Friendly Binder System for Paper Products”

M.S. in Biology

Thesis defended: 2011

Main advisor: Elizabeth Hood

John Kilmer

Thesis title: “Characterization of chemical profiles produced by *Opuntia humifusa* in response to herbivory and exogenous methyl jasmonate in comparison to hairy root cultures.

M.S. in Biology

Thesis defended: Summer 2016

Main Advisor: Travis Marsico

TEACHING EXPERIENCE:

Course	Semester taught	Percent responsibility
MBS/BIOL/CHEM 6233; Specialized Biochemistry 3 credits, Graduate	Spring 2007 Spring 2008 Spring 2009 Spring 2010 Spring 2011 Spring 2012 Spring 2013 Spring 2014 Spring 2015 Spring 2017	100% 100% 100% 100% 100% 100% 100% 100% 100% 100%
BIO 4513/5513 Plant Physiology Undergraduate/Graduate 3 credits	Fall 2015 Fall 2016	100% 100%
BIO 2011: Biology of the Cell Laboratory Undergraduate 1 credit	Fall 2014 – section 1 Spring 2015 – sections 2&3 Fall 2015 – section 1 Spring 2016 – sections 2&3 Fall 2016 – section 1 Spring 2017 – sections 2&3 Fall 2017 – section 1	100% 100% 100% 100% 100% 100% 100%

BIO 4063/5063 Biosafety & Ethics in Research Undergraduate/Graduate 3 credits	Fall 2016	100%
MBS 6251; Techniques in Molecular Biosciences: “Hairy Roots: Culture and Applications” 1 credit, Graduate	Fall 2008	100%
MBS 7123; Topics in Molecular Biosciences 3 credits, Graduate	Spring 2007	20% (team-taught)
MBS 6213; Advanced Cell Biology 3 credits, Graduate	Spring 2008 Spring 2009 Spring 2010 Spring 2011 Spring 2012 Fall 2012 Fall 2014 Fall 2016	(guest lecturer) (guest lecturer) (team-taught) (team/guest-taught) (team-taught) (team taught) (team taught) (team taught)
ESCI 7121; Topics in Environmental Sciences: “Phytoremediation” 3 credits, Graduate	Fall 2006	20% (team-taught)
BIOL 4441/BIOL 5441; “Hairy Roots” 1 credit, Undergraduate/Graduate, 3 students	Summer II 2006	50%
BIOL 4391/493V/BIO 403V; Special Problems 1-3 credits, Undergraduate, 1-3 students	Spring 2006 Fall 2006 Fall 2007 Fall 2008	100% 100% 100% 100%
BIOL 680V/MBS 713V; Independent Studies 1-3 credits, Graduate	Fall 2006 to Fall 2017	100%
MBS 6251: Techniques in Molecular Biosciences: “HPTLC and HPLC”	Fall 2011	50%
Human Genetics	Nov 30, 2011 Nov 4, 2013	Guest lecture Guest lecture

MBS 6251: Techniques in Molecular Biosciences: “Plant Transformation”	Fall 2012	50%
Biotechnology in a Global Society	February 26, 2014	Guest lecture