TRACY PUNSHON

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Education and Professional Development

1988 – 1992 B.Sc. Applied Biology (with honors): Liverpool John Moore's University, UK. 4 Year degree, with internship at Cyanamid Agrochemicals, UK Ltd.
1992 – 1996 Ph.D. Plant Biology. Thesis title: "Heavy metal tolerance in *Salix*". Advisor: Dr. N.M. Dickinson. Liverpool John Moore's University, UK.
1998 – 2000 Postdoctoral fellowship. Savannah River Ecology Laboratory. Advisor: Domy C. Adriano.
2000 – 2004 Postdoctoral fellow. Rutgers University. Advisor: Joanna Burger.
2004 – 2005 Research Coordinator. Savannah River Ecology Laboratory. Supervisor: Paul M. Bertsch,
2005 – 2008 Postdoctoral fellow. Dartmouth College. Mary Lou Guerinot, advisor.
2008 – Present Research Assistant Professor, Dartmouth College.

Competitive Grants

Funded

1. Co-PI. NIH, NIEHS P42ESO07373 (Superfund Research Program) "Toxic Metals in the Northeast: From Environmental to Biological Implications."
2. Co-I. NIH & EPA P20ES018175 RD-83459901 "Food borne exposure to arsenic during the first year of life" Children's Environmental Health and Disease Prevention Research Center.
3. Co-I. DOE DE-FG02-06ER15809. From the soil to the seed: Metal transport in Arabidopsis.
4. PI: NIGMS: P20GM104416 "Assessing maternal-fetal exposure pathways using bio-imaging." Center of Biomedical Research Excellence (COBRE).
5. Co-PI: NIEHS ES022832, EPA RD83544201 "Water and dietary arsenic exposure related to early growth and neurodevelopment": NIH P01 Children's Environmental Health and Disease Prevention Research Center at Dartmouth.
6. PI: The influence of Ca distribution and abundance on carrot post-retort firmness and processing response. General Mills.
7. Co-PI: NIH/NIESH 5 P42 ES007373 Program title: "Sources and Protracted Effects of Early Life Exposure to Mercury and Arsenic (PI: Bruce Stanton). Project title: "Arsenic Uptake, Transport and Storage in Plants". Co-PI of Trace Element Analysis Core
8. Co-I: NIEHS CHEAR National Exposure assessment laboratory Network. 2015. Approved.

Submitted

1. PI: NIH R21 Arsenic methylation efficiency of Celiac Disease patients consuming a gluten-free diet. February 16, 2018
2. Co-PI: NSF 18-503: EPSCoR Research Infrastructure Improvement Program: Track-2 Focused EPSCoR Collaborations (RII Track-2 FEC) "Systems-level Approaches to Understand the Mechanistic Relationships of Genomics to Phenomics in Plant Nutritional Immunity" January 26, 2018 Resubmission
3. PI: NIH 1 R21 ES029630-01 "Validating toenails as a spatiotemporal biomarker of trace element exposure. October 2017
4. Co-IL NIH R01 ES029108-01 "Determinations of Human Variability in Methylmercury Metabolism and Elimination Status" 2017
5. Co-PI: NSF 17-503: EPSCoR Research Infrastructure Improvement Program: Track-2 Focused EPSCoR Collaborations (RII Track-2 FEC) "Systems-level Approaches to Understand the Mechanistic Relationships of Genomics to Phenomics in Host-Pathogen Interactions" January 26, 2017
6. PI: NIH RFA 16-083 Research to Action: "Arsenic exposure from (gluten-free) food: Partnering with the Celiac Community to understand and reduce exposure" 2017
7. Co-I: NIH. RFA PA12-153: Partnering With The Celiac Community to Understand Arsenic Exposure From Food. 2013.
8. PI: NIH. Dietary Influence on the Human Health Effects of Environmental Exposures (R21) "The Influence of Dietary Factors on Arsenic Methylation in Infants and Toddlers." 2011. Not scored.

9. Co-I: NIH "Nutritional Impact of Modifying Calcium Partitioning in Plant Foods."
10. Co-I: NSF Basic Research to Enable Agricultural Development (BREAD) Program solicitation entitled "Nutrient Dynamics Critical to Biofortification of Staple Food Crops." 2011
11. Co-I: NSF Basic Research to Enable Agricultural Development (BREAD) Program solicitation entitled "Nutrient Dynamics Critical to Biofortification of Staple Food Crops" 2010
12. Co-PI: NSF. GEPR: A systems approach to investigating calcium-dependent disorders in fruit.
13. Co-PI: NSF Major Research Instrumentation Grant: "Acquisition of a Variable-Pressure, FEG SEM/FIB with integrated EDS-EBSD." Ian Baker, Dartmouth. Submitted December 2015.
14. Collaborator: Nation Environmental Research Council (UK) "Environmental pathways, impacts and fate of manufactured nanomaterials." PI: David Salt, University of Aberdeen. Submitted 2015
15. Co-PI: USDA "Developing Nutrient Dense Grain using Functional Ionomics and Synchrotron X-ray Microanalysis." Submitted 2007.

Beamline Development Proposals
National Synchrotron Light Source-II, "X-ray Fluorescence Microprobe: A three-pole wiggler based X-ray fluorescence microprobe beamline for characterization of materials in an "*as-is*" state (XFM)" with P.M. Bertsch, G. Flynn, M. Ginder-Vogel, A. Lanzirotti, M. Marcus, L.M. Miller, P. Northrup, M.L. Rivers, D.P. Siddons, G. Dale, S.R. Sutton, R. Tappero and T. Tokunaga. Approved.

Peer-Reviewed Publications

1. **Punshon T,** Carey AM, Ricachenevsky FK, and Meharg A. Elemental distribution in developing rice grains and the effect of flag-leaf arsenate exposure. *In Press*: Environmental Experimental Botany 2018
2. **Punshon T**, Jackson BP. Essential micronutrient and toxic trace element concentrations in gluten containing and gluten-free foods. Food Chem. 2018; In Press
3. Hindt MN, Akmakjian GZ, Pivarski KL, **Punshon T**, Baxter I, Salt DE, Guerinot ML. BRUTUS and its paralogs, BTS LIKE1 and BTS LIKE2, encode important negative regulators of the iron deficiency response in Arabidopsis thaliana. Metallomics. 2017;9(7):876-90. PMC5558852.
4. Davis MA, Signes-Pastor AJ, Argos M, Slaughter F, Pendergrast C, **Punshon T**, Gossai A, Ahsan H, Karagas MR. Assessment of human dietary exposure to arsenic through rice. Sci Total Environ. 2017;586:1237-44
5. **Punshon T**, Jackson BP, Meharg AA, Warczack T, Scheckel K, Guerinot ML. Understanding arsenic dynamics in agronomic systems to predict and prevent uptake by crop plants. Science of The Total Environment. 2017;581-582(1 March 2017):2009-220
6. **Punshon**, T.; Li, Z.; Marsit, C. J.; Jackson, B. P.; Baker, E. R.; Karagas, M. R., Placental Metal Concentrations in Relation to Maternal and Infant Toenails in a U.S. Cohort. *Environ. Sci. Technol.* **2016,** *ASAP January 4, 2016*.
7. Green, B. B.; Karagas, M. R.; **Punshon**, T.; Jackson, B. P.; Robbins, D. J.; Houseman, E. A.; Marsit, C. J., Epigenome-Wide Assessment of DNA Methylation in the Placenta and Arsenic Exposure in the New Hampshire Birth Cohort Study (USA). *Environ Health Perspect* **2016**.
8. Mary, V.; Ramos, M. S.; Gillet, C.; Socha, A. L.; Giraudat, J.; Agorio, A.; Merlot, S.; Clairet, C.; Kim, S. A.; **Punshon**, T.; Guerinot, M. L.; Thomine, S., Bypassing Iron Storage in Endodermal Vacuoles Rescues the Iron Mobilization Defect in the natural resistance associated-macrophage protein3natural resistance associated-macrophage protein4 Double Mutant. *Plant Physiol.* **2015,** *169*, (1), 748-+.
9. **Punshon**, T.; Chen, S.; Finney, L.; Howard, L.; Jackson, B. P.; Karagas, M. R.; Ornvold, K., High-resolution elemental mapping of human placental chorionic villi using synchrotron X-ray fluorescence spectroscopy. *Anal. Bioanal. Chem.* **2015,** *407*, (22), 6839-6850.
10. **Punshon**, T.; Davis, M. A.; Marsit, C. J.; Theiler, S. K.; Baker, E. R.; Jackson, B. P.; Conway, D. C.; Karagas, M. R., Placental arsenic concentrations in relation to both maternal and infant biomarkers of exposure in a US cohort. *J Expos Sci Environ Epidemiol* **2015**.

11. Jackson, B.; **Punshon**, T., Recent Advances in the Measurement of Arsenic, Cadmium, and Mercury in Rice and Other Foods. *Current environmental health reports* **2015,** *2*, (1), 15-24.
12. Carignan, C. C.; Cottingham, K. L.; Jackson, B. P.; Farzan, S. F.; Gandolfi, A. J.; **Punshon**, T.; Folt, C. L.; Karagas, M. R., Estimated Exposure to Arsenic in Breastfed and Formula-Fed Infants in a United States Cohort. *Environ Health Perspect* **2015**.
13. Cottingham, K. L.; Karimi, R.; Gruber, J. F.; Zens, M. S.; Sayarath, V.; Folt, C. L.; **Punshon**, T.; Morris, J. S.; Karagas, M. R., Diet and toenail arsenic concentrations in a New Hampshire population with arsenic-containing water. *Nutr J* **2013,** *12*, 149.
14. Zhai, Z.; Gayomba, S. R.; Jung, H. I.; Vimalakumari, N. K.; Pineros, M.; Craft, E.; Rutzke, M. A.; Danku, J.; Lahner, B.; **Punshon**, T.; Guerinot, M. L.; Salt, D. E.; Kochian, L. V.; Vatamaniuk, O. K., OPT3 Is a Phloem-Specific Iron Transporter That Is Essential for Systemic Iron Signaling and Redistribution of Iron and Cadmium in Arabidopsis. *Plant Cell* **2014,** *26*, (5), 2249-2264.
15. Hermand, V.; Julio, E.; Dorlhac de Borne, F.; **Punshon**, T.; Ricachenevsky, F. K.; Bellec, A.; Gosti, F.; Berthomieu, P., Inactivation of two newly identified tobacco heavy metal ATPases leads to reduced Zn and Cd accumulation in shoots and reduced pollen germination. *Metallomics* **2014,** *6*, (8), 1427-40.
16. **Punshon**, T.; Tappero, R.; Ricachenevsky, F. K.; Hirschi, K.; Nakata, P. A., Contrasting calcium localization and speciation in leaves of Medicago truncatula mutant COD5 analyzed via synchrotron X-ray techniques. *The Plant Journal* **2013,** *76*, (4), 627-633.
17. Donner, E.; **Punshon**, T.; Guerinot, M. L.; Lombi, E., Functional characterisation of metal(loid) processes in planta through the integration of synchrotron techniques and plant molecular biology. *Analytical and Bioanalytical Chemistry* **2012,** *402*, (10), 3287-98.
18. **Punshon**, T.; Ricachenevsky, F. K.; Hindt, M. F.; Socha, A.; Zuber, H., Methodological approaches for using synchrotron X-ray fluorescence (SXRF) imaging as a tool in ionomic characterization: Examples from whole plant imaging of Arabdiopsis thaliana. *Metallomics* **2013,** *5*, (9), 1133-1145.
19. Davis, M. A.; Mackenzie, T. A.; Cottingham, K. L.; Gilbert-Diamond, D.; **Punshon**, T.; Karagas, M. R., Rice consumption and urinary arsenic concentrations in US children. *Environmental Health Perpectives* **2012,** *120*, 1418–1424.
20. Yang, J.; **Punshon**, T.; Guerinot, M. L.; Hirschi, K. D., Plant Calcium Content: Ready to Remodel. *Nutrients* **2012,** *4*, (8), 1120-1136.
21. Jackson, B. P.; Taylor, V. F.; Karagas, M. R.; **Punshon**, T.; Cottingham, K. L., Arsenic, organic foods and brown rice syrup. *Environmental Health Perpectives* **2012,** *120*, (5), 623-626.
22. Carey, A.-M.; Lombi, E.; Donner, E.; de Jonge, M.; **Punshon**, T.; Jackson, B.; Guerinot, M.; Price, A.; Meharg, A., A review of recent developments in the speciation and location of arsenic and selenium in rice grain. *Analytical and Bioanalytical Chemistry* **2011,** *402*, 3275-3286.
23. Jackson, B. P.; Taylor, V. F.; Cottingham, K. L.; **Punshon**, T., Arsenic concentration and speciation in infant formulas and first foods. *Pure and Applied Chemistry* **2011,** *84*, 215-224.
24. **Punshon**, T.; Hirschi, K. D.; Lanzirotti, A.; Lai, B.; Guerinot, M. L., The role of CAX1 and CAX3 in elemental distribution and abundance in Arabidopsis seed. *Plant Physiol.* **2012,** *158*, (1), 352-362.
25. Gruber, J. F.; Karagas, M. R.; Gilbert-Diamond, D.; Bagley, P.; Zens, M. S.; Sayarath, V.; **Punshon**, T.; Morris, J. S.; Cottingham, K. L., Associations between toenail arsenic accumulation and dietary factors in a New Hampshire population. *Nutrition Journal* **2011,** *11*, 45.
26. Gilbert-Diamond, D.; Cottingham, K. L.; Gruber, J. F.; **Punshon**, T.; Sayarath, V.; Gandolfi, A. J.; Baker, E. R.; Jackson, B. P.; Folt, C. L.; Karagas, M. R., Rice consumption raises a health concern: evidence from U.S. pregnant women. *Proc. Nat. Acad. Sci.* **2011,** *5 Dec 2011*, 10.1073/pnas.1109127108.
27. Karagas, M. R.; Andrew, A. S.; Nelson, H. H.; Li, Z.; **Punshon**, T.; Schned, A.; Marsit, C. J.; Morris, J. S.; Moore, J. H.; Tyler, A. L.; Gilbert-Diamond, D.; Guerinot, M. L.; Kelsey, K. T., *SLC39A2* and *FSIP1* polymorphisms as potential modifiers of arsenic-related bladder cancer. *Human Genetics* **2011,** *131*, (3), 453-461.
28. Chu, H.-H.; Chiecko, J.; **Punshon**, T.; Lanzirotti, A.; Lahner, B.; Salt, D.; Walker, E. L., Successful reproduction requires the function of Arabidopsis YELLOW STRIPE-LIKE1 and YELLOW STRIPE-LIKE3 metal-nicotianamine transporters in both vegetative and reproductive structures. *Plant Physiol.* **2010,** *154*, 197-210.

29. Carey, A. M.; Norton, G. J.; Deacon, C.; Scheckel, K. G.; Lombi, E.; **Punshon**, T.; Guerinot, M. L.; Lanzirotti, A.; Newville, M.; Choi, Y.; Price, A. H.; Meharg, A. A., Phloem transport of arsenic species from flag leaf to grain during grain filling. *New Phytol.* **2011,** *192*, (1), 87-98.
30. High, W. A.; Ranville, J. F.; Brown, M.; **Punshon**, T.; Lanzirotti, A.; Jackson, B. P., Gadolinium deposition in nephrogenic systemic fibrosis: An examination of tissue using synchrotron x-ray fluorescence spectroscopy. *Journal of the American Academy of Dermatology* **2009,** *62*, (1), 38-44.
31. **Punshon**, T.; Guerinot, M. L.; Lanzirotti, A., Using synchrotron x-ray fluorescence microprobes in the study of metal homeostasis in plants. *Annals of Botany* **2009,** *103*, 665-672.
32. **Punshon**, T.; Jackson, B. P.; Seaman, J. C.; Adriano, D. C.; Burger, J., Arsenic and selenium speciation in aged flue gas desulfurization sludge amended soil. In *Coal Combustion Byproducts and Environmental Issues*, Sajwan, K. S.; Twardowska, I.; Punshon, T.; Alva, A. K., Eds. Springer: New York, 2006; pp 114-123.
33. Kim, S. A.; **Punshon**, T.; Lanzirotti, A.; Liangtao, L.; Alonso, J. M.; Ecker, J. R.; Kaplan, J.; Guerinot, M. L., Localization of iron in *Arabidopsis* seed requires the vacuolar membrane transporter VIT1. *Science* **2006,** *314*, (5803), 1295-1298.
34. **Punshon**, T.; Lanzirotti, A.; Harper, S.; Bertsch, P. M.; Burger, J., Distribution and speciation of metals in annual rings of black willow. *Journal of Environmental Quality* **2005,** *34*, 1165-1173.
35. **Punshon**, T.; Jackson, B. P.; Lanzirotti, A.; Hopkins, W.; Bertsch, P.; Burger, J., Application of synchrotron x-ray microbeam spectroscopy to the determination of metal distribution and speciation in biological tissues. *Spectroscopy Letters* **2005,** *38*, 343-363.
36. Burger, J.; Murray, S.; Gaines, K. F.; **Punshon**, T.; Shukla, T.; Dixon, C.; Gochfield, M., Element levels in snakes in South Carolina: Differences between a contaminated and a reference site on the Savannah River Site. *Environ. Monit. Assess.* **2006,** *112*, (1-3), 35-52.
37. **Punshon**, T.; Seaman, J. C.; Sajwan, K. S., The production and use of coal combustion products. In *Chemistry of Trace Elements in Fly Ash*, Sajwan, K. S.; Alva, A. K.; Keefer, R. F., Eds. KluwerAcademic/Plenum Publishers: New York, 2003; pp 1-11.
38. **Punshon**, T.; Jackson, B. P.; Bertsch, P. M.; Burger, J., Mass loading of nickel and uranium on plant surfaces: Application of LA-ICP-MS. *Journal of Environmental Monitoring* **2004,** *6*, (2), 153-159.
39. **Punshon**, T.; Bertsch, P. M.; Lanzirotti, A.; McLeod, K. W.; Burger, J., Geochemical signature of contaminated sediment remobilization revealed by spatially resolved X-ray microanalysis of annual rings of *Salix nigra* L. *Environ. Sci. Technol.* **2003,** *37*, (9), 1766-1774.
40. **Punshon**, T.; Adriano, D. C.; Weber, J. T., Restoration of drastically eroded land using coal fly ash and poultry biosolid. *Sci Total Environ* **2002,** *296*, (1-3), 209-225.
41. **Punshon**, T.; Gaines, K. F.; Bertsch, P. M.; Burger, J., Bioavailability of uranium and nickel to vegetation in a contaminated riparian ecosystem. *Environ. Toxicol. Chem.* **2003,** *22*, (5), 1146-1154.
42. **Punshon**, T.; Gaines, K. F.; Jenkins Jr., R. A., Bioavailability and trophic transfer of sediment bound Ni and U in a southeastern wetland system. *Arch Environ Con Tox* **2003,** *44*, (1), 30-35.
43. **Punshon**, T.; Adriano, D. C.; Weber, J. T., Effect of Flue Gas Desulfurization Residue on Plant Establishment and Soil and Leachate Quality. *Journal of Environmental Quality* **2001,** *30*, (3), 1071-1080.
44. **Punshon**, T.; Dickinson, N. M., Heavy Metal Resistance and Accumulation Characteristics in Willows. *Int. J. Phytoremediation* **1999,** *1*, (4), 361-386.
45. **Punshon**, T.; Dickinson, N. M., Acclimation of *Salix* to metal stress. *New Phytol.* **1997,** *137*, (2), 303-314.
46. Dickinson, N. M.; **Punshon**, T., Mobilisation of heavy metals using short rotation coppice. *Aspects of Applied Biology* **1997,** *49*, 285-292.
47. **Punshon**, T. Heavy metal resistance in *Salix*. Ph.D., Liverpool John Moores University, 1996.
48. **Punshon**, T.; Lepp, N. W.; Dickinson, N. M., Resistance to copper toxicity in some British Willows. *Jou. Geochem. Exploration.* **1995,** *52*, (1-2), 259-266.

Conference Publications

1. Dickinson NM, **Punshon T**, Hodkinson RB, Lepp NW, editors. Metal tolerance and accumulation in willows. Willow vegetation filters for municipal wasterwaters and sludges: *A biological purification system*; 1994; Sweden.

2. Jackson BP, Hopkins WA, Unrine J, Bainonno J, **Punshon T**, editors. Selenium speciation in amphibian larvae developing in a coal fly ash settling basin. 9th International Conference on Plasma Source Mass Spectrometry; 2004; Durham, UK: University of Durham.

Book Chapters

1. **Punshon T**, Seaman JC, Adriano DC. The effect of flue gas desulfurization residue on corn (*Zea mays* L.) growth and leachate salinity: Multiple season data from amended mesocosms. In: Sajwan KS, Alva AK, Keefer RF, editors. Chemistry of Trace Elements in Fly Ash. New York, NY: Kluwer Academic/Plenum Press; 2002.
2. **Punshon T**. Tree Crops. In: Prasad MNV, editor. Metals in the Environment: Analysis by Biodiversity. New York: Marcel Dekker; 2001. p. 321-51.
3. **Punshon T**, Knox AS, Adriano DC, Seaman JC, Weber TJ. Flue Gas Desulfurization residue (FGD): Potential Applications and Environmental Issues. In: Sajwan KS, Keefer RF, editors. Biochemistry of Trace Elements in Coal and Coal Combustion Byproducts. 1 ed. Boca Raton, FL.: Lewis Publishers; 1999. p. 7-28.

Professional Activities

Teaching

2014 Earth Sciences (EARS 124) "Synchrotron X-ray Fluorescence Microanalysis of Biological Tissue."

Public Speaking

2018

Invited Speaker: FASEB Trace Elements in Biology June 3-8 2018 Title TBA
Invited Speaker: New Hampshire Department of Environmental Services Drinking Water Source Protection Conference, "Arsenic Exposure and Health Effects from Drinking water and Food" May 17.
Invited Speaker: New Hampshire Academy of Nutritional and Dietetics Conferece "Arsenic Exposure and Health Effects from Drinking water and Food: May 10.

2017

EPA CLU-IN Webinar "Elemental Mapping and the Capbilities of the Trace Element Analysis Core at Dartmouth" May 22
Invited: Boston Children's Hospital Gastrointestinal Grand Rounds: "Arsenic in Food: Relevance to Celiac Disease Patients following a Gluten-Free Diet" and General Grand Rounds "Arsenic in Food: Health Effects and Susceptible Populations"
Invited: Dartmouth Hitchcock Grand Rounds: "Arsenic and Mercury: Pathways to Human Exposure, resulting Health Risks and Tools for Patients" with Dr. Celia Chen and Laurie Rardin

2016

Invited Speaker: New England Celiac Organization "Is arsenic in rice affecting our health?" Annual Meeting October 2016

2015

"Imaging the placental metallome in the New Hampshire Birth Cohort": 6th Annual Northeast Regional IDeA Conference, September 24-26, 2015, in Bar Harbor, ME.

2014

"Synchrotron X-ray Fluorescence Microanalysis of Biological Tissue: From Plants to Placentas." Synchrotron Environmental Science IV, September 11-12, 2014, Argonne National Laboratory, Argonne, IL.
"Using elemental imaging as a tool for gene characterization." Carnegie Institute, April 17, 2014. Host: Jose Dinenny

2013
"SXRF and ionomics": SUNY-ESF April 4 2013 Course on Phytoremediation led by Dr. Lee Newman.
"Using synchrotron X-ray fluorescence imaging as a tool in metallomics", 96th Canadian Chemistry Conference and Exhibition in Québec, Quebec, May 26 - 30, 2013. Invited speaker.
"Application of Synchrotron-Based Techniques in the Plant Sciences" Plenary speaker at the symposium entitled at the 12th International Conference on the Biogeochemistry of Trace Elements, June 16-20, 2013, Athens, GA.
2012
"Imaging Metals and Characterizing Genes in Plants Using Synchrotron X-ray Fluorescence Microscopy" 28th Annual International Conference on Soils, Sediments, Water and Energy, Association for Environmental Health and Sciences, October 17, 2012, University of Massachusetts, Amherst, MA.
"SXRF imaging an ionomics" 2012 Structural Molecular Biology Summer School, July 17, 2012, Stanford Synchrotron Radiation Lightsource (SSRL), Menlo Park, Palo Alto, CA.
2011
"Arsenic Uptake, Transport and Accumulation in Rice" 8th International Phytotechnologies Conference, Portland, OR. September 14, 2011.
2010
"The Use of Synchrotron X-ray Fluorescence Microspectroscopy in Plant Functional Genomics" 239th American Chemical Society National Meeting, (March 21-24, 2010. San Francisco, CA)
"Describing the *Arabidopsis* ionome using Synchrotron X-Ray Fluorescence Imaging" X-Ray Microscopy Conference, Chicago, IL. August 13-14, 2010. Satellite Meeting, "Biological Applications of X-Ray Fluorescence Microscopy", presented
"The Use of Synchrotron X-ray Fluorescence Microspectroscopy in Plant Functional Genomics" University of Aberdeen, May 31 2010. Host: Andy Meharg

Poster Presentations
2017
"Comparative analysis of arsenic and mercury concentration and speciation in Gluten Free food products." American Public Health Association Annual Meeting and Expo. Atlanta, GA

2016
"Marker of placental cytotoxicity, *KLRK1* expression, associated with maternal cadmium exposure." Todd M. Everson, David A. Armstrong, Brian P. Jackson, Tracy Punshon, Margaret R. Karagas, Carmen J. Marsit. Internation Society for Environmental Epidemiology

2015
"Elemental Imaging Capabilities of Dartmouth College's Trace Element Analysis Core Facility: A new program-wide resource" Punshon T* Jackson, B.P. 2015 Annual Meeting of the Superfund Research Program, San Juan, Puerto Rico. November 2015
"Imaging the placental metallome in the New Hampshire Birth Cohort." Punshon T*. 2015 NIEHS/EPA Children's Centers Annual Meeting, Washington, DC. October 2015

2014
"Placental arsenic concentrations in relation to both maternal and infant biomarkers of exposure in a US cohort" COBRE Annual Meeting, Washington DC, June 17, 2014
"Placental arsenic concentrations in relation to both maternal and infant biomarkers of exposure in a US cohort" International Society of Environmental Epidemiology, Seattle, WA, August 24, 2014
"Placental arsenic concentrations in relation to both maternal and infant biomarkers of exposure in a US cohort" Prenatal Programming and Toxicity Conference, Boston, MA, October 26-29, 2014
"Arsenic uptake and accumulation in rice" Superfund Annual Meeting, San Jose, CA, November 12-14

2011
"The Use of SXRF in Plant Functional Genomics". National Synchrotron Light Source Users' Meeting 2011.
"Spatially Resolved Elemental Mapping of Two USDA Rice Core Collection Grain Accessions with Diverse Mineral Accumulation Characteristics via Synchrotron X-Ray Fluorescence Microscopy (SXRF).' Rice Technical Working Group Meeting

2010
"Arsenic concentration and speciation in infant formula and first foods" Superfund Annual Meeting, Portland, OR. November 10-12, 2010.
"Food borne exposure to arsenic during the first year of life" at Children's Health Center Annual Meeting (Pilot Project 2),

Funding Proposal Reviewing
- L'Agence Nationale de la Recherché, SIMI8. (2012, 2011)
- Department of Energy, The Office of Basic Energy Sciences (Argonne National Laboratory). (2012)
-

Synchrotron experimental beam time application reviewing
- Member of the Proposal Review Panel for Imaging/Microbeam sciences at the Advanced Photon Source, Argonne National Laboratory, February 2015.
- Australian Synchrotron General User Program Proposal reviewer (2011, 2012)
- Stanford Synchrotron Radiation Lightsource.

Editorial services
Associate Editor: Journal of Environmental Quality since 2012-2017

Scientific article reviewing
African Journal of Biotechnology, Botanical Journal of the Linnean Society, Environment International, Environmental Pollution, Environmental Science and Technology, Environmental Science and Pollution Research, Environmental Toxicology and Chemistry, International Journal of Phytoremediation, International Union of Crystallography, Journal of Biological Chemistry, Journal of Environmental Quality, Journal of the Royal Society Interface, Metallomics, Metals, Molecular Biology Reports, Molecules, New Phytologist, Plant and Soil, Plant Cell and Environment, PLANTA, PLoS one, Trends in Plant Sciences.

Workshop organization
2015
Collaborative on Food Arsenic and Associated Risk Reduction, Dartmouth Superfund Research Program, Children's Environmental Health and Disease Prevention. November 2-3, 2015. Roles: steering committee member, logo and product designer.

2012
Co-organized and co-chaired (Antonio Lanzirotti) 1-day workshop at the National Synchrotron Light Source & Center for Functional Nanomaterials 2012 Users Meeting: Application of Synchrotron Techniques in Plant Biology.

Mentoring
Hands-on training at a collaborating synchrotron beamline, guidance and training in processing X-ray fluorescence and absorption data, standards-based data quantification, statistical analysis, software

installation and use. Mentoring involves provision of introductory reading materials, discussion, guidance on writing successful beam time proposals and accurately documenting beam time metadata.

Amanda Socha (Graduate Student, Dartmouth College). Experience: SSRL, BL2-3
Maria Hindt (Graduate Student, Dartmouth College). Experience: SSRL BL2-3.
Felipe Richachenevsky (visiting graduate student, Federal University of Rio Grande do Sul). SSRL BL2-3, NSLS X26A and X27A. Presented results in a poster at 2012 NSLS Users' Meeting.
Fabien Kellermeier (Visting graduate student, Glasgow University, UK,) NSLS X26A.
Helene Zuber (Post-doctoral fellow, Dartmouth College). NSLS X26A, SSRL BL2-3.
Heng-Hsuan Chu (Post-doctoral fellow, Dartmouth College). NSLS X26A.
Alicia Sivitz (Post-doctoral fellow, Dartmouth College). APS 13-ID-E.