

CURRICULUM VITAE

Miroslav (Mirek) Stýblo, Ph.D.

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Gillings School of Global Public Health
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EDUCATION

- 1988** **Candidatus Scientiarum (CSc., the Czechoslovak equivalent of Ph.D.)**
Biochemistry
Czechoslovak Academy of Sciences (Prague, Czechoslovakia)
Dissertation: *"Metabolism of a physiological and a sub-lethal dose of ⁷⁵Se-selenite and isolation of ⁷⁵Se-proteins from rat blood"*
Advisor: Dr. Milada Dobiášová, CSc.
- 1980** **Graduation Diploma**
Human and Animal Biochemistry
Kharkov State University (Kharkov, USSR),
Thesis: *"Inhibition of mitochondrial ATP-ase by dicyclohexylcarbodiimide"*
Advisor: Dr. Viktor V. Lemeshko

PROFESSIONAL EXPERIENCE

Division Head

2018-present Metabolic Health Division, Institute for Environmental Health Solutions,
Gillings School of Global Public Health, The University of North Carolina at
Chapel Hill, NC

Adjunct Professor

2016-present Department of Environmental Sciences and Engineering, Gillings School of
Global Public Health, The University of North Carolina at Chapel Hill, NC

Professor

2014-Present Department of Nutrition, Gillings School of Global Public Health, The
University of North Carolina at Chapel Hill, NC

Associate Professor with Tenure

2012-2014 Department of Nutrition, Gillings School of Global Public Health, The
University of North Carolina at Chapel Hill, NC

Adjunct Associate Professor

2009-2015 Department of Environmental Sciences and Engineering, Gillings School of
Global Public Health, The University of North Carolina at Chapel Hill, NC

Associate Professor

2009-2012 Department of Nutrition, Gillings School of Global Public Health, The University of North Carolina at Chapel Hill, NC

Research Associate Professor

2002-2009 Department of Nutrition, Gillings School of Global Public Health, The University of North Carolina at Chapel Hill, NC

Research Associate Professor

2002-2005 Department of Pediatrics, School of Medicine, The University of North Carolina at Chapel Hill, NC

Research Assistant Professor

1999-2002 Department of Nutrition, School of Global Public Health, The University of North Carolina at Chapel Hill, NC

Research Assistant Professor

1997-2002 Department of Pediatrics, School of Medicine, The University of North Carolina at Chapel Hill, NC

Postdoctoral Fellow

1996-1997 Department of Pediatrics and Frank Porter Graham Child Development Center, The University of North Carolina at Chapel Hill, NC

Visiting Scientist (Postdoctoral Fellow)

1992-1996 Curriculum in Toxicology, The University of North Carolina at Chapel Hill, and the Pharmacokinetics Branch, Experimental Toxicology Division, National Health and Environmental Effects Research Laboratory, U.S. Environmental Protection Agency, RTP, NC

Research Scientist

1990-1992 Department of Trace Element Analysis, Institute of Nuclear Biology and Radiochemistry, Czechoslovak Academy of Sciences, Prague, Czechoslovakia

Research Scientist

1988-1990 Laboratory of Environmental Medicine, Institute of Physiology, Czechoslovak Academy of Sciences, Prague, Czechoslovakia

Postgraduate Student

1982-1988 Department of Trace Elements, Institute of Nuclear Biology and Radiochemistry, Czechoslovak Academy of Sciences, Prague, Czechoslovakia

Military service

1981-1982

Research Assistant

1980-1981 Department of Trace Elements, Institute of Nuclear Biology and Radiochemistry, Czechoslovak Academy of Sciences, Prague, Czechoslovakia

HONORS AND AWARDS

2020 Sigma Xi, The Scientific Research Honors Society

2019 NIEHS Extramural Paper of the Month: January 2019

2016 Gillings Innovation Laboratory Award, UNC Gillings School of Global Public Health

2011 Delta Omega Society membership

- 2008 Gillings Innovation Laboratory Award, UNC Gillings School of Global Public Health
2007 Corresponding author for the most cited paper in *Archives of Toxicology* for the period of 2001-2007
2005 First author and co-author for four papers named by U.S. EPA among the top 1% most cited papers published by EPA-sponsored researchers on topics related to drinking water quality and contaminants
2001 Nomination for the Best Paper Award in *Toxicology and Applied Pharmacology*
1999 Young Investigator Award, Clinical Nutrition Research Center, UNC Chapel Hill

MEMBERSHIPS

PROFESSIONAL SOCIETIES:

- 2010-present American Chemical Society
2002-present Society of Toxicology, Metal Specialty Section
2002-present North Carolina Society of Toxicology
1985-1992 Czechoslovak Chemical Society
1985-1992 Society of Biochemistry, Czechoslovakia

UNIVERSITY AFFILIATIONS:

- 2018-present Institute for Environmental Health Solutions, Metabolic Health Division
2016-present Curriculum in Genetics and Molecular Biology graduate program
2008-present Biological and Biomedical Sciences Program
2003-present Center for Environmental Health and Susceptibility, Toxicokinetic Susceptibility Research Core
2002-present Curriculum in Toxicology and Environmental Medicine graduate program
2001-present Center for Environmental Medicine, Asthma, and Lung Biology
1999-present Nutrition Obesity Research Center, Molecular Biology and Nutritional Biochemistry Core

PUBLICATIONS (12,400 citations, h-index 61)

<https://scholar.google.com/citations?user=GcfcnJcAAAAJ&hl=en>

(*My students or postdoctoral trainees who co-authored the publications)

ARTICLES IN PEER-REVIEW JOURNALS:

1. **Stýblo M**, Venkatratnam A, Fry RC, Thomas DJ. (2021) Origins, fate, and actions of methylated trivalent metabolites of inorganic arsenic: progress and prospects. *Arch Toxicol.* 95(5):1547-1572.
2. Douillet C, *Ji J, *Meenakshi IL, Lu K, de Villena FP, Fry RC, **Stýblo M**. (2021) Diverse genetic backgrounds play a prominent role in the metabolic phenotype of CC021/Unc and CC027/GeniUNC mice exposed to inorganic arsenic. *Toxicology.* 452:152696.
3. *Venkatratnam A, Douillet C, Topping BC, Addo KA, Ideraabdullah FY, Fry RC, **Stýblo, M**. (2021) Sex-dependent effects of preconception exposure to arsenite on gene transcription in parental germ cells and on transcriptomic profiles and diabetic phenotype of offspring. *Arch. Toxicol.* 95(2):473-488.

4. Koller BH, Snouwaert JN, Douillet C, Jania LA, El-Masri H, Thomas DJ, **Stýblo, M.** (2020) Arsenic metabolism in mice carrying a *BORCS7/AS3MT* locus humanized by syntenic replacement. *Environ. Health Perspect.* 128, 87003. (Highlighted in EHP Science Section)
5. Douillet C, Koller, B, **Stýblo, M.** (2020) Metabolism of arsenic in mice lacking genes encoding GST-P, GST-M, and GST-T. *Chem. Res. Toxicol.* 33(8):2043-2046
6. Li YY, Douillet C, *Huang M, Beck R, Sumner SJ, **Stýblo M** (2020) Exposure to inorganic arsenic and its methylated metabolites alters metabolomics profiles in INS-1 832/13 insulinoma cells and isolated pancreatic islets. *Arch. Toxicol.* 94, 1955-1972.
7. *Beck R, *Chandi M, Kanke M, **Stýblo M**, Sethupathy P. (2019) Arsenic is more potent than cadmium or manganese in disrupting the INS-1 beta cell microRNA landscape. *Arch. Toxicol.* 93, 3099-3109.
8. **Stýblo, M.**, Douillet, C., Bangma, J., Eaves, L.A., de Villena F.P., Fry, R. (2019) Differential metabolism of inorganic arsenic in mice from genetically diverse Collaborative Cross strains. *Arch. Toxicol.* 93, 2811-2822.
9. *Beck, R., *Chandi, M., Kanke, M., **Styblo, M.**, Sethupathy, P. (2019) Arsenic is more potent than cadmium or manganese in disrupting the INS-1 beta cell microRNA landscape. *Arch. Toxicol.* 93, 3099-3109.
10. *Huang, M., Douillet, C., **Stýblo, M.** (2019) Arsenite and its trivalent methylated metabolites inhibit glucose-stimulated calcium influx and insulin secretion in murine pancreatic islets. *Arch. Toxicol.* 93, 2525–2533.
11. Fry, R., Addo, K.A., Bell, T.A., Douillet, C., Martin, E., **Stýblo, M.**, Pardo-Manuel de Villena, F. (2019) Effects of preconception and in utero inorganic arsenic exposure on the metabolic phenotype of genetically diverse Collaborative Cross mice. *Chem. Res. Toxicol.* 32, 1487-1490.
12. Bommarito, P.A., *Beck, R., Douillet, C, Del Razo, L.M., Garcia-Vargas, G.G., Valenzuela, O.L., Sanchez-Peña, L.C., **Styblo, M.**, Fry, R.C. (2019) Evaluation of plasma arsenicals as potential biomarkers of exposure to inorganic arsenic *J. Expo. Sci. Environ. Epidemiol.* 29, 718-729.
13. Bommarito, P.A., Xu, X., Gonzalez-Horta, C., Sanchez-Ramirez, B., Ballinas-Casarrubias, L., Santos Luna R.,M.,C., Román Pérez, S., Hernández Ávila, J.E., Garcia-Vargas, G.G., Del Razo, L.M., **Styblo, M.**, Fry, R.C. (2019) One-carbon metabolism nutrient intake and the association between body mass index and urinary arsenic metabolites in adults in the Chihuahua cohort. *Environ. Int.* 123, 292-300.
14. *Huang, M.C., Douillet, C., Dover, E.N., Zhang, C., Beck, R., *Tejan-Sie, A., Krupenko, S.A., **Stýblo, M.** (2018) Metabolic phenotype of wild-type and *As3mt*-knockout C57BL/6J mice exposed to inorganic arsenic: The role of dietary fat and folate intake. *Environ. Health Perspect.* 126(12), 127003 PMID: 30675811 (Highlighted in EHP Science Section)
15. *Beck, R., Bommarito, P.A., Douillet, C, Del Razo, L.M., Garcia-Vargas, G.G., L.C., Fry, R.C., Sethupathy, P., **Styblo, M.** (2018) Circulating miRNAs associated with arsenic exposure. *Environ. Sci. Technol.* 52, 14487-14495. PMID: 30457847
16. *Dover, E.N., *Naishal, Y.P., **Stýblo, M.** (2018) Impact of in vitro heavy metal exposure on pancreatic β -cell function *Tox. Letters.* 299, 137-144. PMID: 30300733
17. Laine, J.E., Ilievski, V., Richardson, D., Herring, A.H., **Stýblo, M.**, Rubio-Andrade, M., Garcia-Vargas, G., Gamble, M.V., Fry, R.C., Maternal one carbon metabolism and arsenic methylation

- in a pregnancy cohort in Mexico *J. Expo. Sci. Environ. Epidemiol.* 28, 505-514. PMID: 30068932
18. *Huang, M.C., Douillet, C., *Dover, E.N., **Stýblo, M.** (2018) Prenatal arsenic exposure and dietary folate and methylcobalamin supplementation alter the metabolic phenotype of C57BL/6J mice in a sex-specific manner. *Arch. Tox.* 92, 1925-1937. PMID: 29721587
 19. Murko, M., Elek, B., **Stýblo, M.**, Thomas, D.J., Francesconi, K.A. (2018) Dose and diet – Sources of arsenic intake in mouse in utero exposure scenarios. *Chem. Res. Toxicol.* 31, 156-164. PMID: 29244955
 20. *Dover, E.N., *Huang, M.C., Douillet, C., Wang, Z., Klett, E.L., **Stýblo, M.** (2018) Inorganic arsenic and its methylated metabolites may inhibit glucose stimulated insulin secretion by impairing mitochondrial function in β -Cells. *Arch. Tox.* 92, 693-704. PMID: 28956099
 21. Zhang, C., *Fennel, E.J., Douillet, C., **Stýblo, M.** (2017) Exposures to arsenite and methylarsonite produce insulin resistance and impair insulin-dependent glycogen metabolism in hepatocytes. *Arch. Tox.* 91, 3811–3821. PMID: 28952001
 22. Matoušek, T., *Wang, Z., Douillet, D., Musil, S., **Stýblo, M.** (2017) Direct speciation analysis of arsenic in whole blood and blood plasma at low exposure levels by hydride generation-cryotrapping-inductively coupled plasma mass spectrometry. *Anal. Chem.* 89, 9633–9637. PMID: 28809551
 23. Xu, X., Medina, S., Lauer, F.T., Douillet, C., Liu, K.J., Hudson, L.G., **Stýblo, M.**, Burchiel, S.W. (2017) Genotoxicity induced by monomethylarsonous acid (MMA+3) in mouse thymic developing T cells. *Tox. Lett.* 279, 60-66. PMID: 28760575
 24. Martin, E., **Stýblo, M.**, Fry, R.C. (2017) Genetic and epigenetic mechanisms underlying arsenic-associated diabetes mellitus: a perspective of the current scientific evidence. *Epigenomics* 9, 701-710. PMID: 28470093
 25. Xu, X., Medina, S., Lauer, F.T., Douillet, C., Liu, K.J., Hudson, L.G., **Stýblo, M.**, Aleksunes, L.M., Burchiel, S.W. (2017) Efflux transporters regulate arsenite induced genotoxicity in double negative and double positive mouse thymic cells. *Tox. Sci.* 158, 127-139. PMID: 28472378
 26. Douillet, C., *Huang, M.C., Saunders, R.J., Dover, E.N., Zhang, C., **Stýblo, M.** (2017) Knockout of arsenic (+3 oxidation state) methyltransferase is associated with adverse metabolic phenotype in mice: the role of sex and arsenic exposure. *Arch. Tox.* 91, 2617-2627. PMID: 27847981
 27. *Beck, R., **Stýblo, M.**, Sethupathy, P. (2017) Arsenic exposure and type 2 diabetes: microRNAs as mechanistic links? *Curr. Diab. Rep.* 17:18. PMID: 28275977
 28. Lane, J.E., Bailey, K.A., Olshan, A.F., Smeester, L., Drobná, Z., **Stýblo, M.**, Douillet, C., Garcia-Vargas, G., Rubio-Andrade, M., Pathmasiri, W.W., Sumner, S.J., Fry, R.C. (2017) Neonatal metabolomic profiles related to prenatal arsenic exposure. *Environ. Sci. Tech.* 51, 625-633. PMID: 27997141
 29. *Huang, M.C., Douillet, C., Su, M., Zhou, K., Wu, T., Chen, W., Galanko, J.A., Drobná, Z., Saunders, R.J., Martin, E., Fry, R.C., Jia, W., **Stýblo, M.** (2017) Metabolomic profiles of arsenic (+3 oxidation state) methyltransferase knockout mice: Effect of sex and arsenic exposure. *Arch. Tox.* 91, 189-202. PMID: 26883664
 30. Grau-Pérez, M., Kuo, C.C., Spratlen, M., Thayer, K.A., Mendez, M.A., Hamman, R., Dabelea, D., Adgate, J.L., Knowler, W.C., Bell, R.A., Miller, F.W., Liese, A.D., Zhang, C., Douillet, C., Drobná, Z., Mayer-Davis, E., **Stýblo, M.**, Navas-Acien, A., (2017) The association of arsenic

- exposure and metabolism with type 1 and type 2 diabetes in youth: The SEARCH case-control study. *Diabetes Care* 40, 46-53. PMID: 27810988
31. *Currier, J.M., Douillet, C., Drobná, Z., **Stýblo, M.** (2016) Oxidation state specific analysis of arsenic species in tissues of wild-type and arsenic (+3 oxidation state) methyltransferase-knockout mice. *J. Environ. Sci.* 49,104-112. PMID: 28007165
 32. Xu, X., McClain, S., Medina, S., Lauer, F.T., Liu, K.J., Hudson, L.G., Douillet, C., **Stýblo, M.**, Burchiel, S.W. (2016) Differential sensitivities of bone marrow, spleen and thymus to genotoxicity induced by environmentally relevant concentrations of arsenite. *Tox. Lett.* 262, 55-61. PMID: 27659730
 33. *Huang, M.C., Douillet, C.D., **Stýblo, M.** (2016) Knockout of arsenic (+3 oxidation state) methyltransferase results in sex-dependent changes in phosphatidylcholine metabolism in mice. *Arch. Tox.* 90, 3125–3128. PMID: 27591999
 34. Edelman, M.J., Lapidus, R., Feliciano, J., **Stýblo, M.**, Beumer, J.H., Liu, L., Gobbru, J. (2016) Phase I and pharmacokinetic evaluation of the anti-telomerase agent KML001 with cisplatin in advanced solid tumors. *Cancer. Chemoth. Pharm.* 78, 959-967. PMID: 27620207
 35. Xu, X., Drobná, Z., Voruganty, S., Barron, K., González-Horta, C., Sánchez-Ramírez, B., Ballinas, M.L., Hernández-Cerón, D.S., Viniegra-Morales, D., Baeza Terrazas, Ishida-Gutierrez, M.C., Gutiérrez-Torres, F., Saunders, R.J., Crandell, J., Fry, R., Loomis, D., García-Vargas, G., Del Razo, L.M., **Stýblo, M.**, Mendez, M.A. (2016) Association between variants in AS3MT and urinary metabolites of inorganic arsenic: role of arsenic exposure level. *Tox. Sci.* 53, 112-123. PMID: 27370415
 36. Hudgens, E.E, Drobná, Z., He, B., Le, X.C., **Stýblo, M.**, Rogers, Thomas, D.J. (2016) Biological and behavioral factors modify urinary arsenic metabolic profiles in a U.S. population. *Environ. Health* 15, 62. PMID: 27230915
 37. Drobná, Z., Martin, E., Kim, K.S., Smeester, L., Rubio-Andrade, M., García-Vargas, G.G., **Stýblo, M.**, Zou, F., Fry, R.C. (2016) Analysis of maternal polymorphisms in arsenic (+3 oxidation state)-methyltransferase AS3MT and fetal sex in relation to arsenic metabolism and infant birth outcomes: Implications for risk analysis. *Reprod. Tox.* 61, 28-38.
 38. Ding, L., **Stýblo, M.**, Drobná, Z., Ashok Hegde (2016) Expression of the longest RGS4 splice variant in the prefrontal cortex is associated with single nucleotide polymorphisms in schizophrenia patients. *Front. Psychiatry*, 7, 26.
 39. Mendez, M.A., González-Horta, C., Sánchez-Ramírez, B., Ballinas-Casarrubias, L., Hernández Cerón, R., Viniegra Morales, D., Baeza Terrazas, F.A., Ishida, M.C., Gutiérrez-Torres, D.S., Saunders, R.J., Drobná, Z., Fry, R.C., Buse, J.B., Loomis, D., García-Vargas, G.G., Del Razo, L.M., **Stýblo, M.** (2016) Chronic exposure to arsenic and markers of cardiometabolic risk: A cross-sectional study in Chihuahua, Mexico. *Environ. Health Perspect.* 124, 104–111.
 40. Rager, J., Miller, S., Smeester, L., *Currier, J.M., Ishida, M.C., González-Horta, C., Sánchez-Ramírez, B., Ballinas-Casarrubias, L., Gutiérrez-Torres, D.S., Drobná, Z., Del Razo, L.M., García-Vargas, G.G., **Stýblo, M.**, Fry, R.C. (2015) Identification of novel gene targets and putative regulators of arsenic-associated DNA methylation in human urothelial cells and bladder cancer *Chem. Res. Toxicol.* 28, 1144-1155.
 41. González-Horta, C., Ballinas-Casarrubias, L., Sánchez-Ramírez, B., Ishida, M.C, Barrera-Hernández, A., Gutiérrez-Torres, D., Zacarias, O.L., Saunders, R.J., Drobná, Z., Mendez, M.A.,

- García-Vargas, G.G., Loomis, D., **Stýblo, M.**, Del Razo, L.M., (2015) A concurrent exposure to arsenic and fluoride from drinking water in Chihuahua, Mexico. *Int. J. Environ. Res. Public Health* 12(5), 4587-4601.
42. Martin, E., González-Horta, C., Rager, J., Bailey, K.A., Sánchez-Ramírez, B., Ballinas-Casarrubias, L., Ishida, M.C., Gutiérrez-Torres, D.S., Hernández Cerón, R., Viniegra Morales, D., Baeza Terrazas, F.A., Saunders, R.J., Drobná, Z., Mendez, M.A., Buse, J.B., Loomis, D., Wei, J., García-Vargas, G.G., Del Razo, L.M., **Stýblo, M.**, Fry, R.C. (2015) Metabolomic characteristics of arsenic-associated diabetes in a prospective cohort in Chihuahua, Mexico. *Toxicol. Sci.* 144, 338–346.
 43. Lane, J.E., Bailey, K.A., Rubio-Andrade, M., Olshan, A., Smeester, L., Drobná, Z., Herring, A., **Stýblo, M.**, Garcia-Vargas, G., Fry, R.C. (2015) Maternal arsenic exposure, arsenic methylation efficiency, and birth outcomes in the biomarkers of exposure to ARsenic (BEAR) pregnancy cohort in Mexico *Environ. Health Perspect.* 123:186–192.
 44. Rojas, D., Radger, J.E., Smeester, L., Bailey, K.A., Drobná, Z., Rubio-Andrade, M., **Stýblo, M.**, Garcia-Vargas, G., Fry, R.C. (2015) Prenatal arsenic exposure and the epigenome: Identifying sites of 5-methyl cytosine alterations that predict functional changes in gene expression in newborn cord blood. *Tox. Sci.* 143:97-106.
 45. Musil, S., Matoušek, T., *Currier, J.M., **Stýblo, M.**, Dědina, J. (2014) Speciation analysis of arsenic by selective hydride generation-cryotrapping-atomic fluorescence spectrometry with flame-in-gas-shield atomizer: achieving extremely low detection limits with inexpensive instrumentation. *Anal. Chem.* 86, 10422–10428.
 46. *Currier, J.M., Ishida, M.C., González-Horta, C., Sánchez-Ramírez, B., Ballinas-Casarrubias, L., Gutiérrez-Torres, D.S., Hernández Cerón, R., Viniegra Morales, D., Baeza Terrazas, F.A., Del Razo, L.M., García-Vargas, G.G., Saunders, R.J., Drobná, Z., Fry, R.C., Matoušek, T., Buse, J.B., Mendez, M.A., Loomis, D., **Stýblo, M.** (2014) Associations between arsenic species in exfoliated urothelial cells and prevalence of diabetes among residents of Chihuahua, Mexico. *Environ. Health Perspect.* 122, 1088-1094.
 47. Bailey, K.A., Lane, J.E., Rager, J.E., Sebastian, E., Olshan, A., Smeester, L., Drobná, Z., *Currier, J., **Stýblo, M.**, Rubio-Andrade, M., Garcia-Vargas, G., Fry, R.C. (2014) Prenatal arsenic exposure and shifts in the newborn proteome: inter-individual differences in tumor necrosis factor (TNF)-responsive signaling. *Tox. Sci.* 139, 328–337.
 48. Lu, K., Mahbub, R., Cable, P.H., Ru, H., Parry, Bodnar, W.M, Wishnok, J.S., **Stýblo, M.**, Swenberg, J.A., Fox, J.G., Tannenbaum, S.R. (2014) Gut microbiome phenotypes driven by host genetics affect arsenic metabolism. *Chem. Res. Toxicol.* 27, 172-174.
 49. Rager, J.E., Bailey, K.A., Smeester, L., Miller, S.K., Lane, J.E., Drobná, Z., *Currier, J., Douillet, C., Olshan, A., Rubio-Andrade, M., **Stýblo, M.**, Garcia-Vargas, G., Fry, R.C. (2014) Prenatal arsenic exposure and the epigenome: altered miRNAs associated with innate and adaptive immune signaling in newborn cord blood. *Environ. Mol. Mutagen.* 55, 196-208.
 50. Lu, K., Cable, P.H., Abo, R.P., Ru, H., Schlieper, K.A., Graffam, M.E., Parry, N., Levine, S., Bodnar, W.M, **Stýblo, M.**, Wishnok, J.S., Swenberg, J.A., Fox, J.G., Tannenbaum, S.R. (2013) Gut microbiome perturbations induced by bacterial infection affect arsenic biotransformation. *Chem. Res. Toxicol.* 26, 1893–1903.
 51. Matoušek, T., *Currier, J.M., Trojánková, N., Saunders, R.J., Ishida, M.C., González-Horta, C., **Stýblo, M.**, Dědina, J. (2013) Selective hydride generation- cryotrapping- ICP-MS for arsenic

- speciation analysis at picogram levels: analysis of river and sea water reference materials and human bladder epithelial cells. *J. Anal. At. Spectrom.* 28, 1456–1465. [PMID: 24014931](#)
52. *Currier, J.M., Saunders, J., Ding, L., Bodnar, W., Cable, P., Matoušek, T., Creed, J., **Stýblo, M.** (2013) Comparative oxidation state specific analysis of arsenic by high-performance liquid chromatography-inductively coupled plasma-mass spectrometry and hydride generation-cryotrapping-atomic absorption spectrometry. *J. Anal. At. Spectrom.* 28, 843-852. [PMID: 23687401](#)
53. Douillet, C., *Currier, J.M., Saunders, J., Bodnar, W., Matoušek, T., **Stýblo, M.** (2013) Methylated trivalent arsenicals are potent inhibitors of glucose stimulated insulin secretion by murine pancreatic islets. *Toxicol. Appl. Pharmacol.* 267, 11-15. [PMID: 23261974](#)
54. Bailey, K.A., Wu, M., Ward, W.O., Smeester, L., Rager, J.E., García-Vargas, G., Del Razo, L.M., Drobná, Z., **Stýblo, M.**, Fry, R. (2013) Arsenic and the Epigenome: Inter-individual differences in arsenic metabolism related to distinct patterns of DNA methylation. *J. Biochem. Mol. Toxicol.* 27, 106-115. [PMID: 23315758](#)
55. Drobná, Z., Del Razo, L.M., García-Vargas, G.G., Valenzuela O.L., Hernandez-Castellanos, E., Sánchez-Peña, L.C., **Stýblo, M.**, Loomis, D. (2013) Environmental exposure to arsenic, AS3MT polymorphism and prevalence of diabetes in Mexico. *J. Expo. Sci. Environ. Epidemiol.* 23, 151-155. [PMID: 23093101](#)
56. *Tsang, V., Fry, R.C., Niculescu, M.D., Rager, J.E., Saunders, J., *Paul, D.S., Zeisel, S.H., Waalkes, M.P., **Stýblo, M.**, Drobná, Z. (2012) The epigenetic effects of a high prenatal folate intake in male mouse fetuses exposed in utero to arsenic. *Toxicol. Appl. Pharmacol.* 264, 439-450. [PMID: 23093101](#)
57. Maull, E.A., Ahsan, H., Cooper, G., Edwards, J., Longnecker, M., Navas-Acien, A., Pi, J., Silbergeld, E., **Stýblo, M.**, Tseng, C-H., Thayer, K., Loomis, D. (2012) Evaluation of the association between arsenic and diabetes: a national toxicology program workshop review. *Environ. Health Perspect.* 120, 1658–1670 [PMID: 22889723](#)
58. Ding, L., Saunders, R.J., Drobná, Z., Walton, F.S., Xun., P., Thomas, D.J., **Stýblo, M.** (2012) Methylation of arsenic by recombinant human wild-type arsenic (+3 oxidation state) methyltransferase and its methionine 287 threonine (M287T) polymorph: Role of glutathione. *Toxicol. Appl. Pharmacol.* 264, 121-130. [PMID: 22868225](#)
59. Drobná, Z., Del Razo, L.M., García-Vargas, G.G., Sanchez-Ramirez, B., Gonzalez-Horta, C., Ballinas, M.L., Loomis, D., **Stýblo, M.** (2012) Identification of the GST-T1 and GST-M1 null genotypes using high resolution melting analysis. *Chem. Res. Toxicol.* 25, 216–224. [PMID: 22136492](#)
60. *Currier, J.M., Svoboda, M., Matoušek, T., Dědina, J., **Stýblo, M.** (2011) Direct analysis and stability of methylated trivalent arsenic metabolites in cells and tissues. *Metallomics.* 3, 1347–1354. [PMID: 22015847](#)
61. Del Razo, L.M., García-Vargas, G.G., Valenzuela O.L., Hernandez-Castellanos, E., Sánchez-Peña, L.C., Drobná, Z., Loomis, D., **Stýblo, M.** (2011) Exposure to arsenic in drinking water is associated with increased prevalence of diabetes: a cross-sectional study in the Zimapán and Lagunera Regions in Mexico. *Environ. Health.* 10, 73. [PMID: 21864395](#)

62. *Paul, D.S., Walton, F.S., Saunders, R.J., **Stýblo, M.** (2011) Characterization of the impaired glucose homeostasis produced in C57BL/6 mice by chronic exposure to arsenic and high-fat diet. *Environ. Health Perspect.* 119, 1104–1109. [PMID: 21592922](#)
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SUBMITTED MANUSCRIPTS:

1. Mersaoui SY, Guilbert C, Chou H, Douillet C, Bohle DC, **Stýblo, M.**, Richard S, Mann KK (2021) The arsenic 3 methyltransferase (AS3MT) automethylates on cysteine residues. (under revision in *J. Biol. Chem.*)
2. Clark, J., Bommarito, P., Laine, J., **Stýblo, M.**, Rubio-Andrade M., García-Vargas, G.G., Gamble, M.V., Fry, R.C. (2021) Maternal serum folate concentrations modify the association between maternal arsenic exposure and birth outcomes in the Biomarkers of Exposure to ARsenic (BEAR) cohort.
3. Ghiuzeli CM, **Styblo M**, Saunders J, Calabro A, Budman D, Allen S, Devoe C, Dhingra R. The effect of prior chemotherapy and smoking of metabolism of arsenic trioxide in acute promyelocytic leukemia patients (under revision *Leukemia*, 12/8/2020)

EDITORIALS:

1. **Stýblo, M.**, Gregus, Z., Devesa, V., Vélez, D. (2010) Preface: 2nd International Congress, As 2008: Arsenic from nature to humans (Valencia, Spain, May 21-23). *Environ Res.* 110:411-412 [PMID: 20462574](#)
2. Thomas, D.J., **Stýblo, M.** (2008) Guest Editorial - Kazuo T. Suzuki, Ph.D. *Chem. Res. Toxicol.* 21:2067-2068.

PEER-REVIEWED PROCEEDING ARTICLES:

1. **Stýblo, M.**, Fry, R., *Huang, M., Martin, E., Douillet, C., Drobná, Z., Mendez, M.A., González-Horta, C., Sánchez-Ramírez, B., Ballinas-Casarrubias, M.L., Del Razo, L.M., García-Vargas, G. (2016) Metabolomics of arsenic exposure: The Man vs. the Mouse. In: *Proceedings of the 6th International Congress on Arsenic in the Environment*, 19-24 June 2016, Stockholm, Sweden, pp. 425-7, CRC Press 2016, Taylor & Francis Group, London, UK
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3. Fry, R.C., Martin, E., Kim, K.S., Smeester, L., **Stýblo, M.**, Zou, F., Drobná, Z. (2016) Maternal polymorphisms in arsenic (+3 oxidation state)-methyltransferase AS3MT are associated with arsenic metabolism and newborn birth outcomes: implications of major risk alleles and fetal health outcomes. In: *Proceedings of the 6th International Congress on Arsenic in the Environment*, 19-24 June 2016, Stockholm, Sweden (in press) *Proceedings of the 6th International Congress on Arsenic in the Environment*, 19-24 June 2016, Stockholm, Sweden, pp. 441-442. CRC Press 2016, Taylor & Francis Group, London, UK

4. Mendez, M.A., Drobná, Z., Fry, R., Buse, J.B., **Stýblo, M.**, González-Horta, C., Sánchez-Ramirez, B., Ballinas, M.L., Ishida-Gutierrez, M.C., Gutiérrez-Torres, Hernández-Cerón, D.S., Viniestra-Morales, D., Baeza Terrazas, F., Del Razo, L.M., García-Vargas, G., Loomis, D. (2014) Exposure to Arsenic and Cardiometabolic Risk in Chihuahua, Mexico. In: *One Century of the Discovery of Arsenicosis in Latin America (1914-2014), As 2014, Proceedings of the 5th International Congress on Arsenic in the Environment*, 11-16 May 2014, Buenos Aires, Argentina. Marta I. Litter, Hugo B. Nicolli, Martin Meichtry, Natalia Quici, Jochen Bundschuh, Prosun Bhattacharya, Ravi Naidu, (eds), pp. 526-530. CRC Press 2014, Taylor & Francis Group, London, UK.
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PODCASTS

1. Ahearn, A. (2019) Arsenic and Obesity: A Compound Risk Factor for Diabetes? with **Mirek Stýblo**, *Environ. Health Perspect.* <https://ehp.niehs.nih.gov/doi/10.1289/EHP4885>

POSTERS AND PLATFORM PRESENTATIONS:

1. Li Y, Douillet C, Huang M, Beck R, Sumner SJ, Styblo M (2020) Exposure to inorganic arsenic and its methylated metabolites alters metabolic profiles in INS-1 832/13 insulinoma cells and isolated pancreatic islets 2nd Annual Conference of the Metabolomics Association of North America (virtual), September 14-16, 2020.
2. Douillet C, Bangma J, Bommarito PA, Pardo-Manuel de Villena F, Fry RC, Styblo M. (2019) Metabolism of arsenic in genetically diverse Collaborative Cross mice. 58th Annual Meeting of the Society of Toxicology, Baltimore, MD, March 10–14, 2019.
3. Ji, J, Douillet C, Lu, K, Pardo-Manuel de Villena F, Fry RC, Styblo M. (2019) Metabolic phenotype of genetically diverse Collaborative Cross mice exposed to arsenic. 58th Annual Meeting of the Society of Toxicology, Baltimore, MD, March 10–14, 2019.
4. Beck R, Bommarito P, Douillet C, Kanke M, Del Razo LM, García-Vargas G, Fry RC, Sethupathy P, Styblo M. Circulating miRNAs as potential biomarkers of arsenic exposure. 58th Annual Meeting of the Society of Toxicology, Baltimore, MD, March 10–14, 2019.
5. Bommarito, P.A., Beck, R.F., Del Razo, L.M., García-Vargas, G.G., Mendez, M.A., Valenzuela, O.L., Hernandez Castellanos, E., Sanchez-Pena, L.C., Loomis, D., Styblo, M. Fry, R.C. (2018) An evaluation of plasma arsenic species as potential biomarkers of arsenic exposure and arsenic-associated diabetes in individuals living in Zimapan and Lagunera, Mexico. ISES-ISEE Joint Annual Meeting, 08/26-30/2018, Ottawa, Canada.
6. Bommarito, P.A., Gonzalez-Horta, C., Sanchez-Ramirez, B., Ballinas-Casarrubias, M.L., Ballinas-Casarrubias, L., Ishida, M.C., Gutiérrez-Torres, D.S., Hernández-Cerón, R., Viniegra-Morales, D., Baeza-Terrazas, F.A., García-Vargas, G.G., Del Razo, L.M., Mendez, M.A., Styblo, M. Fry, R.C. (2018) Body mass index is associated with changes in excretion of urinary arsenic metabolites. 57th Annual Meeting of the Society of Toxicology, San Antonio, TX, March 11–15, 2018.
7. Martin, E.N., Gonzalez-Horta, C., Sanchez-Ramirez, B., Ballinas-Casarrubias, M.L., Ballinas-Casarrubias, L., Ishida, M.C., Gutiérrez-Torres, D.S., Hernández-Cerón, R., Viniegra-Morales, D., Baeza-Terrazas, F.A., Drobná, Z., Wei, J., García-Vargas, G.G., Del Razo, L.M., Mendez, M.A., Styblo, M. Fry, R.C. (2018) Arsenic (+3 oxidation state) methyltransferase (as3mt) genotype is associated with metabolites that are linked to diabetes susceptibility in individuals exposed to arsenic in Chihuahua, Mexico. 57th Annual Meeting of the Society of Toxicology, San Antonio, TX, March 11–15, 2018.
8. *Huang, M.C., Douillet, C.D., *Dover, E.N., Zhang, C., *Beck, R., Styblo, M. (2018) Assessing the modification of iAs metabolism through genetic and methyl donor nutrient

- intervention and its impact on metabolic health. 57th Annual Meeting of the Society of Toxicology, San Antonio, TX, March 11–15, 2018.
9. *Beck, R., Sethupathy, P., Styblo, M. (2018) MicroRNAs: Potential markers and drivers of arsenic-associated diabetes. 57th Annual Meeting of the Society of Toxicology, San Antonio, TX, March 11–15, 2018.
 10. *Huang, M.C., Douillet, C.D., *Dover, E.N., Styblo, M. (2018) Prenatal arsenic exposure and dietary folate and methylcobalamin supplementation alter the metabolic phenotype of C57BL6 mice in a sex-specific manner. 57th Annual Meeting of the Society of Toxicology, San Antonio, TX, March 11–15, 2018.
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 12. *Huang, M.C., Dover, E.N., Douillet, C., Klett, E., Styblo, M. (2017) Molecular mechanisms of diabetes associated with chronic arsenic exposure. American Diabetes Association's 77th Scientific Sessions, San Diego, CA, June 9-13, 2017.
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 15. Noel, G., Martin, E., Drobná, Z., Kim, K.S., Rubio-Andrade, M., García-Vargas, G., Stýblo, M., Fry, R.C. (2016) Maternal genotype for arsenic (+3 oxidation state) methyltransferase is associated with cord blood levels of methylated arsenicals. 56th Annual Meeting of the Society of Toxicology. Baltimore, MD, March 12-16, 2017.
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 19. Martin, E., Smeester, L., Rubio-Andrade, M., García-Vargas, G., Stýblo, M., Fry, R.C. (2016) Prenatal arsenic exposure and the maternal proteome: Proteomic analysis in maternal circulating blood reveals a fetal sex-dependent inflammatory response. 56th Annual Meeting of the Society of Toxicology. Baltimore, MD, March 12-16, 2017.
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81. Xing, W., Adair, B.M., *Drobna, Z., Styblo, M., Thomas, D.J. (2006) Catalytic differences between human wild type arsenic (+3 oxidation state) methyltransferase and its 287 polymorph. ASBMBA 2006.
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83. *Paul, D.S., *Harmon, A.W., *Devesa, V., Thomas, D.J., Styblo, M., (2005) Molecular mechanisms underlying inhibition of insulin-stimulated glucose uptake in adipocytes exposed to trivalent arsenicals. Experimental Biology Annual Meeting, San Diego, CA, April 2005.
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87. *Drobná Z., Waters, S.B., Devesa, V., *Harmon, A.W., Thomas, D.J., Styblo, M. (2005) Metabolism and Toxicity of Arsenic in Human Urinary Bladder Epithelial Cells Expressing Rat Arsenic (+3)-Methyltransferase. Society of Toxicology 44th Annual Meeting, New Orleans, LA, March 2005 (on CD).
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98. *Drobná Z., Jaspers I., Styblo M. (2003) Activation of ERK signaling pathway and AP-1 in UROtsa cells by inorganic and methylated trivalent arsenicals. Society of Toxicology 42nd Annual Meeting, Salt Lake City, UT, March 2003. The Toxicologist, Abstract Issue of Toxicol. Sci., vol. 72, p. 269.
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100. *Drobná, Z., Jaspers I., Thomas D.J. and Styblo M. (2002) Activation of AP-1 in UROtsa cells by methylated trivalent arsenicals. The Toxicologist, Abstract Issue of Toxicol. Sciences, Society of Toxicology 41th Annual Meeting, Nashville, TN, March 2002, p.84.

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INVITED LECTURES AND SYMPOSIA AT (INTERNATIONAL MEETINGS:

1. In search of a mouse model for arsenic toxicology. 10th Conference on Metal Toxicity & Carcinogenesis, 10/28-31/2018, Albuquerque, NM.
2. The role of folate and vitamin B12 in the metabolism and diabetogenic effects of arsenic in mice: prenatal vs. postnatal exposure. FASEB summer conference on "Folic Acid, Vitamin B12, and One-Carbon Metabolism, 07/29-08/03/2018, Halifax, Nova Scotia, Canada.
3. Symposium: The role of the epigenome in the etiology of metal-induced disease (Symposium Co-Chair), 57th Annual Meeting of the Society of Toxicology, San Antonio, TX, March 11–15, 2018.
4. Symposium: Environmental endocrine disrupting chemicals (Symposium Chair). XIV. International Congress of Toxicology, 10/2-6/2016, Merida, Mexico.
5. Metabolomics of arsenic exposure: the Man vs. the Mouse. 6th International Congress on Arsenic in the Environment, 06/19-23/2016, Stockholm, Sweden. (Session Co-chair)
6. Symposium: Association of arsenic exposure and biotransformation with cardiometabolic risk: implications at low-moderate levels (Symposium Co-Chair), Annual Conference of the International Society of Environmental Epidemiology, 08/24-28/2014, Seattle, WA.
7. Diabetes associated with environmental exposure to arsenic: The phenotype and mechanisms. 2nd International Symposium on Arsenic and Fluoride: Effects on Human Health, (Session Chair) 06/05-07/2014, Chihuahua, Mexico.

8. Exposure to arsenic and cardiometabolic risk in Chihuahua, Mexico. 97th Canadian Chemistry Conference and Exhibition, 06/1-5/2014, Vancouver, British Columbia, Canada.
9. Exposure to arsenic and cardiometabolic risk in Chihuahua, Mexico. 5th International Congress on Arsenic in the Environment, 05/11-16/2014, Buenos Aires, Argentina. (Session Co-Chair)
10. The Collaborative on Health and Environment, Diabetes-obesity spectrum working group call: the link between arsenic exposure and diabetes: a review of the current research (featured speaker), 05/11/2014 (http://www.healthandenvironment.org/wg_calls/13959)
11. Linking environmental arsenic to an increased risk of diabetes mellitus: the role of translational research. 9th International Symposium on Persistent Toxic Substances, 10/23-27/ 2012, Miami, FL.
12. Arsenic-induced development of chronic disease. Obesity 2012, 30th Annual Scientific Meeting, 09/20-24/2012, San Antonio TX.
13. Mechanisms of the diabetogenic effects of arsenic. Annual Conference of the International Society of Environmental Epidemiology, 08/26-30/2012, Columbia, SC.
14. Exposure to arsenic, AS3MT genotype and prevalence of diabetes: recent evidence from studies in Mexico. Annual Conference of the International Society of Environmental Epidemiology, 08/26-30/2012, Columbia, SC.
15. Pathophysiology and mechanisms of arsenic-induced diabetes. American Diabetes Association's 72nd Scientific Session, 03/08-12/2012, Philadelphia, PA.
16. Analysis of methylated trivalent arsenicals in biological samples. 51st Annual Meeting of the Society of Toxicology. 03/11-15/2012, San Francisco, CA.
17. Prevalence of diabetes and its association with urinary trivalent methylated arsenic species in endemic regions in Mexico. 51st Annual Meeting of the Society of Toxicology. 03/11-15/2012, San Francisco, CA.
18. Arsenic toxicity and diabetogenic effects of arsenic. 1st International Symposium on Arsenic and Fluoride: Effects on Human Health, 12/02-03/2011, Chihuahua, Mexico
19. Virtual Consortium for Translational/Transdisciplinary Environmental Research (ViCTER) Project. 1st International Symposium on Arsenic and Fluoride: Effects on Human Health, 12/02-03/2011, Chihuahua, Mexico
20. Biomarkers for the Assessment of Diabetes associated with chronic Exposure to Arsenic. The 242nd American Chemical Society National Meeting, 8/28-9/2/2011, Denver, CO.
21. Novel biomarkers of arsenic exposure and health effects: from urine to cells and tissues. The 3rd International Symposium on Metallomics, 6/15-18/2011, Münster, Germany.
22. Dimethylarsinite in urine is a predictor of risk of diabetes associated with chronic exposure to inorganic arsenic. Analytical and Environmental Chemistry in Human Health Symposium, PACIFICHEM 2010, 12/15-20/2010, Honolulu, HI, USA.
23. Arsenic and Human Health, Exposures and Mechanisms, ITEHP Spring 2010 Symposium: Mountaintop Coal Mining: Human Health & Ecological Concerns, 4/9/2010, Duke University, Durham, NC, USA
24. Environmental Arsenic and Diabetes Mellitus. Tópicos Selectos de Toxicología, Universidad Autónoma del Estado de Hidalgo, 11/3/2008, Pachuca, Mexico.

25. Metabolism of Arsenic in Human Liver. The 2nd International Congress: Arsenic in the Environment. 5/21-24/2008, Valencia, Spain.
26. Environmental Arsenic and Diabetes Mellitus. The 2nd International Congress: Arsenic in the Environment. 5/21-24/2008, Valencia, Spain.
27. Environmental Arsenic as a Disruptor of Insulin Signaling. The 10th International Symposium on Metal Ions in Biology and Medicine, 5/19-22/2008, Bastia, Corsica, France.
28. Environmental Arsenic and Diabetes. NIEHS/US EPA Conference: “Future Research on Endocrine Disruption: Translation of Basic and Animal Research to Understand Human Disease” 8/27-29/2007, Durham, NC.
29. Metabolism as a Determining Factor in Acute and Chronic Toxicity of Inorganic Arsenic. The Pittsburgh Conference (PITTCON 2007), 2/25/2007, Chicago, IL.
30. Metabolism of Inorganic Arsenic: Implications for Human Exposures. International Workshop on Water Contaminants & Health Effects, 7/5-8/2006, Edmonton, AL, Canada
31. Insulin Signaling, Arsenic and the Pathogenesis of Diabetes. International Workshop on Research and Risk Assessment for Arsenic (sponsored by US EPA), 5/31-6/2, 2006, National Conservation Training Center, Shepherdstown, WV.
32. Interactions of Arsenic Metabolites with Major Signal Transductions Pathways in Mammalian Cells. (Keynote Lecture) Jornadas de Toxicología, Instituto de Investigaciones Biomédicas, 11/06-08/2003. Mexico City, Mexico.
33. Inhibition of Insulin-Dependent Glucose Uptake by Methylated Trivalent Arsenicals: Possible Mechanism of Arsenic-Induced Diabetes. American/Japanese Conference on Arsenic in Medicine and Biology, 12/11-15/2002, Honolulu, HI.
34. Production and Biological Significance of Methylated Trivalent Arsenicals. International Symposium on Bio-Trace Elements (BITREL) 2002, 10/28-11/2, 2002 Tokyo-Fujiyoshida, Yamanashi, Japan.
35. Methylated Arsenicals and Gene Transcription Regulation. The 5th International Conference on Arsenic Exposure and Health Effects, 7/14-18/2002, San Diego, CA.
36. Does Biomethylation Contribute to the Toxicity and Genotoxicity of Arsenic? The 3rd International Meeting on Molecular Mechanisms of Metal Toxicity and Carcinogenicity, 9/1-8, 2001, Stintino, Italy.
37. Novel Markers of Arsenic Exposure and Toxicity in Human Cells. Arsenic Research Partnership: Technology Transfer Conference, AWWARF, ACWA, US EPA, 7/12-13/2000, Costa Mesa, CA.
38. Toxicity of Methylarsenic Species in Human Cells. The 4th International Symposium on Speciation of Elements in Biological, Environmental and Toxicological Sciences, 6/25-7/1, 2000, Whistler, British Columbia, Canada.
39. Toxic Consequences of the Metabolism of Arsenic. The 4th International Conference on Arsenic Exposure and Health Effects, 6/18-22/2000, San Diego, CA.
40. Metabolism of Inorganic and Methylated Arsenicals in Primary Human Hepatocytes. The 6th International Symposium on Metal Ions in Biology and Medicine, 5/7-10/2000, San Juan, Puerto Rico.

41. Metabolism and Toxicity of Arsenicals in Cultured Cells. The 3rd International Conference on Arsenic Exposure and Health Effects, 7/12-15/1998, San Diego, CA.
42. Factors Influencing in Vitro Methylation of Arsenicals in Rat Liver Cytosol. The 2nd International Conference on Arsenic Exposure and Health Effects, 6/12-14/1996, San Diego, CA.

INVITED SEMINARS:

1. Humanized mouse models for arsenic toxicology. Center for Intergtve Environmental Health Sciences, University of Louisville, 09/2/2021, Louisville, KY.
2. Susceptibility to arsenic-induced diabetes: The role of As3mt polymorpnism and the microbiome, Center for Environmental Health and Susceptibility Pilot Project Symposium, 09/27/2019, UNC Chapel Hill, NC.
3. Factors Affecting Arsenic-Associated Diabetes in Mouse Models: Diet and Genetics, Columbia University Superfund Program. 04/15/2019, New York, NY.
4. Environmental arsenic is a diabetogen: evidence from population and laboratory studies. Division of Endocrinology, Feinberg school of medicine, Northwestern University, 05/02/2019, Chicago, IL.
5. Translational Studies of Arsenic-Associated Diabetes, Pharmacology & Toxicology seminar, University of Arizona, 1/29/2019, Tucson, AR.
6. The role of folate and vitamin B12 in the metabolism and diabetogenic effects of arsenic in mice: prenatal vs. postnatal exposure. Nutrition Research Institute, 10/25/2018, Kannapolis, NC
7. Environmental diabetogens: The case for arsenic, Endocrine Research Conference, School of Medicine, UNC-Chapel Hill, NC, 11/29/2018.
8. Translational studies of arsenic-associated diabetes, Environmental Epidemiology Seminar series, UNC-Chapel Hill, NC, 11/09/2018.
9. The role of folate and vitamin B12 in the metabolism and diabetogenic effects of arsenic in mice: prenatal vs. postnatal exposure, NRI Seminar Series, Nutrition Research Institute, Kannapolis, NC, 10/25/208.
10. Diabetes associated with exposure to arsenic - phenotype and mechanisms, Department of Pharmacology, Toxicology and Therapeutics, The University of Kansas Medical Center, KS, 10/03/2017.
11. The diabetogenic effects of arsenic: evidence from laboratory and population studies, Florida International University, Miami, FL, 04/06/2016.
12. Cardiometabolic Risk Associated with Arsenic Exposure: The Role of Arsenic Metabolism, University of New Mexico, Albuquerque, NM, 11/23/2015.
13. Association Between Arsenic Exposure and Cardiometabolic Disease: Evidence from Laboratory and Population Studies, North Carolina State University, 10/27/2015, Raleigh, NC.
14. Factors Affecting Metabolism of Arsenic: Implications for Treatment of APL, Monter Cancer Center, 09/22/2015, Lake Success, NY.
15. Cardiometabolic Risk Associated With Chronic Exposure to Arsenic, Department of Epidemiology and Environmental Health, 09/19/2014, SUNY Buffalo, NY.

16. Three-lecture series sponsored by the Society of Toxicology: Arsenic as a global drinking water pollutant; Cardiometabolic risk associated with chronic exposure to arsenic; Arsenic speciation analysis for environmental toxicology and medicine, 02/18-20/2014, University of Cartagena, Colombia.
17. Diabetes and Cardiometabolic Risk Associated with Chronic Exposure to Arsenic. University of Michigan Nutrition Obesity Research Center, October 16, 2013.
18. Environmental Diabetogens: The Case for Arsenic. College of Medicine, University of Kentucky in Lexington, August 22, 2013.
19. Diabetes Associated with Environmental Exposure to Arsenic: The Phenotype and Mechanisms. Columbia University Superfund Program, New York City, NY, April 15, 2013.
20. Diabetes Associated with Environmental Exposure to Arsenic: The Phenotype and Mechanisms. The Laboratory of Toxicology and Pharmacology, National Institute of Environmental Health Sciences, RTP, NC, January 10, 2013.
21. Environmental Arsenic: The Exposure, Metabolism and Health Effects. Department of Environmental and Molecular Toxicology. NC State University, September 4, 2012.
22. Environmental Arsenic: From Epidemiology to Molecular Biology and Back Again, Department of Environmental Sciences and Engineering, UNC Chapel Hill, February 9, 2011.
23. Intracellular Arsenic Species Concentrations. Arsenic Mini-Workshop, The Hamner Institute for Health Sciences, RTP, NC, January 28, 2010.
24. Nutrition and the Environment: Could Arsenic in Our Water be Causing Diabetes? Center for the Environment at Catawba College, Salisbury, NC, October 2009.
25. Chemical and Toxicological Aspects of the Metabolism of Arsenic in Human Liver. Advanced Research Cooperation in Environmental Health Program, Florida International University, Miami, FL, March 2009.
26. Environmental Arsenic and Diabetes Mellitus. La Sección Externa de Toxicología, CINVESTAV-IPN, Mexico City, Mexico, November 2008.
27. Significance of Arsenic Speciation for Environmental Toxicology and Medicine. Institute of Analytical Chemistry, Czech Academy of Sciences, Brno, Czech Republic, September 2006.
28. Metabolism and Diabetogenic Effects of Arsenic. Southwest Environmental Science Center, University of Arizona, Tucson, February 2006.
29. Environmental Arsenic: From Epidemiology to Molecular Biology and Back Again. The Complex of Biomedical Institutes, Czech Academy of Sciences, Prague, Czech Republic, June 2005.
30. Enzymology of Arsenic Metabolism in Mammalian Cells. Department of Biochemistry, Wayne State University, Detroit, MI, January 2005.
31. The Role of Speciation in Toxicology of Arsenic. Research Institute of Analytical Chemistry, Czech Academy of Sciences, Prague, Czech Republic, June 2003.
32. The Mechanisms of Toxic and Cancer Promoting Effects of Arsenic. The Center in Toxicology, Vanderbilt University School of Medicine, Nashville, TN, April 2003.
33. The Role of Metabolism in Toxic and Carcinogenic Effects of Arsenic. Department of Pediatrics, UNC Chapel Hill, UNC Campus, June 2001.

34. Toxic Consequences of the Metabolism of Arsenic. Nelson Institute of Environmental Medicine, NYU Medical Center, Tuxedo, NY, October 2000.
35. Metabolism and Toxicity of Arsenicals in Cultured Cells. The Center for Environmental Medicine and Lung Biology, UNC Chapel Hill, and the Human Research Division, US EPA, UNC Campus, April 1999.
36. Toxicity and Biological Effects of Trivalent Methylated Arsenicals. National Institute for Occupational Safety and Health, Morgantown, WV, October 1998.

TEACHING ACTIVITIES

COURSE DIRECTOR:

- NUTR 400 Introduction to Nutritional Biochemistry, spring 2021 (40 students)
NUTR 400 Introduction to Nutritional Biochemistry, spring 2020 (38 students)
NUTR 400 Introduction to Nutritional Biochemistry, spring 2019 (71 students)
NUTR 400 Introduction to Nutritional Biochemistry, spring 2018 (57 students)
NUTR 400 Introduction to Nutritional Biochemistry, spring 2017 (53 students)
NUTR 400 Introduction to Nutritional Biochemistry, spring 2016 (47 students)
NUTR 400 Introduction to Nutritional Biochemistry, spring 2015 (49 students)
NUTR 400 Introduction to Nutritional Biochemistry, spring 2014 (48 students)
NUTR 400 Introduction to Nutritional Biochemistry, spring 2013 (49 students)
NUTR 400 Introduction to Medical Nutrition, spring 2012 (51 students)
NUTR 400 Introduction to Medical Nutrition, spring 2011 (45 students)
NUTR 696 Advanced Nutritional Biochemistry: Oxidative Stress and Nutritional Antioxidants in Human Health and Disease, fall 2010 (4 students)
NUTR 240 Introduction to Human Nutrition, fall 2009 (117 students)

CO-INSTRUCTOR:

- NUTR 600 Human Metabolism: Macronutrients, fall 2010 (40+ students)

GUEST LECTURER:

- NUTR 845 Nutritional Metabolism, spring 2016 (7 students)
ENVR 442 Biochemical and Molecular Toxicology, fall 2015-2020 (8-16 students)
(TOXC 442)
NUTR 812 Introduction to Obesity: From Cell to Society, spring 2009-2013 (15+ students)
NUTR 845 Nutritional Metabolism, spring 2010, 2016, 2018 (7-10 students)
PATH 726 Human Environmental Disease, fall 2010 - 2015 (3-5 students)

Ph.D. STUDENTS SUPERVISED (affiliation, dissertation title, completion date):

1. Bingzhen Shang (Nutrition, TBD, 2026)
2. Rowan Beck (BBSP/Curriculum in Genetics and Molecular Biology, *Defining the molecular effects of arsenic exposure in circulation and in pancreatic beta cells*, December 2019)
3. Madelyn (Mimi) Huang (BBSP/Curriculum in Toxicology, *Arsenic-associated diabetes: mechanisms and the role of arsenic metabolism*, May 2018)

4. Michael A. DePetrillo (Nutrition, *Effects of arsenic exposure on coxsackievirus virulence in selenium-deficient mice*, after four years, had to leave the Program due to health problems)
5. Jenna Currier (BBSP/Curriculum in Toxicology, *Application of novel analytical techniques for speciation analysis of arsenic in human cells and tissues*, May 2013)
6. Samantha Attard (Nutrition, *Environmental arsenic and diabetes mellitus*, switched to Nutrition Epidemiology in 2011, after completing one year in the Program)
7. David S. Paul (Nutrition, *Endogenous and environmental modulators of insulin-stimulated glucose uptake*, May 2007)

CHAIR OF DOCTORAL COMMITTEES (affiliation, dissertation title, actual or estimated completion date):

1. Desinia Johnson (BBSP/Curriculum in Toxicology, *Ozone induces systemic metabolic derangement through neuronal stress mechanisms*, 2017)
2. Kimberly M. Stratford (BBSP/Curriculum in Toxicology, *Role of Klotho and TRPA1 in vitamin D deficiency and air-pollution induced cardiopulmonary dysfunction*, 2017)

MEMBER OF DOCTORAL COMMITTEES (affiliation, dissertation title, actual or estimated completion date):

1. Syed Masood (BBSP/Curriculum in Toxicology and Environmental Medicine, *The oxidative burden imposed by isoprene-derived secondary organic aerosols*, 2024)
2. Jeliyah Clark (Environmental Science and Engineering, *Nutritional modulation of fetal susceptibility to inorganic arsenic exposure*, 2022)
3. Cassandra Meakin (Environmental Science and Engineering, *Inorganic arsenic as an endocrine disruptor in the placenta: Implications for the glucocorticoid receptor signaling pathway*, 2020)
4. Elizabeth Corteselli (BBSP/Curriculum in Toxicology, *Polyunsaturated fatty acids as determinants of redox changes and inflammatory responses in human airway epithelial cells exposed to ozone*, 2019)
5. Katelyn Lavrich (BBSP/Curriculum in Toxicology, *Initiating oxidative events induced by particulate matter component 1,2-naphthoquinone in human airway cells*, 2018)
6. Elizabeth Martin (Environmental Science and Engineering, *The use of metabolomic profiling to elucidate mechanisms underlying arsenic-associated diabetes*, 2017)
7. Phillip A. Wages (BBSP/Curriculum in Toxicology, *dissertation title Peroxide dependent effects in human airway epithelial cells exposed to oxidant air pollutants*, 2016)
8. R. Brittany Merola (Nicholas School of the Environment, Duke University, *Nail-keratin as a biomarker of population exposure to elevated arsenic in drinking water*, 2014)
9. Cristo O. Puente Valenzuela (Facultad de Medicina, Universidad Juárez del Estado de Durango, Mexico, *Effect of sex steroid hormones in the metabolism of arsenic in hepatocytes (hepg2)*, 2014)
10. Eugene Gibbs-Flournoy (BBSP/Curriculum in Toxicology, *Examination of the adverse effects of concomitant exposure to air pollutants to human airway epithelial cells*, May 2013)
11. Nikia Smith (Environmental Sciences and Engineering, *The role of the epigenome in metal-induced carcinogenesis*, graduated with MS degree in 2010)

12. Alejandro Molinelli (Curriculum in Toxicology, *Oxidative stress and DNA damage in lung epithelial cells after exposure to arsenic*, May 2006)
13. Wei Li (Nutrition, *Nutritionally-induced oxidative stress and viral infection*, May 2006)
14. Ji-Hyeon Kim (Nutrition, *Identification of the roles and connections of each ACS isoforms toward specific pathway in rat liver*, May 2000)

M.S. STUDENTS SUPERVISED (affiliation, project title, actual or estimated completion date)

1. Madison Miller (Nutrition, *Effects of arsenic exposure in mice expressing human AS3MT/BORCS6 locus: The role of methyl donor nutrients*, 2022)
2. William H. H. Chapman IV (Nutrition, *Mechanisms of arsenic-induced diabetes*, switched to MPH in 2014)
3. Kenda T. Freeman (Environmental Science and Engineering, left the program in 2013)
4. Verne Tsang (Nutrition, *The epigenetic effects of prenatal folate supplementation on male CD1 mouse fetuses exposed in utero to arsenic*, May 2011)

MEMBER OF MASTER'S COMMITTEES (affiliation, project title, completion date):

1. Qian Liu (Environmental Science and Engineering, *Identification of proteins that are associated with tumor cell sensitivity or resistance to arsenic*, May 2011)
2. Margaret A. Benton (Environmental Science and Engineering, *Comparative genomic analysis identifies common tumorigenesis-associated pathways modulated by exposure to low dose arsenic or cadmium*, May 2010)

M.P.H. STUDENTS SUPERVISED (affiliation, actual or estimated completion date)

1. Natasha Rogers (Nutrition, December 2020)
2. Carolina Nelson (Nutrition, December 2019)
3. Ridley Zook (Nutrition, December 2017)
4. Jenna N. Domino (Nutrition, December 2016)

MENTOR OR 2ND READER FOR BSPH STUDENTS (affiliation, completion date):

1. Bingzhen Shang (Nutrition, 2021)
2. Madison Miller (Nutrition, 2021)
3. Shruthi Voleti (Nutrition, 2020)
4. Meenu Immaneni (Nutrition 2020)
5. Jinglin (Doris) Ji (Nutrition, 2019)
6. Ahmad Tejan-Sie (Nutrition, 2018)
7. Mohit Chandi (Nutrition, 2018)
8. Emily Fennell (Nutrition, 2017)
9. Naishal Patel (Nutrition, 2017)
10. William Ostrom (Nutrition, 2017)
11. Jessica Simmons-Josilevich (Nutrition, 2015)

12. Rick Vavolizza (Nutrition, 2014)
13. Ignacio Cerdena (Nutrition, 2012)
14. Gina Sacks (Nutrition, 2012)
15. Julia Loewenthal (Nutrition, 2011)
16. Sessaly Craft (Nutrition, 2011)
17. Caroline Yun-Kyung Um (Nutrition, 2003)
18. Suma Bhat (Nutrition, 2002)

LABORATORY ROTATIONS AND VISITING STUDENTS (affiliation, date):

1. Michelle Fiamingo (BBSP, spring 2021)
2. Zhifang Wang (School of Environmental Science and Engineering, Shandong University, China, September. 2016 – April 2017)
3. Madelyn Huang (BBSP, Curriculum in Toxicology, 2014)
4. Samantha Attard (Nutrition, fall 2010)
5. Jenna Currier (BBSP/Curriculum in Toxicology, winter 2008-9)
6. Christina Lamb (BBSP/Curriculum in Toxicology, winter 2008-9)
7. Celia M. Quinones (Universidad Autónoma de Chihuahua, Mexico, fall 2008)
8. Carolina Soriano Tàrraga (Universitat Autònoma de Barcelona, Spain, fall 2007)
9. Melanie Weed (Curriculum in Toxicology, fall 2005)
10. Alexia Lundberg (Nutrition, fall 2005)
11. David Paul (Nutrition, spring 2004)
12. Kathryn Cole (Nutrition, fall 2004)
13. Wei Li (Nutrition, spring 2002)
14. Fidaa Shaheen (Nutrition, fall 2002)

POSTDOCTORAL TRAINEES/FELLOWS SUPERVISED (affiliation, project title, dates):

1. Abhishek Venkatratnam, Co-Mentor (Environ. Science and Engineering, *Diabetogenic effects of preconception exposure to arsenic*, 2019-2021)
2. Ellen Nicole Dover (Curriculum in Toxicology, *Mechanisms of arsenic-induced diabetes*, 2015-2017)
3. Jana Navratilová, Ph.D. (Fulbright postdoctoral fellow, *Analytical methods for speciation analysis of arsenic in biological matrices*, 2013)
4. David S. Paul, Ph.D. (Nutrition, *Environmental arsenic and diabetes mellitus*, 2007-2009)
5. Des R. Kashyap, Ph.D. (Nutrition, *Biomarkers of health risks associated with environmental exposure to arsenic*, 2007-2008)
6. Araceli Hernández-Zavala, Ph.D. (Center for Environmental Medicine, Asthma, and Lung Biology, *Biomarkers of Health Risks Associated with environmental exposure to arsenic*. 2006-2007).

7. Zuzana Drobná, Ph.D. (Center for Environmental Medicine, Asthma, and Lung Biology, *Arsenic, oxidative stress, and transcriptional control and Metabolism and toxicity of arsenic in human liver*, 2001-2006)
8. Vicenta Devesa-Pérez, Ph.D., MECD/Fulbright stipend recipient (Center for Environmental Medicine, Asthma, and Lung Biology, *Speciation analysis of arsenic in biological matrices*, 2003-2005)
9. Anne W. Harmon, Ph.D. (Nutrition, *Mechanism of arsenic-induced diabetes*, 2003-2005)

CONTRACTS AND GRANTS

ACTIVE PROJECTS:

Title: *Humanized mouse models for arsenic toxicology*

MPIs: Beverly Koller and Miroslav Styblo

Agency: NIEHS

Period: 07/01/2021-06/30/2026 (expected award, 4th percentile)

Total Direct Cost 1,631,536 (budgeted)

This project will develop and characterize mouse strains expressing genetic variants of human AS3MT, the key enzyme in metabolism of arsenic.

Title: *UNC Superfund Research Program*

Director: Rebecca Fry

The UNC-SRP mission is to develop new solutions for iAs exposure reduction and disease prevention through mechanistic and translational research to ultimately inform regulation and Superfund site cleanup efforts.

Agency: NIEH (P42ES031007)

Period: 12/1/19-11/30/24

Total Direct Cost: \$2,012,180 Overall

Role:

Project 1: MPI

Project 2: Co-Investigator

Project 3: Co-Investigator

Title: *Genetic underpinning of diabetes associated with arsenic exposure*

MPIs: Fernando Pardo-Manual de Villena, Rebecca Fry, Miroslav Styblo

Agency: NIH (1R01ES028721)

Period: 11/1/18-10/31/23

Total Direct Cost: 2,498,805

This project will use mice from Diverse Outbred and Collaborative Cross panels to identify genes and haplotypes associated with risk of diabetes induced by chronic exposure to arsenic.

Title: *Developmental windows for arsenic-associated diabetes*

P.Is. Miroslav Styblo, Rebecca Fry

Agency: NIH (1R01ES028721)

Period: 09/01/18-05/31/23

Total Direct Cost: \$1,530,750

This project will use mice to characterize diabetic phenotypes associated with pre- and postnatal exposures to inorganic arsenic and will identify the underlying mechanisms.

COMPLETED PROJECTS:

Title: *A humanized mouse model for arsenic toxicology*

P.Is. Miroslav Styblo, Beverly Koller

Agency: NIH (1R21ES029050)

Period: 12/01/17-11/30/19

Total Direct Cost: \$275,000

The goal of this project is to generate a mouse model in which the metabolism and adverse effects of iAs exposure described in humans can be reliably reproduced and studied.

Title: *Susceptibility to arsenic-induced diabetes: The role of As3mt polymorphisms and the microbiome*

MPIs. Miroslav Styblo, Fernando Pardo-Manual de Villena, Rebecca Fry, Kun Lu

Agency: UNC Centre for Environmental Susceptibility and Health

Period: 04/01/18-03/31/19

Total Direct Cost: \$50,000

This pilot project examines the diabetogenic effects of inorganic arsenic in two Collaborative Cross mouse strains with different As3mt genotype and differences in arsenic metabolism.

Title: *Circulating Micro-RNAs as Novel Biomarkers of Arsenic Associated Diabetes*

P.Is. Miroslav Styblo, Praveen Sethupathy

Agency: UNC-GSGPH, Gillings Innovation Laboratory Award

Period: 03/01/16-11/30/18

Total Direct Cost: \$150,000

The ultimate goal of the present project is to facilitate diagnosis and treatment of iAs-associated diabetes by identifying circulating microRNAs (miRNAs) that are specific for this disease and for the mechanisms that underlie this disease.

Title: *Mechanisms of arsenic-induced diabetes mellitus (Admin. Supplement)*

P.I. Miroslav Styblo

Agency: NIH (3R01ES022697-03S1)

Period: 07/01/16-10/31/17

Total Direct Cost: \$65,789

This administrative supplement funds research that will characterize the role of folate (folic acid) as a modifier of the metabolism and the diabetogenic effects of iAs in mice.

Title: *Mechanisms of arsenic-induced diabetes mellitus*

P.I. Miroslav Styblo

Agency: NIH (1R01 ES022697-01)

Period: 01/01/14-10/31/17

Total Direct Cost: \$1,138,551

This project will use both cell culture and animal models to provide data on the phenotype of iAs-induced diabetes and on the cellular and molecular mechanisms by which iAs and its toxic metabolites interfere with insulin production by pancreatic beta-cells.

Title: *A pharmacologic study of arsenic trioxide in cancer patients*

P.Is.: Christina Ghiuzeli, Miroslav Styblo

Agency: Feinstein Institute for Medical Research, NY

Period: 09/01/11-08/31/17

Total Direct Cost: \$58,400

This is a clinical study that examines pharmacokinetics of arsenic trioxide (ATO) and distribution of the metabolites of ATO in blood, urine and exfoliated urothelial cells from leukemia patients treated with ATO.

Title: *The role of diet in diabetes associated with arsenic exposure*

P.I. Miroslav Styblo, Michelle Mendez

Agency: NIH (1R21ES023690-01A1)

Period: 09/01/14-06/31/16

Total Direct Cost: \$275,000

This is an exploratory epidemiological study that uses existing data and samples collected from subjects in a recently established cohort in Chihuahua, Mexico. The goal of this study is to characterize the role of dietary methyl group donors in modulation of arsenic metabolism and the risk of diabetes associated with arsenic exposure.

Title: *Arsenic as a potential risk factor for diabetes in the SEARCH Case-Control (CC) study*

P.Is.: Dana Dabelea, Angela Liese, Kristina Thayer

Agency: NIEHS/NTP

Period: 06/01/13-05/31/16

Total Direct Cost: \$85,000

Role on the Project: Investigator

This ancillary study takes advantage of data and samples that has already been collected as part of SEARCH Case Control (SEARCH CC) to address an emerging issue in environmental health sciences: understanding the role of environmental chemicals in the etiology of diabetes.

Title: *In utero exposure to arsenic, links to epigenetic alterations and disease*

P.I.: Rebecca Fry

Agency: NIH/NIEHS (1R01ES019315-01)

Period: 09/20/10-05/31/15 (no cost extension to 05/2016)

Total Direct Cost: \$2,218,000

Role on the Project: Investigator

This study seeks to elucidate the underlying biological mechanisms for arsenic-induced disease. Leveraging a study site in Gomez Palacio, Mexico, we will assess the hypothesis that exposure to arsenic alters newborn expression of the NF- κ B-inflammation associated pathway, and that this modulation is affected by newborn genetics and epigenetics.

Title: *Inorganic arsenic-induced DNA methylation and risk of urinary bladder cancer.*

P.Is.: Rebecca Fry/Miroslav Styblo

Agency: UNC CEHS

Period: 12/01/11-11/30/13

Total Direct Cost: \$50,000

This study uses exfoliated urothelial cells from residents of Chihuahua (Mexico) exposed to arsenic in drinking water and from bladder cancer patients to identify a DNA methylation footprint associated with arsenic exposure and risk of bladder cancer.

Title: *Environmental arsenic and diabetes mellitus*

P.I.: Miroslav Styblo

Agency: NIH/NIEHS (1 R01 ES015326-01A2)

Period: 04/01/08-03/31/14 (no cost extension)

Total Direct Cost: \$1,747,137

This is a translational research project that examines diabetogenic effects of arsenic in cultured cells, laboratory mice, and in humans. The goals are to identify mechanisms by which exposures to arsenic induce diabetes and to characterize genetic polymorphisms and diets that are associated with increased risk of diabetes for individuals exposed to arsenic in drinking water.

Title: *Environmental arsenic and diabetes mellitus (ViCTER)*

P.I.: Miroslav Styblo/ Rebecca Fry

Agency: NIH/NIEHS (3R01ES015326 - 03S1)

Period: 09/01/10-08/31/14 (no cost extension)

Total Direct Cost: \$232,026

This Virtual Consortium for Translational/Transdisciplinary Environmental Research (ViCTER) project uses a novel systems biology approach for a comprehensive assessment of metabolomic, epigenomic, and nutrigenomic profiles associated with diabetes mellitus that affects populations exposed to arsenic from drinking water.

Title: *Metabolism and toxicity of arsenic in human liver*

P.I.: Miroslav Styblo

Agency: NIH/NIEHS ARRA (2 R01 ES010845-06)

Period: 07/16/09-06/30/12

Total Direct Cost: \$456,393

This project is a continuation of a recently completed R01 project. The main goal is to identify molecular and cellular mechanisms that regulate the metabolism of arsenic in human hepatocytes.

Title: *Environmental arsenic and diabetes mellitus*

P.I.: Miroslav Styblo

Agency: NIH/NIEHS ARRA (3R01ES015326-02S1)

Period: 09/06/09-05/31/12

Total Direct Cost: \$327,617

This is an Administrative Supplement for the R01 grant *Environmental Arsenic and Diabetes Mellitus* (see below). It funds analyses of additional SNPs related to arsenic metabolism and diabetes and evaluation of dietary status for nutrients that are known to affect arsenic metabolism.

Title: *Analytical laboratory for development of biomarkers of environmental exposures to arsenic*

P.I.: Miroslav Styblo

Agency: UNC-SPH, Gillings Innovation Laboratory Award (GIL 200710.0028)

Period: 12/01/08-11/30/11

Total Direct Cost: \$378,200

The goal of this project is to establish analytical laboratory and develop innovative techniques for analysis of arsenic species in biological matrices with focus on human tissues and cells. This laboratory will also support nutritional and toxicological research involving analysis of essential and toxic trace metals and metalloids.

Title: *Metabolism and toxicity of arsenic in human liver*

P.I.: Miroslav Styblo
Agency: NIH (1 R01 ES010845)
Total Direct Cost: \$1,125,000
Period: 04/01/05-05/31/09

This project examined the phenotype (metabolic pattern of arsenic) and genotype (gene expression and polymorphism for arsenic methyltransferase) in primary human hepatocytes from a large number of donors. The main goal was to identify molecular and cellular mechanisms that regulate the metabolism of arsenic in human hepatocytes.

Title: ***Biomarkers of health risks associated with environmental exposure to arsenic***

P.I.: Miroslav Styblo
Agency: US EPA/STAR (832735)
Total Direct Cost: \$555,000
Period: 02/18/06-02/17/09

This was an international collaborative project that examined relationships between the genetic polymorphism for arsenic methyltransferase and the interindividual differences in arsenic metabolism and susceptibility to chronic arsenic exposure in endemic arsenicosis populations in Mexico.

Title: ***Health effects of environmental pollutants in humans***

P.I.: Philip A. Bromberg
Agency: US EPA (Cooperative Agreement CR829522)
Total Direct Cost: \$8,470,000
Period: 11/01/01-10/31/08

Role: Investigator

This Cooperative Agreement between the Center for Environmental Medicine, Asthma, and Lung Biology (UNC Chapel Hill) and the U.S. EPA supports research of diseases associated with exposure to water and air born environmental contaminants.

Title: ***Nutrition, viral mutation, and host defense***

P.I.: Melinda A. Beck
Agency: NIH (1 R01 AI055050-01A1)
Total Direct Cost: \$2,600,000
Period: 10/01/03-09/31/08

Role: Investigator

This project examined the role of nutritional antioxidants in prevention of influenza virus mutation and in modulation of the host cell.

Title: ***Environmental arsenic, obesity, and type-2 diabetes mellitus***

P.I.: Miroslav Styblo
Agency: NIH/IDOC (1-P20-RR020649-01)
Total Direct Cost: \$26,228
Period: 02/01/07-01/31/08

This pilot project was funded by the UNC Integrative Diabetes and Obesity Center. The main goal was to examine combined effects of diet-induced obesity and chronic exposure to inorganic arsenic on development of impaired glucose tolerance and insulin resistance in a mouse model.

Title: ***Optimized hydride generation systems for arsenic speciation analysis***

P.I.: Miroslav Styblo
Agency: NIH/FIRCA (1 R03 TW007057-01)
Total Direct Cost: \$96,000
Period: 08/01/04-07/31/07

The goal of this international collaborative project was to optimize design of atomizers and to develop new atomizers for hydride generation-based atomic analytical techniques used for the speciation of arsenic in biological matrices.

Title: *Evaluation of the role of arsenic methyltransferases in cell transformation models and other *ecvam* models for a mechanistic understanding of the cytotoxicity and carcinogenic potential of arsenic compounds*

P.I.: Miroslav Styblo
Agency: European Commission (20109-2002-11)
Total Direct Cost: \$55,000
Period: 12/13/02-11/12/04

The goal of this Research Contract was to examine metabolic patterns for arsenic and expression of arsenic methyltransferase in cell lines that are used by the European Center for Validation of Alternative Methods (EVCAM) for the evaluation of toxic compounds, including arsenicals.

Title: *Mechanism of arsenic-induced diabetes*

P.I.: Miroslav Styblo
Agency: NIH (1 R03 ES11496)
Total Direct Cost: \$100,000
Period: 09/30/01-08/31/04

This is a pilot project that examines effects of arsenic and its metabolites on insulin production in pancreatic β -cells and on glucose utilization in skeletal muscle cells and adipocytes.

Title: *Arsenic, oxidative stress, and transcriptional control*

P.I.: Miroslav Styblo
Agency: NIH (1 R01 ES09941)
Total Direct Cost: \$450,000
Period: 09/01/00- 08/31/04

This project examined arsenic-induced oxidative stress and expression of oxidative stress sensitive transcriptional factors in human cells and animal tissues.

Title: *Interactions between selenium and arsenic in human cells*

P.I.: Miroslav Styblo
Agency: NIH/Clinical Nutrition Research Center (DK 56350)
Total Direct Cost: \$30,000
Period: 10/01/99-09/30/01

This was a pilot feasibility grant that examined metabolic interactions between selenium and arsenic, two metalloids with similar chemical properties and metabolic fates, in human cells.

Title: *Arsenicals, glutathione reductase, and cellular redox status*

P.I.: Miroslav Styblo
Agency: US EPA (R 826136-01-0)
Total Direct Cost: \$322,900 (direct cost)

Period: 09/01/97-08/31/00

The major goal of this project was to examine interactions between arsenicals and glutathione reductase in animal tissues and human cells and possible consequences for the redox status of cells.

SERVICE

INTERNATIONAL

- 2008-present Referee for the *Royal Society of Chemistry Publishing*, Great Britain
- 2007-present Editorial Board for the Book Series "*Arsenic in the Environment*" (eds. Bundschuh, J. and Bhattacharya, P.)
- 2016 Scientific Committee for the 6th International Congress "Arsenic in the Environment", Stockholm, Sweden
- 2016 Scientific Committee for the XIV. International Congress of Toxicology Merida, October 2-6, 2016; Chair for symposium on environmental endocrine disruptors
- 2015 Hungarian National Research, Development and Innovation Office grant application review
- 2014 Scientific Committee for the 5th International Congress "Arsenic in the Environment", Buenos Aires, Argentina
- 2012 Scientific Committee for the 4th International Congress "Arsenic in the Environment", Cairns, Australia
- 2011 Scientific Committee for the 3rd International Symposium on Metallomics, Münster, Germany
- 2008 Scientific Committee for the 2nd International Congress "Arsenic in the Environment", Valencia, Spain
- 2008 Guest Editor, *Environmental Research* - Special Issue on Arsenic in the Environment

NATIONAL

- 2002-present US EPA Food Quality Protection Act Science Review Board
- 2001-present US EPA Federal Insecticide, Fungicide, and Rodenticide Act, Scientific Advisory Panel
- 2015-2021 NIH Xenobiotic and Nutrient Disposition and Action Study Section
- 2017-2021 Executive Committee of the Metal Specialty Section of the Society of Toxicology, Vice-President Elect, Vice-President, President, Past President)
- 2015 NIH Liver Toxicity Special Emphasis Panel ZRG1 DKUS-A (02)
- 2015 NIH Tumor Environment Special Emphasis Panel (ZRG1 OBT-H (02)
- 2015 NTP Expert Panel: Identifying Research Needs for Assessing Safe Use of High Intakes of Folic Acid
- 2014 NIH Xenobiotic and Nutrient Disposition and Action (XNDA) Study Section
- 2013 US EPA Toxicological Review of Inorganic Arsenic (Non-cancer and Cancer Effects of Oral Exposures)

- 2013 NIEHS ZRG1 DKUS-C (90) S - Systemic Injury by Environmental Exposure
Special Emphasis Panel
- 2012 NIEHS ZES1 RAM-D (L) (Loan Repayment) Review Panel
- 2006-2012 External Advisory Committee, Advanced Research Cooperation in Environmental
Health Research Program at Florida International University
- 2011 NIEHS Special Study Section for PAR11-170 and 171: The Role of
Environmental Chemical Exposures in the Development of Obesity, Type 2
Diabetes and Metabolic Syndrome
- 2011 National Toxicology Program, Workshop: Role of Environmental Chemicals in
the Development of Diabetes and Obesity, Expert Panel on Arsenic and other
metals
- 2010 NIH Xenobiotic and Nutrient Disposition and Action (XNDA) Study Section
- 2010 Review Panel for the Gillings Innovation Laboratory 2010 Award; Gillings
School of Global Public Health, UNC Chapel Hill
- 2009 NIEHS Special Emphasis Panel on Bisphenol A (ZES1 LWJ-J)
- 2009 NIEHS/ARRA 03-ES-101 Review Panel for the Broad Challenge Area (03) of
Biomarker Discovery and Validation
- NIEHS/ARRA ZES1 LWJ-J (O1) Special Emphasis Panel
- NIH ZRG1 DKUS-A (58) Special Emphasis Panel
- 2008 NIEHS ZES1 RAM-C-L8 Special Emphasis Panel
- 2008 Review Panel for the US EPA/ORD project “Development of a BBDR model for
Arsenic”
- 2008 Review Panel for the EPRI/The Hamner Institute/US EPA Joint Arsenic Research
Project
- 2007 NIEHS ZRG1 ONC-H 02 M Scientific Review Panel
- NIEHS Superfund Basic Research and Training Program Review Panel
- 2006 National Science Foundation Review Panel
- 2005-2006 US EPA Science Advisory Board, Arsenic Review Panel
- 2005 Review Panel for the NIEHS Science Day
- 2004 NIEHS ZES1 RAM-C (L4) Special Emphasis Panel
- 2004 NIEHS ZES1 LWJ-B-AR/RFA ES-03-009 Special Emphasis Panel
- 2004 NIEHS ZES1 JAB-D-CO Scientific Review Panel
- 2004 Seed Funding Project Review Panel, Spelman College, Atlanta, GA
- 2004 Reviewer for Intramural Project Program, Children’s Hospital of Michigan
- 2003 Review Panel for the NIEHS Science Day
- 1997 Workshop, Arsenic: Health Effects, Mechanisms of Actions and Research Issues,
National Cancer Institute

UNIVERSITY/SCHOOL

- 2015-2019 Appointments, Promotions, and Tenure Committee, Gillings School of Global Public Health, UNC Chapel Hill
- 2015-2017 BSPH Subpanel for the CEPH accreditation, Gillings School of Global Public Health, UNC Chapel Hill
- 2014-present Admission Committee for the Master in Professional Science in Toxicology program, UNC-Chapel Hill
- 2013-present Space Committee, Gillings School of Global Public Health, UNC Chapel Hill
- 2013-2017 Curriculum in Toxicology Written Exam Committee, UNC Chapel Hill
- 2012-present Dean's 2020 Admissions Practices Committee, Gillings School of Global Public Health, UNC Chapel Hill
- 2011-2014 Executive Committee, Curriculum in Toxicology, UNC Chapel Hill
- 2006-2007 UNC School of Public Health Faculty Mentoring Program
- 2002-2007 Review Panel for the Center for Environmental Susceptibility and Health Pilot Project Program, UNC Gillings School of Global Public Health

DEPARTMENT

- 2016 Chair of the Nutrition Post-tenure Review Committee
- 2014-present Chair Advisory/Steering Committee
- 2011-present Director of the BSPH Program in Nutrition

REVIEWER FOR PEER-REVIEW JOURNALS:

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| <i>Analytical Chemistry</i> | <i>FEBS Letters</i> |
| <i>Applied Organometallic Chemistry</i> | <i>Journal of Analytical Atomic Spectrometry</i> |
| <i>Archives of Toxicology</i> | <i>Journal of Biological Inorganic Chemistry</i> |
| <i>Biomarkers and Prevention</i> | <i>Journal of Environmental Monitoring</i> |
| <i>BMC Systems Biology</i> | <i>Journal of Environmental Science and Health</i> |
| <i>Cancer Epidemiology</i> | <i>Journal of Environmental Sciences</i> |
| <i>Cancer Research</i> | <i>Journal of Chromatography</i> |
| <i>Chemical Research in Toxicology</i> | <i>Journal of Hazardous Materials</i> |
| <i>Chemico-Biological Interactions</i> | <i>Journal of Toxicology</i> |
| <i>Chemosphere</i> | <i>Metallomics</i> |
| <i>Clinical Chemistry</i> | <i>Molecular and Cellular Endocrinology</i> |
| <i>Clinical Toxicology</i> | <i>Mutagenesis</i> |
| <i>Comparative Biochemistry and Physiology</i> | <i>Physiological Research</i> |
| <i>Current Medical Chemistry</i> | <i>PLOS</i> |
| <i>Dalton Transactions</i> | <i>Toxicological Sciences</i> |
| <i>Environmental Health Perspective</i> | <i>Toxicology and Applied Pharmacology</i> |
| <i>Environmental Mutagenesis</i> | <i>Toxicology</i> |
| <i>Environmental Research</i> | <i>Toxicology Letters</i> |

Etc.

EDITORIAL BOARDS FOR BOOKS AND PROCEEDINGS:

"Arsenic in the Environment" Book Series (eds. Bundschuh, J. and Bhattacharya, P.)

Volume I: Natural Arsenic in Groundwaters of Latin America: Proceedings of the International Congress on Natural Arsenic in Groundwaters of Latin America, Mexico City, 20-24 June 2006, CRC Press, Taylor & Francis Group, London, UK, 2009.

Volume II: The Taiwan Crisis: A Showcase of the Global Arsenic Problem, Taylor & Francis Group, London, UK, 2010.

Volume IV: One Century of the Discovery of Arsenicosis in Latin America (1914-2014), CRS Press, Taylor & Francis Group, London, UK, 2014.

Volume V: Arsenic Research and Global Sustainability: Proceedings of the Sixth International Congress on Arsenic in the Environment (As2016), June 19-23, 2016, Stockholm, Sweden. CRS Press, Taylor & Francis Group, Boca Ralton, London, New York, Leiden, 2016.

Volume VI: (*under preparation*)

Metal Ions in Biology and Medicine, vol. 10; eds.: P. Collery, I. Maynard, T. Theophanides, L. Khassanova, and T. Collery, John Libbey, Eurotext, Paris, May 2008.

Arsenic in the Environment – Arsenic from Nature to Humans, Book of Abstracts from the 2nd International Congress “Arsenic in the Environment”, Valencia, May 21-23, 2008.