

Columbia Superfund Basic Research Program
Publication List 2007

Project 1: Genotoxic and Cell Signaling Pathways of Arsenic in Mammalian Cells

- Ivanov, V., and Hei, T.K., Sodium arsenite accelerates TRAIL-mediated apoptosis in melanoma cells through upregulation of TRAIL-R1/R2 surface levels and downregulation of cFLIP expression. *Exp. Cell Research* 312: 4120-4138, 2006.
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- Partridge, M., Huang, S., Rosa, E., Davidson, M. and Hei, T.K., Arsenic Induced Mitochondrial DNA Damage and Altered Mitochondrial Oxidative Function: Implications for Genotoxic Mechanisms in Mammalian Cells. *Cancer Research*. 67: 5239-5247, 2007.
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- Xu, A., Huang, S., Lien, Y., Yu, D., and Hei, T.K., Genotoxic Mechanisms of Asbestos Fibers: Role of Extranuclear Targets. *Chem. Res. Toxicology* 20: 724-733, 2007.

Project 2: A Cohort Study of Health Effects of Arsenic Exposure in Bangladesh

- Ahsan H, Chen Y, Kibriya MG, Slavkovich V, Parvez F, Jasmine F, et al. "Arsenic metabolism, genetic susceptibility, and risk of premalignant skin lesions in Bangladesh." *Cancer Epidemiol Biomarkers Prev* 2007;16(6):1270-8.
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- Chen Y, Factor-Litvak P, Howe GR, Graziano JH, Brandt-Rauf P, Parvez F, et al. "Arsenic exposure from drinking water, dietary intakes of B vitamins and folate, and risk of high blood pressure in Bangladesh: a population-based, cross-sectional study." *Am J Epidemiol* 2007;165(5):541-52.
- Chen Y, Hall M, Graziano JH, Slavkovich V, van Geen A, Parvez F, et al. "A prospective study of blood selenium levels and the risk of arsenic-related premalignant skin lesions." *Cancer Epidemiol Biomarkers Prev* 2007;16(2):207-13.
- Chen Y, Santella RM, Kibriya MG, Wang Q, Kappil M, Verret WJ, et al. "Association between arsenic exposure from drinking water and plasma levels of soluble cell adhesion molecules." *Environ Health Perspect* 2007;115(10):1415-20.
- Chen Y, van Geen A, Graziano JH, Pfaff A, Madajewicz M, Parvez F, et al. "Reduction in urinary arsenic levels in response to arsenic mitigation efforts in Araihasar, Bangladesh." *Environ Health Perspect* 2007;115(6):917-23.
- Hafeman D, Factor-Litvak P, Cheng Z, van Geen A, Ahsan H. "Association between manganese exposure through drinking water and infant mortality in Bangladesh." *Environ Health Perspect* 2007;115(7):1107-12.

- Heck JE, Gamble MV, Chen Y, Graziano JH, Slavkovich V, Parvez F, et al. "Consumption of folate-related nutrients and metabolism of arsenic in Bangladesh." *Am J Clin Nutr* 2007;85(5):1367-74.
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In Press:

- Heck J, Graziano JH, et al. (In press). "Factors Associated with Anemia in an Arsenic-Exposed Population in Bangladesh." *J Occup Env Med*.
- Mahata J, Argos M, et al. (In press). "Effect of Selenium and Vitamin E Supplementation on Plasma Protein Carbonyl Levels in Patients with Arsenic Related Skin Lesions." *Nutrition and Cancer*.
- Parvez F, Brnadt-Rauf PW, et al. (In press). "Non-malignant Respiratory Effects of Chronic Arsenic Exposure from Dinking Water in Bangladesh: A Molecular Epidemiological Study." *EHP*.

Project 3: Consequences of Arsenic and Manganese Exposure on Childhood Intelligence

- Hall M, Gamble M, Slavkovich V, Liu X, Levy D, Cheng Z, van Geen A, Yunus M, Rahman M, Pilsner JR, Graziano J. Determinants of arsenic metabolism: blood arsenic metabolites, plasma folate, cobalamin, and homocysteine concentrations in maternal-newborn pairs. *Environ Health Perspect*. 2007;115(10):1503-9.

Project 4: One-Carbon Metabolism, Oxidative Stress and Arsenic Toxicity in Bangladesh

- Gamble MV, Liu X, Slavkovich V et al. Folic Acid Supplementation Lowers Blood Arsenic. *Am J Clin Nutr* 2007;86:1202-9.

Project 5: Mobilization of Natural Arsenic in Groundwater

- He, Y., Zheng, Y., Locke, D.C., 2007. Cathodic stripping voltammetric analysis of arsenic species in environmental water samples. *Microchemical Journal*. 85, 265.
- Horneman, A., Stute, M., Schlosser, P., Smethie Jr, W., Santella, N., Ho, D.T., Mailloux, B., Gorman, E., Zheng, Y., van Geen, A., 2007. Degradation rates of CFC-11, CFC-12 and CFC-113 in anoxic shallow aquifers of Araihasar, Bangladesh. *Journal of Contaminant Hydrology*. in press.
- Stute, M., Zheng, Y., Schlosser, P., Horneman, A., Dhar, R.K., Datta, S., Hoque, M.A., Seddique, A.A., Shamsudduha, M., Ahmed, K.M., van Geen, A., 2007. Hydrological Control of Arsenic Concentrations in Bangladesh aquifers. *Water Resources Research*. 43, doi:10.1029/2005WR004499.
- Weinman, B., Goodbred, S.L., Zheng, Y., Aziz, Z., Singhvi, A.K., Nagar, Y.C., Steckler, M., van Geen, A., 2007. Contributions of floodplain stratigraphy and evolution to the spatial patterns of groundwater arsenic in Araihasar, Bangladesh. *GSA Bulletin*. accepted.
- Yu, G.Q., Sun, D.J., Zheng, Y., 2007. Health effects of exposure to natural arsenic in groundwater and coal in China: An overview of occurrence. *Environmental Health Perspectives*. 115, 636-642.

In Press or Revision:

- Aziz, Z., van Geen, A., Versteeg, R., Horneman, A., Y. Zheng, Goodbred, S., Steckler, M., Stute, M., Weinman, B., Gavrieli, I., Hoque, M.A., Shamsudduha, M., Ahmed, K.M., 2007. Impact of local recharge on arsenic concentrations in shallow aquifers inferred from the electromagnetic conductivity of soils in Araihasar. *Water Resources Research*. in revision
- Datta, S., Mailloux, B., Hoque, M.A., Jung, H.-B., Stute, M., Ahmed, K.M., Zheng, Y., 2007. Enrichment of Arsenic in Sediments from the Meghna River Bank in Bangladesh: Implication for Recycling of Arsenic. *Proc Natl Acad Sci U S A*. provisionally accepted.
- Horneman, A., Stute, M., Schlosser, P., Smethie Jr, W., Santella, N., Ho, D.T., Mailloux, B., Gorman, E., Zheng, Y., van Geen, A., 2007. Degradation rates of CFC-11, CFC-12 and CFC-113 in anoxic shallow aquifers of Araihasar, Bangladesh. *Journal of Contaminant Hydrology*. in press.

Project 6: Mobilization of anthropogenic arsenic in groundwater

- Keimowitz, A.R., B. J. Mailloux, P. Cole, M. Stute, H. J. Simpson, S.N. Chillrud. Laboratory investigations of sulfate reduction as a groundwater arsenic remediation strategy. *Environ. Sci. Tech.* 2007, 41, 6718-6724.

Project 7: Mitigation of Arsenic Mobilization in Groundwater

- Auffan, M., J. Rose, O. Proux, D. Borschneck, A. Masion, P. Chaurand, J.L. Hazemann, C. Chaneac, J.P. Jolivet, M. Wiesner, A. van Geen, J.Y. Bottero, Enhanced adsorption of arsenic onto maghemite nanoparticles: As(III) as a probe of the surface structure and heterogeneity, *Langmuir*, in press December 2007.
- Chen, Y., P. Factor-Litvak, G.R. Howe, J.H. Graziano, P. Brandt-Rauf, F. Parvez, A. van Geen, and H. Ahsan, Arsenic exposure from drinking water, dietary intakes of B vitamins and folate, and risk of high blood pressure in Bangladesh: A population-based, cross-sectional study, *American Journal of Epidemiology* 165, 541-552, 2007.
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In Press:

Horneman, A., M. Stute, P. Schlosser, W. Smethie Jr, N. Santella, B. Mailloux, E. Gorman, Y. Zheng, and A. van Geen, Degradation of CFC-11, CFC-12 and CFC-113 in anoxic shallow aquifers of Araihasar, Bangladesh, submitted to *Journal of Contaminant Hydrology*, in press November 2007.

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Core B: Trace Metals Core Laboratory

Hall M, Gamble M, Slavkovich V, Liu X, Levy D, Cheng Z, van Geen A, Yunus M, Rahman M, Pilsner JR, Graziano J. Determinants of arsenic metabolism: blood arsenic metabolites, plasma folate, cobalamin, and homocysteine concentrations in maternal-newborn pairs. *Environ Health Perspect.* 2007;**115**(10):1503-9.

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Core D: Hydrogeology Support Laboratory

Alexander, P, Loose, B, and Stute, M. (2007) A portable membrane-based gas sampler for gases Dissolved in Groundwater, *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract H11C-0680.

Research Translation Core: Collaborating with Government & the Public: As & Mn Exposure via Groundwater

Keimowitz, A.R., B. J. Mailloux, P. Cole, M. Stute, H.J. Simpson and S.N. Chillrud. Laboratory investigations of enhanced sulfate reduction as a groundwater arsenic remediation strategy. *Environmental Science & Technology* 41: 6718-6724, 2007.