

# Arsenic exposure, profiles of urinary arsenic species, and polymorphism effects of glutathione-s-transferase and metallothioneins

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© 2018 Elsevier Ltd This study assessed the effects of polymorphic variants of glutathione-S-transferase and metallothioneins on profiles of urinary arsenic species. Drinking groundwater from Margarita and San Fernando, Colombia were analyzed and the lifetime average daily dose (LADD) of arsenic was determined. Specific surveys were applied to collect demographic information and other exposure factors. In addition, GSTT1-null, GSTM1-null, GSTP1-rs1695 and MT-2A-rs28366003 genetic polymorphisms were evaluated, either by direct PCR or PCR-RFLP. Urinary speciated arsenic concentrations were determined by HPLC-HG-AFS for species such as AsIII, AsV, monomethylarsonic acid (MMA), dimethylarsinic acid (DMA), and total urinary As (TuAs). Primary methylation index (PMI) and secondary methylation index (SMI) were also calculated as indicators of the metabolic capacity. Polymorphisms effects were tested using multivariate analysis, adjusted by potential confounders. The As concentrations in ground