ERRATUM

Erratum to: NanoLC/ESI⁺ HRMS³ Quantitation of DNA Adducts Induced by 1,3-Butadiene

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The **Abstract** in our recently published article contains several errors that were introduced during article production. The adduct numbers should be expressed “per 10⁸ nucleotides” rather than “per 10⁶ nucleotides.” Also, “0.5–10 μ M DEB” should be read “0.5–10 μ M EB.” Included below is the corrected version of the Abstract:

Abstract. Human exposure to 1,3-butadiene (BD) present in automobile exhaust, cigarette smoke, and forest fires is of great concern because of its potent carcinogenicity. The adverse health effects of BD are mediated by its epoxide metabolites such as 3,4-epoxy-1-butene (EB), which covalently modify genomic DNA to form promutagenic nucleobase adducts. Because of their direct role in cancer, BD-DNA adducts can be used as mechanism-based biomarkers of BD exposure. In the present work, a mass spectrometry-based methodology was developed for accurate, sensitive, and precise quantification of EB-induced N-7-(1-hydroxy-3-buten-2-yl) guanine (EB-GII) DNA adducts in vivo. In our approach, EB-GII adducts are selectively released from DNA backbone by neutral thermal

hydrolysis, followed by ultrafiltration, offline HPLC purification, and isotope dilution nanoLC/ESI⁺-HRMS³ analysis on an Orbitrap Velos mass spectrometer. Following method validation, EB-GII lesions were quantified in human fibrosarcoma (HT1080) cells treated with micromolar concentrations of EB and in liver tissues of rats exposed to sub-ppm concentrations of BD (0.5–1.5 ppm). EB-GII concentrations increased linearly from 1.15 $\pm$ 0.23 to 10.11 $\pm$ 0.45 adducts per 10⁸ nucleotides in HT1080 cells treated with 0.5–10 μ M EB. EB-GII concentrations in DNA of laboratory rats exposed to 0.5, 1.0, and 1.5 ppm BD were 0.17 $\pm$ 0.05, 0.33 $\pm$ 0.08, and 0.50 $\pm$ 0.04 adducts per 10⁸ nucleotides, respectively. We also used the new method to determine the in vivo half-life of EB-GII adducts in rat liver DNA (2.20 $\pm$ 0.12 d) and to detect EB-GII in human blood DNA. To our knowledge, this is the first application of nanoLC/ESI⁺-HRMS³ Orbitrap methodology to quantitative analysis of DNA adducts in vivo.

The online version of the original article can be found at <http://dx.doi.org/10.1007/s13361-014-0916-x>.

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