

P014 Investigation of urinary 8-oxo-2'-deoxyguanosine and 8-oxo-2'-deoxyadenosine by immunoassay and liquid chromatography tandem mass spectrometry
Mark D. Evans*, **Rajinder Singh***, **Vilas Mistry***,
Karendeep Sandhu*, **Peter B. Farmer***, **Marcus S. Cooke*[#]**

**Radiation & Oxidative Stress Group, ⁺Cancer Biomarkers & Prevention Group, Dept. Cancer Studies & Molecular Medicine, [#]Dept. Genetics, University of Leicester, Leicester, U.K.*

Urinary markers of oxidative stress are non-invasive, the analysis of 8-oxo-7,8-dihydro-2'-deoxyguanosine (8-oxodG) by ELISA or chromatography has received widespread use. However, ELISA determinations have been questioned, as they report higher levels of urinary 8-oxodG compared to chromatography. We undertook an investigation to improve the stringency of the ELISA. Additionally, urinary DNA lesion measurements should include more than one DNA damage product, we have thus applied solid-phase extraction (SPE) to analyse 8-oxodA in urine. Spot urine samples collected from 20 healthy subjects were analysed for 8-oxodG by SPE/LC-MS/MS and a commercially available competitive ELISA and for 8-oxodA by SPE/LC-MS/MS. LC-MS/MS: [8-oxodG] = 4.65 ± 2.09 pmol 8-oxodG/ μ mol creatinine. ELISA: standard protocol, [8-oxodG] = 7.86 ± 3.92 pmol/ μ mol creatinine [significantly higher ($p < 0.0001$) than LC-MS/MS]; modified protocol, 3.44 ± 1.62 pmol/ μ mol creatinine. Urinary 8-oxodA was undetectable in all samples. Modification of the ELISA procedure can bring brings immunoassay and chromatographic determinations of urinary 8-oxodG into closer agreement. Consistent with a previous report, urinary 8-oxodA levels appear to be below the limit of detection of present LC-MS/MS methodology.