OF7 Assessing Chemotoxicity in Colorectal Cancer Patients: Target Directed Detection of Liver Derived Proteins in Plasma using Multiple Reaction Monitoring.

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MRM was used to quantitate plasma proteins in CRC patients undergoing chemotherapy.

Colorectal cancer (CRC) is currently the most common newly diagnosed cancer in Australia and is second only to lung cancer as the most common cause of death [1]. Advanced CRC patients are often treated with a combination of cytotoxic drugs, with about 25% experiencing chemotoxicity such as neutropenia or neuropathy as a result of such treatment. These drugs are primarily cleared through the liver by the cytochrome P 450s (particularly CYP3A4) which is often impaired in CRC patients. Evidence suggests the impairment results from inflammatory cytokines [2]. We hypothesise that the impairment may be detected by monitoring the circulating concentration of common liver derived plasma proteins.
In this study, we have used multiple reaction monitoring (MRM) mass spectrometry on a hybrid triple-quadrupole linear ion-trap mass spectrometer in combination with nanoflow LC/MS to assess liver derived plasma proteins as indicators of chemotoxicity in CRC patients. A longitudinal study of these plasma proteins has indicated significant changes in the circulating concentration of some plasma proteins across a chemotherapy treatment cycle, which may prove useful for predicting patient outcome.

[1] Australian Social Trends (2005); Australian Bureau of Statistics: Canberra, Australia, 12th July 2005, 2005.
[2] Kacevska M, Robertson GR, Clarke SJ, Liddle C. Expert Opin. Drug Metab. Toxicol. 2008, 4, 137-149.