

## **A novel approach to MALDI-TOF-MS sample preparation**

***Robert Bateman<sup>1</sup>, Ed Bouvier<sup>2</sup>, Jeff Brown<sup>1</sup>, Emmanuelle Claude<sup>1</sup>, John Gebler<sup>2</sup>, Dominic Gostick<sup>1</sup>, Kevin Howes<sup>1</sup>, Keith Compson<sup>1</sup>, James Langridge<sup>1</sup>, and John Peter Lee<sup>2</sup>***

<sup>1</sup>Waters Corporation, Floats Road, Wythenshawe, Manchester, M23 9LZ, UK

<sup>2</sup>Waters Corporation, 34 Maple Street, Milford, MA 01757-3696, USA

MALDI-TOF-MS has become one of the most well established techniques for the analysis of biological samples. This has been mainly due to its ease of use and relative insensitivity to biological matrixes which are used in the preparation of most biological samples. However, it has been previously demonstrated that removing these contaminants can significantly improve the quality of the resulting spectra.

Further more MALDI-TOF-MS is now a technique which is routinely automated for both the sample preparation and analysis of many biological samples, which include those resulting from a proteomics experiment. Clearly, any method of sample preparation developed for MALDI-TOF-MS applications must be amenable to full automation.

Presented in this poster is a new plate design for sample preparation of biological samples. The plate design allows for the concentration of very dilute samples and the removal of inorganic salt contamination. The whole sample preparation procedure is performed in full upon the MALDI-TOF-MS sample stage. Presented in the poster is the optimised plate design and preparation methods to significantly improve the quality of the resulting MS spectrum compared with conventional MALDI sample preparation.

The MALDI sample preparation of protein digests resulting from in gel digestion of gel spots from 2D gel electrophoresis are evaluated. It is shown in this poster that the sensitivity of the mass spectrometer is dramatically improved for faint gel spots resulting from both Coomassie blue and silver stained gel pieces. The method is compared with alternative methods of sample preparation and its amenability for automation is demonstrated.

---