**November 7, 2013 (13:15-14:15)**

VENDOR SEMINAR:

**IS THERE HORSE IN MY MEAT BALL?**
**THE FUTURE OF LCMSMS IN MEAT SPECIATION AND ALLERGEN DETECTION**

## Is there horse in my meat ball?
## The future of LCMSMS in meat speciation and allergen detection

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Following the UK Food Standards Agency (FSA)'s announcement in January that horse and pig DNA had been identified in beef products sold by several supermarket chains, further testing across Europe and beyond has revealed widespread incidences of such food contamination. However, like allergen analysis as well most testing methods are based on detection of species-specific DNA in meat, using the polymerase chain reaction (PCR) – which does not detect or identify proteins. This is a concern because DNA can be easily disrupted or removed during standard meat processing and food manufacturing. As a result, horse tissue or other contaminants remain undetected in food samples, despite strong presence of the contaminating proteins. An alternative protein-based method, ELISA (enzyme-linked immunosorbent assay), can be used to complement DNA testing, but this method has limitations, including that it detects only one part of the protein and not multiple protein markers.

The LC-MS/MS-based methods presented offers a more accurate and reliable approach to meat speciation than PCR or ELISA-based techniques or other indirect methods, and also allows for the detection of veterinary drug residues in the same analysis, which is not possible by ELISA or PCR. The method is developed using an Eksigent micro LC system coupled with an AB SCIEX QTRAP® 5500 LC/MS/MS system and uses multiple reaction monitoring (MRM) to detect peptide markers for horse and is capable of providing sequence information by acquiring a product ion scan for each triggered MRM which can be used to further confirm the peptide's / proteins and therefore the species identity. Using the same extraction and LCMSMS method it is also capable of simultaneously of detecting veterinary drug residues by adding additional MRM experiments. The method has been shown to be capable of simultaneously detected phenylbutazone below 10 µg/kg as well as a 1% contamination of horse meat in beef. This approach offers food analysts the ability to detect multiple species and veterinary drug residues in a single approach which is not possible by any other technique to date

Further to this the same work flow used in species detection can also be applied to allergen detection and examples of the use of LCMSMS in allergen analysis in a variety of different matrices will also be shown.