LC-MS Based Metabolomics and Metabolite Identification with the Q Exactive™ Plus and Orbitrap ID-X™ Tribrid™

Course Programme

Date	Time	Session	
Day 1	09.15 – 09.30	Registration	
	09.30 – 09.40	**Lecture: Introduction to the Course and Birmingham Metabolomics Training Centre** *Prof Mark Viant / Dr Ralf Weber*	
	09.40 – 10.00	**Lecture: Introduction to Metabolomics** *Prof Mark Viant*	
	10.00 – 10:45	**Lecture: Introduction to Liquid Chromatography, Mass Spectrometry, and the Q Exactive Plus & ID-X Mass Spectrometers** *Dr Martin Jones*	
	10.45 - 11.00	Break	
	11.00 – 11.30	**Lecture: Sample Preparation in Metabolomics** *Dr Andy Southam*	
	11.30 - 12.00	**Lecture: Importance of Experimental Design** *Prof Mark Viant*	
	12.00 – 12:45	Lunch	
	12.45 – 14.45	Group 1 **Lab Session: Sample Preparation (tissue, biphasic extractions)** *Dr Andy Southam*	Group 2 **Lab Session: UHPLC-MS Analysis Setup and Calibration** *Dr Martin Jones*
	14.45 – 15.00	Break	
	15.00 – 17.00	Group 1 **Lab Session: UHPLC-MS Analysis Setup and Calibration** *Dr Martin Jones*	Group 2 **Lab Session: Sample Preparation (tissue, biphasic extractions)** *Dr Andy Southam*

Day 2	09.00 – 10.30	Group 1 **Lab Session: Sample Preparation (biofluids, monophasic extractions and QC preparation)** *Dr Andy Southam*	Group 2 **Lab Session: Sample Reconstitution and UHPLC-MS Analysis of Profiling Samples Including QC Set-up** *Dr Martin Jones*
	10.30 – 10.45	Break	
	10.45 – 12.15	Group 1 **Lab Session: Sample Reconstitution and UHPLC-MS Analysis of Profiling Samples Including QC Set-up** *Dr Martin Jones*	Group 2 **Lab Session: Sample Preparation (biofluids, monophasic extractions and QC preparation)** *Dr Andy Southam*
	12.15 – 13.00	Lunch	
	13.00 – 14.00	**Lecture: Introduction to Metabolomics Data Processing** *Dr Ralf Weber*	
	14.00 – 15.30	**Computer Workshop: Metabolomics Data Processing** *Dr Ralf Weber*	
	15.30 – 15.45	Break	
	15.45 – 16.15	**Lecture: Metabolomics Data Exploration - Introduction to Univariate Statistics** *Dr Gavin Lloyd*	
	16.15 – 17:00	**Computer Workshop: Metabolomics Data Exploration - Univariate Statistics** *Dr Gavin Lloyd*	

Day 3	09.00 – 09.30	**Lecture: Metabolomics Data Exploration - Introduction to Multivariate Statistics** *Dr Gavin Lloyd*	
	09.30 – 10.30	**Computer Workshop: Metabolomics Data Exploration - Multivariate Statistics** *Dr Gavin Lloyd*	
	10.30 - 10.45	Break	
	10.45 – 12.15	**Lecture: Basic Concepts - Metabolite Annotation and Identification** Dr Ralf Weber **Lecture: Overview of Instrumentation and Their Potential in Metabolite Identification** *Dr Martin Jones / Dr Andy Southam*	
	12.15 - 13.00	Lunch	
	13.00 – 14.45	Group 1 **Lab Session: Use of the ID-X for Metabolite Identification** *Dr Martin Jones*	Group 2 **Lab session: Use of the QE-plus for Metabolite Identification** *Dr Andy Southam*

	14.45 – 15.00	Break	
	15.00 – 16.45	Group 1 *[continued]* **Lab Session: Use of the ID-X for Metabolite Identification** *Dr Martin Jones*	Group 2 *[continued]* **Lab Session: Use of the QE-plus for Metabolite Identification** *Dr Andy Southam*

Day 4	09.00 - 10.30	Group 1 **Lab Session: Use of the QE-plus for Metabolite Identification** *Dr Andy Southam*	Group 2 **Lab Session: Use of the ID-X for Metabolite Identification** *Dr Martin Jones*
	10.30 - 10.45	Break	
	10.45 - 12:15	Group 1 *[continued]* **Lab Session: Use of the QE-plus for Metabolite Identification** *Dr Andy Southam*	Group 2 *[continued]* **Lab Session: Use of the ID-X for Metabolite Identification** *Dr Martin Jones*
	12:15 – 13:00	Lunch	
	13:00 - 13:45	**Lecture: Introduction to Processing, Filtering, and Annotating Fragmentation Data** *Dr Ralf Weber*	
	13.45 – 14.45	**Computer Workshop: Metabolite Annotation** *Dr Ralf Weber / Dr Martin Jones*	
	14:45 – 15:00	Break	
	15:00 – 16:00	**Q&A: Tips and Tricks from the Experts and Question Session** *Prof Mark Viant, Dr Ralf Weber, Dr Martin Jones, Dr Gavin Lloyd, Dr Andy Southam*	