LC-MS For the Chromatographer

The Atmospheric Pressure Interface (API) is the core element to the course with the principles of operation, limitations and applicability fully explored.

The course covers ion suppression, the use of Electrospray or APCI and MS-MS data acquisition modes. Optimisation of interface and mass filter settings and how to best utilise reduced dimension LC to speed up sample throughput will be discussed.

All popular interface types and mass analysing equipment (Quadrupole, TOF, Ion Trap etc.) will be comprehensively covered.

Course Contents

Introduction – Fundamentals Review
- Commonly used terms and concepts
- Atmospheric Pressure Ionsation mechanisms of ESI / APCI / APPI
- API - source design
- LC-MS Eluent design – solvents buffers and additives
- API (ESI) interface optimisation

Mass Analysers
- Quadrupole mass analysers
- Time of flight mass analysers
- Ion trap mass analysers

Mass Accuracy and Resolution
- Calibration of mass axis
- Mass accuracy / resolution
- Advantages of various analyser types
- Tuning the mass analyser (sensitivity vs resolution)

Scan Functions
- LC-MS data acquisition modes (sensitivity vs specificity)
- Scanning vs SIM
- Singly & multiply charged species
- Cone voltage fragmentation
- Up-front CID

LC-MS/MS Data Acquisition Modes
- Product ion scanning precursor
- Ion scanning
- Constant neutral loss
- Data dependant scanning
- Introduction to MS interpretation
- Product ion scanning
- Choosing precursor ions
- Establishing MRM method parameters
- Constant neutral loss experiments of ionisable compounds from scratch

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