

TWO-DAY COURSE, Saturday and Sunday
06 LC-MS: Techniques of Electrospray, APCI and APPI: Understanding and Optimizing to Develop Successful LC-MS Methods

Instructor



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This course is designed for the chromatographer / mass spectrometrist who wants to be successful in developing methods, optimizing methods and solving problems using LC/MS. The course covers the atmospheric pressure ionization (API) techniques of electrospray, pneumatically assisted electrospray and atmospheric pressure chemical ionization (APCI) and atmospheric pressure photo ionization (APPI) using single quadrupole, triple quadrupole, time-of-flight and ion trap mass analyzers. Discussions of sample preparation and modes of chromatography will target method development and optimization for the analysis of “real-world” samples by LC/MS. The course highlights the following topics with respect to optimization methods to achieve the best sensitivity, specificity and sample throughput.

Specific topics that are covered include:

1. Understanding API ionization and what effects the process and how your compound will perform,
2. Understanding the effects of LC columns (dimensions and particles size), flow rate, and mobile phases has upon the separation and LC/MS analysis.
3. Determining the type of ions that can form by API, how to Interpret the MS and MS/MS spectra and approaches on how to perform qualitative analysis in LC/MS/MS.
4. Understanding important issues that effect quantitative analysis results and how to optimize the method to achieve the best performance.
5. Exploring what new techniques are available (e.g. direct analysis MS, chip method and MS instrumentation) that can improve the results one can obtain.

This course focuses on method development and application to small molecules that are pharmaceutical, peptide, clinically and agriculturally related.

Prerequisite: Working knowledge of undergraduate analytical chemistry, including hands on experience with LC separations and mass spectrometry. This is a course for those using LC/MS and LC/MS/MS who want a deeper understanding of the technique to achieve better sensitivity, specificity and to improve their data interpretation skills.