Basics of Mass Spectrometry for the Clinical Laboratory

Date of meeting: Thursday, May 28, 2015
Time of meeting: 8:00 until 12:00
Location: U of Minn
Sponsored by: Mass Spectrometry Applications for the Clinical Laboratory (MSACL)

This introductory workshop will focus on the basics of mass spectrometry from a fundamental perspective as well as a practical perspective. After covering some introductory concepts in mass spectrometry (MS), the presentations will shift to practical aspects of how a mass spectrometer is tuned and basic method development for performing quantitative analysis of small molecules. The final sessions will focus on introductory liquid chromatography (LC) method development and sample preparation methods for routine clinical applications.

After attending this workshop attendees should:
1. Understand how a mass spectrometer separates molecules according to m/z.
2. Be able to recognize a total ion chromatogram, extracted ion chromatogram and mass spectrum.
3. Understand the principle behind ionization in the ion source.
4. Define mass accuracy and mass resolution.
5. Be able to describe a reversed phase LC separation.
6. Be able to describe advantages and disadvantages of minimal sample prep vs extensive sample preparation for routine clinical LC/MS/MS analyses.

Agenda

0800-0805  Introduction, Robert Fitzgerald, PhD, Professor of Pathology, UCSD
0805-0830  Mass spectrometry basics, Jane Yang, PhD, Clinical Chemistry Fellow, UCSD
0830-0855  Introduction to ionization modes, Imir Metushi, PhD, Clinical Chemistry Fellow, UCSD
0855-0920  Introduction to mass analyzers, Alec Saitman, PhD, Clinical Chemistry Fellow, UCSD
0920-0945  Principles of mass accuracy and resolution, Rob Fitzgerald, Professor of Pathology, UCSD
0945-1010  Break (Hosted by MSACL)
1010-1030  Compound specific tuning, Rob Fitzgerald, Professor of Pathology, UCSD
1030-1115  Intro to LC for clinical MS, Judy Stone, PhD, Sr Technical Specialist, UCSD
1115-1200  Intro to sample prep for Clinical MS, Judy Stone, PhD, Sr Technical Specialist, UCSD