IMPROVE THE QUALITY OF LABORATORY TESTING IN PATIENT CARE AND PUBLIC HEALTH
PERFORMING CLINICAL TESTING USING MASS SPECTROMETRY - HANDS-ON TRAINING

Abstract
Participants in this 4 ½-day training class will learn implementation, evaluation and day-to-day operation of liquid chromatography tandem mass spectrometry assays (LC/MS/MS). The training includes hands-on exercises on liquid chromatography (LC) and mass spectrometry (MS) instruments as well as classroom training on LC, MS, and analytical evaluation of LC/MS/MS methods intended for clinical use. The use of LC/MS/MS will be discussed using common applications in clinical chemistry and toxicology.

Hands-on clinical mass spectrometry training
Practical examples using established LC/MS/MS methods
Customized to clinical laboratory staff
ACCENT credit

JOINT CENTER FOR MASS SPECTROMETRY AND ADVANCED TECHNOLOGY
1364 Clifton Road N.E.
Atlanta, GA 30322 USA
09/19/2016 – 09/23/2016
Mass spectrometry coupled with liquid chromatography (LC/MS/MS) is an important technology to accurately and reliably measure a wide range of clinical analytes in routine patient care and public health. To successfully use this technology special knowledge and skills are needed that are different to those used with clinical analyzers.

This 4 ½-day training will introduce laboratory directors and technicians to this new technology and provide hands-on LC/MS/MS training. At the end of this training participants will understand the steps and procedures to setup, evaluate, and monitor the performance of LC/MS/MS assays in their clinical laboratory. Furthermore, participants will learn about sample preparation recommended for LC/MS/MS analysis using two established methods in clinical chemistry and toxicology. Special attention will be given to operating LC/MS/MS methods in a CLIA-regulated environment.

Target Audience:
• Laboratory Directors
• Medical Technicians
• Clinical Laboratory Researchers

The training will cover the following topics:
• LC/MS/MS technology, including sample preparation and automation
• Optimization of LC/MS/MS systems, including system suitability testing
• LC/MS/MS method validation, including data processing and review
• Method maintenance and troubleshooting

ACCENT credit will be provided through the AACC.

The training will be provided in classroom format followed by practical exercises on instrumentation in the laboratory.

The training will take place at Emory University, School of Medicine, Department of Pathology and Laboratory Medicine.
Course Content

**MS and LC Basics**
1. Explain principles of mass spectrometry
2. Recognize different data acquisition capabilities
3. Evaluate suitability of MS technologies for specific clinical applications
4. Explain and apply principles of LC
5. Recognize important LC parameters
6. Understand maintenance and troubleshooting
7. Define LC conditions for specific clinical application
8. Practice method optimization on instrument for selected clinical application

**LC/MS/MS Instrument setup and optimization**
1. Explain interfacing and optimizing LC- and MS-systems
2. Discuss key parameters to optimize LC/MS/MS operational conditions and use of System Suitability Sample (SSS)
3. Practice setup of an LC/MS/MS method on instrument for selected clinical analytes
4. Discuss instrument calibration and compound optimization
5. Identify appropriate mass transitions for MS/MS applications
6. Practice mass spectrometer optimization on instrument

**Method Development**
1. Discuss fit-for-purpose key parameters
2. Describe how to select, prepare, and use internal standards and calibrators
3. Practice analyzing calibrators on LC/MS/MS
4. Describe integration of chromatographic data
5. Discuss principle approaches and techniques for sample preparation
6. Explain how to evaluate sample preparation procedures
7. Discuss automation of sample preparation

**Method Validation**
1. Discuss defining performance criteria
2. Define procedures and guidelines for assessing performance parameters in context of CLIA requirements
3. Explain selection and preparation of QC samples

**Post-Implementation, Maintenance, and Troubleshooting**
1. Identify and address analytical errors and problems
2. Monitor performance to detect problems early
3. Discuss some basic preventative maintenance requirements
4. Discuss some basic troubleshooting
5. Practice troubleshooting using selected examples
Faculty

James C Ritchie, Ph.D.
Director, Core Laboratory, Emory Crawford Long Hospital
Associate Director, Core and Toxicology Laboratories, Emory University Hospital (jritchi@emory.edu)

Julianne C. Botelho, Ph.D.
Centers for Disease control and Prevention, Division of Laboratory Sciences (gur5@cdc.gov)

Hubert W. Vesper, Ph.D.
Centers for Disease control and Prevention, Division of Laboratory Sciences (hav2@cdc.gov)
Registration and General Information

Training Dates/Times: Monday September 19, 2016- Friday September 23, 2016 Monday-Thursday 9:00AM- 5:30PM Friday 9:00AM-12:00PM

Registration Fee: $1,500
To register follow the link http://cmetracker.net/EMORY/Login?FormName=RegLoginLive&Eventid=13258 (The registration fee includes: coffee break & lunch)

Cancellations:
Registration cancelled by August 22, 2016 will result in a 20% penalty
Cancellations after August 22, 2016 cannot be refunded

Venue:
Emory University, School of Medicine
Department of Pathology and Laboratory Medicine
Woodruff Memorial Building
Atlanta, GA 30322 USA

Travel and Lodging:
Participants need to make their own travel and hotel arrangements

Suggested hotels
Decatur Courtyard Marriott, 130 Clairemont Avenue, Decatur, Georgia, Phone:(404) 371-0204 Fax:(404) 377-2726 The hotel is located in the heart of Downtown Decatur with over 50 restaurants and shops within a 3 mile radius of the hotel. The Decatur Marta Station is just 1.5 blocks in proximity to our location. The Bistro Café begins serving breakfast at 6:30 am until 10:00 am and reopens at 5:00 pm – 10:00 pm for dinner. The hotel also provides a complimentary 6 passenger shuttle to provide transportation for our guest within a 3 mile radius. As an alternative mode of transportation the Emory Cliff bus also stops directly across the street from the hotel.

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Emory Conference Center, 1615 Clifton Rd, Atlanta, GA 30329, (404)-712-6000 the hotel and Center are set on a 26-acre forest preserve, this Frank Lloyd Wright-designed conference hotel is an 8-minute walk from the Centers for Disease Control and Prevention, and is located on the edge of the Emory campus. The stylish rooms feature Mission-style furnishings and expansive windows, and come with free Wi-Fi, flat-screen TVs with premium cable channels, and desks with ergonomic chairs. They also include minifridges, and tea and coffeemakers. Amenities include a garden-view restaurant and a cozy lounge bar, plus a fitness center, an indoor pool and a hot tub. The hotel also offers a shuttle service to the medical center.

For questions and additional information please contact members of the faculty listed above.