

CLINICAL TESTING USING MASS SPECTROMETRY: A HANDS-ON TRAINING COURSE

IMPROVING THE QUALITY OF LABORATORY TESTING IN PATIENT CARE AND PUBLIC HEALTH

Abstract

Participants in this 4 ½-day training class will learn implementation, evaluation, and day-to-day operations of liquid chromatography tandem mass spectrometry (LC/MS/MS) assays. The training includes hands-on exercises using liquid chromatography (LC) and mass spectrometry (MS) instruments as well as classroom training on LC, MS, and analytical evaluations 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

COURSE DATES

3/26/2018 – 3/30/2018

JOINT CENTER FOR MASS SPECTROMETRY AND ADVANCED TECHNOLOGY

1364 Clifton Road N.E.
Room F147
Atlanta, GA 30322, USA

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, which are different from those used with clinical analyzers.

This 4 ½-day training course 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 laboratories. Furthermore, participants will learn sample preparation techniques recommended for LC/MS/MS analyses 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

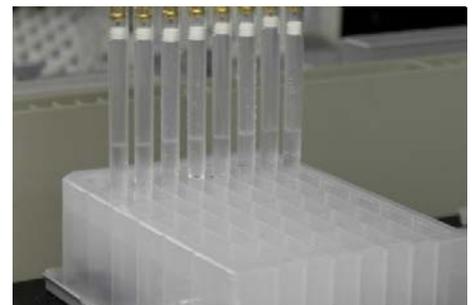
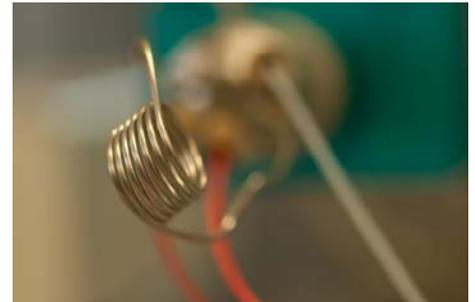
The training will cover the following topics:

- 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

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 applications
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 Samples (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

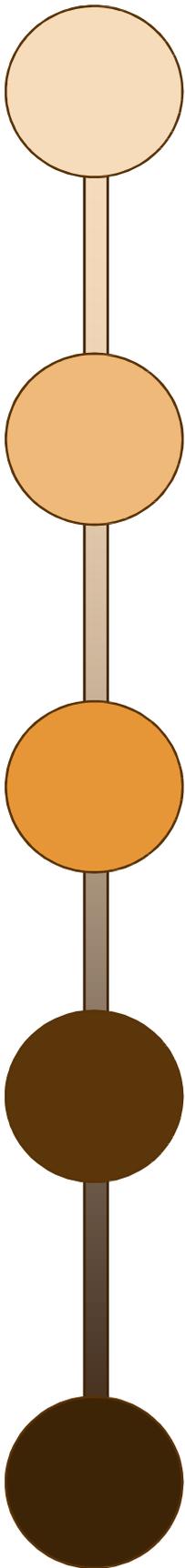
1. Discuss fit-for-purpose key parameters
2. Describe how to select, prepare, and use internal standards and calibrators
3. Practice analyzing calibrators on LC/MS/MS
4. Describe integration of chromatographic data
5. Discuss principle approaches and techniques for sample preparation
6. Explain how to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



Registration and General Information

Training Dates/Times: Monday March 26, 2018 thru Friday March 30, 2018

Monday – Thursday 9:00AM – 5:30PM

Friday 9:00 – 12:00 PM



Registration Fee: \$1,500

Registration link: <http://cmetracker.net/EMORY/Login?FormName=Regloginlive&Eventid=13674>

(The registration fee includes: coffee break & lunches)

Cancellations:

Registration cancelled by March 15, 2018 will result in a 20% penalty.

Cancellations after March 15, 2018 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 offer transportation for our guest within a 3 mile radius. As an alternative mode of transportation, the Emory Cliff Shuttle also stops directly across the street from the hotel.

Emory Conference Center, 1615 Clifton Rd., Atlanta, GA 30329, (404) 712-6000. The hotel and Conference 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 mini-fridges, 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 below:

Faculty



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****Special Guest Lecturer****
Deborah French Ph.D., DABCC, FACB
Associate Clinical Professor of Laboratory Medicine
Director, Chemistry, Mission Bay and Mount Zion
Assistant Director, Chemistry, Parnassus & China Basin
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