

LC-MS/MS Intermediate Course

Feb. 11-13 2003
Sheraton Four Point
6600 Cote-de-Liesse, Montreal
Attn: Bei Wang
Calibration & Validation Group
2-3415 Dixie Road Suite 402
Mississauga, ON, L4Y 4S6

REGISTRATION FORM

Name _____
Address _____

Phone _____
Fax _____
e-mail _____
Method of Payment: Cheques only
Signature _____

Sign up as: Price
CVG or/and CSMS Member \$ 600.00
Non-Member \$700.00
paid by cheque
billed on my company PO# _____
I will not be able to attend. Please add my name to
your mailing list for the next course
Total: _____

LC-MS/MS Intermediate Course

Feb. 11-13 2003
at
Sheraton Four Point
6600 Cote-de-Liesse, Dorval
Montreal (Quebec)
Phone:(514)-735.5150

Registration: 7:30am-8:30am
Course: 8:30am-5:00pm

Registration fee includes continental
breakfast, lunch and refreshments
CVG or/and CSMS Member..\$600.00
Non-Member.....\$700.00
Registration Deadline: **Feb. 7, 2003**
Mail registration form and fee payable to:
Calibration & Validation Group
2-3415 Dixie Road Suite 402
Mississauga, ON, L4Y 4S6
Attn: Bei Wang

For questions about registration, contact
us at:
Phone: (416)-693.3743 (Bei Wang)
Fax: (416)-693-3752
For further course information contact us
at :
Phone: (416)-266.8751 (Dr. Fabio
Garofolo)
E-mail: fabiogarofolo@hotmail.com
Website: www.cvg.ca

Instructor: Dr. Garofolo has been involved
in High Performance Liquid Chromatography
(HPLC), Gas Chromatography - Mass
Spectrometry (GC-MS) and mainly Liquid
Chromatography - Tandem Mass
Spectrometry (LC-MS/MS) for more than 10
years. He is specialized in applications of LC-
MS in FORENSIC, ANALYTICAL and
BIOANALYTICAL fields.

Dr. Garofolo is involved in high throughput
LC-MS/MS and Advance Method
Development training and consultancy both in
Canada and US.

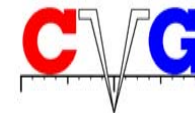
Capitalizing on an extensive occupational
background within his specialization field, he
provides innovative solutions and specific
training for fast development of original
methods for the identification and
quantification of drugs in human and animal
plasma.

Career Steps: LC-MS/MS and Method
Development Consultant – LC-MS Instructor
for Calibration and Validation Group
(Present), Technical Manager, Eli Lilly
Canada (2000-2002); Laboratory
Director/Leader of the Method Development
Group, Biovail Contract Research Canada
(1998-2000); Laboratory Director, R&D
Dept.-Analytical Laboratory, Italian Air Force
Italy (1994-1998).

Accomplishments: 13 years of experience in
Method Development, 35 Publications &
Presentations in International Conferences; 89
Innovative Bioanalytical and Analytical
Methods Developed and Validated. Author
and instructor of 17 LC-MS/MS courses from
Basic to Advance level. Designer and inventor
of 2 innovative bioanalytical approaches:
Universal Bioanalytical Method theory
(UBM) and TFC coupled with High Flow
Normal Phase (TFC-HF-NPLC-MS/MS). 11
years extensive managerial and technical
experience of laboratories of up to 48
personnel.

Education: Advanced Management, York
University, Canada (1998-2000).
Specialization in Meteorology & Doctor's
Degree in Chemistry, Aeronautica Militare
& Universita' degli Studi di Roma " La

Sapienza" -Italy (1985-1994);

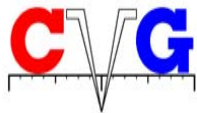


LC-MS/MS
Intermediate Course
Dr. Fabio Garofolo

LC-MS/MS Courses



Feb. 11-13 2003
8:30am-5:00pm
Sheraton Four Point
6600 Cote-de-Liesse, Dorval
Montreal (Quebec)
Phone:(514)-735.5150



Duration: 3-day course

Objective:

To familiarize the audience with the API Ionization process, Ion transmission in LC-MS/MS and Optimization to achieve the best sensitivity. Basic theory and advanced applications of Triple Quadrupole, Ion Trap and Time of Flight.

Purpose:

The main purpose of this course is to teach the criteria to follow during the optimization of a LC-MS/MS methodology. Applications using Triple Quadrupole, Ion Trap and Time of Flight are compared to identify the best instrument and brand to use in each case.

Who Should Attend :

This course will be of value to all regulatory, technical and QA/QC personnel who work in an LC-MS laboratory with a general understanding of mass spectrometry (MS) and tandem mass spectrometry (MS/MS). The course will be useful also for all the LC-MS/MS operators, both working with small and large molecules, interested in understanding the criteria to follow in the optimization of a LC-MS/MS methodology

**LC-MS/MS
Intermediate
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Looking forward into future:

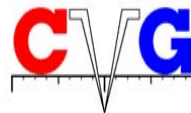
This LC-MS/MS Intermediate Course is the 2nd of a fully integrated 4-Level LC-MS/MS Course:

- 1) LC-MS/MS Basic Course
- 2) LC-MS/MS Intermediate Course
- 3) LC-MS/MS Advanced I Course
- 4) LC-M/MS Advanced II Course

The 4 LC-MS/MS courses have been designed to provide the appropriate level of instruction for all grade of LC-MS/MS operators. **One-on one** interaction between the instructor and students and the **short tests** between the lessons reinforce the information learned.

Focus:

The “LC-MS/MS Basic Course” emphasizes the theory of Liquid Chromatography tandem Mass Spectrometry and has a little focus on specific instrument hands-on operations due to the large number of different instrument brands. Students desiring a course for a specific instrument operator should refer to the courses offered by the instrument manufacturer. Students desiring training on instrument optimization should plan to take the “LC-MS/MS Intermediate Course”. Students desiring focused instruction on LC-MS/MS bioanalytical method development should explore the possibility of taking the “LC-MS/MS Advanced I/II Courses”



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PROGRAM

1. API IONIZATION PROCESS

Part 1 : APCI Optimization

(Discharge needle, Quartz tube, Gases, Probe Temperature, Solvents, in source degradation, mobile phase impact, and When to use APCI)

Part 2 : ESI Optimization

(On and Off Axis spray, pH and ESI, Additives & Buffers, Solvent effect, TFA fix, sensitivity and mobile phase, Divert Valve VIC Rule)

Part 3 : ESI Theory

(Charging of liquid, Electrospray Current, Rayleigh Stability Limit, Practical considerations from ESI Theory, ESI for small molecules, ESI for Large Molecule (Protein), Ion Evaporation Vs Charge Residue, Dole/Fenn and Iribarne theory, ESI as Electrochemical Cell, the 5 Gold Practical rules in ESI, Working in high sensitivity conditions)

2. ION TRANSMISSION

(Inefficiency of the Ionization Process, How and where to improve Ion, transmission efficiency in Triple Quad and Ion Trap, Orifice transfer, Ion focusing, skimmer transfer, Vacuum system, Multipole Characteristics, Round quadrupole, Octapole, Square quadrupole,

Collisional Focusing, CID efficiency, Source CID, Collision cell, Cross Talk, LINAC, Fragmenting Ions, Advantage of MS/MS over MS)

3. ION TRAP

THEORY/APPLICATIONS

(Mass Analyzer= Mass filter, Basic Ion Trap Components, 4 steps of Ion trap, Collection, Ejection, Isolation, Excitation, Automatic Gain Control, Mathieu Stability Diagram, Ion Trap Vs Triple Quad. Comparison among Single Quadrupole, Triple Quadrupole and, Ion trap, Evaluation of Commercial Ion Traps)

4. NEW API INTERFACES

(evaluation and comparison of Micromass, Thermofinnigan and Sciex triple quadrupole new interfaces, theory and applications of APPI interface, APCI Vs. APPI)

5. FUNDAMENTALS OF ANALYSIS OF PROTEIN BY

MS (Functional and structural proteins, transcription and translation, primary sequence, MS/MS nomenclature, calculations for the charge state, nanospray and microESI, theory of TOF analyzer, reflector, pumping system, axial MALDI-TOF, orthogonal ESI-TOF, orthogonal MALDI-TOF, MALDI Vs. ESI)