MOLNÁR-INSTITUTE
for applied chromatography

# HPLC Workshops in Berlin

## HPLC User Course:
## DryLab® & PeakMatch®

This course gives extensive training for the HPLC method development software package DryLab® and PeakMatch®. The course participants will be guided by several examples through all aspects of method development, from basic one-parameter-at a time- to complex multi-parameter-optimisations. It will be demonstrated, how to develop new methods, adjust old ones, improve problematic methods, getting shorter run time, while keeping the desirable selectivity. The participants learn how to develop their methods systematically and save time by taking robustness, run time, and separation of all components into consideration. They learn furthermore, how to use DryLab®-models for modern concepts of robustness control (Quality by Design, Design Space) as well as for method adaptation and troubleshooting.

**Target Group:**

DryLab®- and PeakMatch®-user and interested persons in the pharmaceutical, chemical and food industry, from regulatory agencies and from research labs and universities as well.

**Program:**

- Which are the chromatographic prerequisites in the development of an efficient HPLC-method? How to start the most promising parameters to optimize? Which are the criteria for robust methods prior the validation process?
- How to select suitable input runs for systematic develop-ment of HPLC-methods? The use DryLab® with different experimental designs. How many input runs are needed for DryLab®?
- How can I organize my experimental data and perform peak tracking with PeakMatch®? How do I correct for peak overlaps and for reversed elution orders? How to eliminate non-relevant peaks from the peak table?
- Creation of a DryLab® model of a separation: What are the strengths and weaknesses of an HPLC-method? How can I establish and describe the quality of an HPLC-method?
- Evaluating the DryLab® model: How to find optimum conditions for the final method? Gradient optimization - How does selectivity changes in gradient elution if we change column dimension and flow rate to speed up the analysis time?
- How to quantify method robustness from a DryLab® model?

## HPLC Intensive Course:
## Robust HPLC Methods

This course focuses on Reversed Phase Chromatography on C18, C8, Phenyl, EP-materials and on new sub-µ-technologies, which became important in analytical chemistry. The course covers all aspects of how to produce and maintain successful HPLC methods: Separation Theory, retention mechanisms, basic principles of Reversed Phase, advanced method development and method transfer. We discuss new concepts of robustness control, "Quality by Design", Design Space and targeted examination of experiments for quantitative definition of method robustness. We will also compare different columns and discuss new procedures of automated method development.

**Target Group:**

Pharmacists, chemists and members of R&D or quality control in the pharmaceutical, chemical and food industry, also from regulatory authorities and universities. Basic experience with HPLC and method development and/or adjustments are needed.

**Program:**

- Introduction to HPLC-Method Development; Reversed Phase Basics: Fundamentals and simple rules; Influence of eluent composition. Peak tracking problems in systematic work.
- Reversed Phase Basics - Secondary equilibria; pH-, ion-pairing-effects. Speeding up the analysis: Column and flow optimization; Column Characteristics, stationary phase materials in RPC, which is the best column for me?
- Critical resolution map and method robustness; Temperature and ternary eluent optimization
- Calculation of robustness for %B-, pH-, buffer- and temperature-influences
- Equivalence and diversity of stationary phases (ColumnMatch®); Modelling Gradients in HPLC method development; Dwell volume; Changes of selectivity in Method transfer
- PeakMatch and data transfer to DryLab®; Troubleshooting of HPLC methods using computer modelling, precision issues;
- Unexpected results in method development; Influence of organic modifiers in separating plant extracts; Two-dimensional optimization tG vs. pH; Advanced method development: Two-dimensional simultaneous optimization of any two parameters in HPLC

## INSTRUCTORS

**Dr. Imre Molnár** completed his PhD at the University of Saarbrücken. From 1975-77 he spent a research fellowship with Prof. Dr. Csaba Horváth at Yale University (USA). There he was involved in the basic research of Reversed Phase Chromatography, well known as the Solvophobic Theory. After returning to Europe he started his cooperation with Dr. Lloyd Snyder and Dr. John Dolan of LC Resources, Inc. (USA) on the development of the software for HPLC-methods, DryLab®. He is a specialist of the pharmaceutical and chemical analysis and he has a long-standing experience in Quality by Design in HPLC method development, in applications, in instrumentation and in column packing technology.

**Dr. Hans-Jürgen Rieger** studied physical chemistry at the Free University in Berlin. After joining the Molnár-Institute he intensely dealt with the development of quick and robust HPLC methods. He was also involved in the development of the peak tracking software PeakMatch® and of the advancement of DryLab® since the Molnár-Institute has acquired the software from LC Resources/Rheodyne respectively.

**Dr. Hans-Werner Bilke** studied chemistry and worked as an analytical chemist in QC of numerous renowned pharmaceutical companies. Until recently he was team leader for HPLC in the department of R&D of the Biochemie GmbH in Kundl (later Sandoz). Presently he is active as an independent consultant in the area of HPLC method development.

**Prof. Dr. Markus Veit** studied Pharmacy in Frankfurt, received his PhD and his habilitation in Würzburg. In the last 8 years he was active as a director in two service companies for the Pharmaceutical Industry. He is teaching at the University of Frankfurt, at the University of Florida and at the Humboldt University in Berlin. He is a member of several Expert Groups in the Pharmaceutical Industry in Germany.

## LOCATION

Our open enrollment courses take place at one of the prestigious hotels in the center of Berlin, Germany. The definite location will be announced in time. Participants are kindly requested to make their own hotel arrangement.

## REGISTRATION

Herewith I register myself and the listed person(s) for the selected workshop:

Title .....

First Name .....

Last Name .....

Job Title .....

Company .....

Address .....

ZIP Code/City .....

Country .....

Phone .....

Email .....

Aditional Participant(s): 1. ..... 2. .....

3. .....

4. .....

5. .....

Date .....

Signature .....

➔ **HPLC User Course: "DryLab® & PeakMatch®"** EUR 1.490
in German language ☐ 23.-24.04.2009 ☐ 10.-11.09.2009
in English language ☐ 18.-19.06.2009 ☐ 26.-27.11.2009

➔ **HPLC Intensive Course: "Robust HPLC Methods"** EUR 1.340
in German language ☐ 21.-22.04.2009 ☐ 08.-09.09.2009
in English language ☐ 16.-17.06.2009 ☐ 24.-25.11.2009

**Register today! If you book 6 weeks before the course date, you will receive an early bird discount of EUR 150.**

Please send the filled registration form back to the Molnár-Institute. Once received it will be considered binding.
The payment is to be made before the workshop date in order to guarantee your place(s). If you are unable to attend the booked workshop you have two options:
(a) We are happy to welcome a substitute delegate at any time provided a written request is receive;
(b) If you have to cancel entirely, we can offer you a refund less a 10% service charge, providing your cancellation is received in writing 3 weeks before the workshop date; We regret no refunds can be made afterwards, but a substitute is welcome.
In the unlikely event that the workshop director cancels, every effort will be made to find a suitable replacement of equal experience.
By providing your email address you consent to Molnár-Institute contacting you with relevant updates about products and services by email. Your email will not be passed onto third parties.

Molnár-Institute for applied chromatography • President: Dr. Imre Molnár • Modeling Software: DryLab®, PeakMatch®, Method Match • Method Development, Consultings and Training
Schneegloeckchenstrasse 47 • 10407 Berlin • Germany • Phone: +49 30 421559-0 • Fax: +49 30 421559-99 • info@molnar-institute.com • www.molnar-institute.com