BIH ACADEMY OPTIONAL TRAINING WORKSHOP

Practical Course on Chromatography-Mass Spectrometry-based Metabolomics

Course guided by Dr. Raphaela Fritsche
Trainers: Dr. Ulrike Brüning, Dr. Daniel Mutithu, Dr. Ozan Haliscelik, M. Sc. Janine Wiebach
Support: Alina Eisenberger, Myong-Su Lenz
BIH Metabolomics Platform
raphaela.fritsche@bih-charite.de

Date:	Tuesday 10 November 2026, 09:00 - 16:00 Wednesday 11 November 2026, 09:00 – 16:00 Thursday 12 November 2026, 09:00 - 16:00
Venue:	Seminar room (first floor), BIH Metabolomics Platform (Käthe-Beutler-House), Campus Buch
Aimed at:	Members of BIH, Charité and MDC with no prior knowledge of metabolomics. Scientists that aim to use metabolomics in their project. **This workshop is limited to twelve participants**. **Please include in your application a short motivation letter (3-4 sentences) explaining your background and reasons for joining the course.**
Safety remarks:	During the course we will work with hazardous, harmful and teratogenic substances (especially, Chloroform and Methanol). Participants are REQUIRED to have read and understood the safety datasheets for these chemicals prior to attending the course and take part in the course at their own risk. Registering for this course constitutes acceptance of this responsibility. Anyone who is or may be pregnant or is trying for a baby is advised not to do the laboratory practical component of this course – please advise the organisers in confidence at the earliest possible date if this applies to you.

Abstract including training aims / outcomes

This course is designed to provide a basic introduction to chromatography-mass spectrometry and metabolomics and is suitable for beginners to the field who are interested in collaborating with metabolomics experts to expand their own research. In the wet-lab you will have the opportunity to prepare course-provided samples. In the dry lab you will have the opportunity to prepare your own experimental setup for a metabolomics study. The theoretical part of the course will cover basic theory on metabolomics. At the end of the course, you should have 1) a broad understanding of how to plan a metabolomics experiment to maximize interpretability, 2.) understand the complexity of metabolomics in general and the importance of setting clearly defined questions, 3.) understand the process of how samples are prepared, results processed and which factors may influence results and 4.) understand why quality assurance and quality control are important.

Registration link

https://www.bihealth.org/de/aktuelles/veranstaltungen/metabolomics-kurs-2026

Agenda

Day 1 **10.11.26**	08:30 - 09:00	Registration and coffee	
	09:00 - 09:30	Welcome	Raphaela Fritsche
	09:30 - 10:00	Lecture: Introduction to the world of metabolomics	Ulrike Brüning
	10:00 - 10:15	Lecture: Health and safety introduction	Raphaela Fritsche
	10:15 – 10:45	Lecture: Different techniques and protocols to cover the metabolom	Ulrike Brüning
	10:45 - 11:00	Coffee break	
	11:00 - 12:00	Practice: Sample extraction methods part I	
	12:00 - 13:00	Lunch	
	13:00 - 13:30	Practice: Sample extraction methods part II	
	13:30 - 14:00	Lecture: Purpose of derivatization	Ozan Haliscelik
	14:00 - 16:00	Practice: Different sample extraction methods	Raphaela Fritsche Ulrike Brüning Alina Eisenberger Myong-Su Lenz Ozan Haliscelik
Day 2 **11.11.2026**	09:00 - 09:30	Lecture: Data acquisition and processing	Raphaela Fritsche
	09:30 - 10:15	Lecture: Data processing and data analysis	Janine Wiebach
	10:15 - 10:30	Coffee break	
	10:30 - 11:00	Lecture: Systemic Metabolomic and Lipidomic Signatures of disease activity in RRMS, NMOSD, MOGAD, and DS-NMOSD: a Longitudinal and Subclinical investigation	Roua Hamdi (PhD student)
	11:30 - 12:00	Lecture: Quality control and quality assurance	Janine Wiebach
	12:00 - 13:00	Lunch	
	13:00 - 16:00	Practice: Instrument demonstration	Raphaela Fritsche Ozan Haliscelik Ulrike Brüning Daniel Mutithu
Day 3 **12.11.2026**	09:00 - 09:30	Lecture: What Does the Blood Know? A Clinical Example of Preoperative Plasma Metabolomics	Dr. rer. med. Clarissa von Haefen
	09:30 - 12:00	Practice: How to plan a metabolomics experiment? Part I	

	12:00 - 13:00	Lunch	
	13:00 – 13:30	Lecture: ECM and mitochondria in pulmonary vascular remodeling and regeneration in pulmonary hypertension secondary to left heart disease	PhD Mariya Kucherenko
	13:30 - 15:30	Practice: How to plan a metabolomics experiment? Part II	
	15:30 - 16:00	Final questions and discussions, closing remarks	Raphaela Fritsche Ulrike Brüning

*Lunch will not be provided but we will go as a group to Campus Buch Mensa where there are a range of options for you to purchase.