

Principles of High-throughput Proteomics Research

Course

Porto, 3rd - 6th December 2024

Introduction

Proteomics is a research discipline devoted to the analysis of proteins from complex biological samples. It has been applied to evaluate protein expression, to identify proteins and characterize their post-translational modifications (PTMs). Examples of such applications include the analysis and identification of critical molecular events associated to adverse health and ecotoxicological effects. Another major application of proteomics is the discovery of novel disease-associated biomarkers with relevant clinical purposes. The main proteomics research tool is Mass Spectrometry (MS), and specific MS methods and procedures have been developed to carry out discovery-based and hypothesis-driven research.

Course aims

This course aims to introduce the main **methodologies** employed in Proteomics research, including **sample preparation** and **fractionation methods**. The course also provides participants **practical training in data analysis and interpretation of complex proteomic data** obtained from shotgun studies.

This course is supported by the HORIZON.1.2 - MSCA-RISE project BlueShellfish GA No. 101086234.

Participants

Graduated students, researchers and professors interested in proteomics, mass spectrometry and protein research. Participants are limited to 20 but a minimum of 10 participants will be required to run the course. A total of 3 ECTS can be requested by students that conclude the course (for more information contact info.BlueShellfish@gmail.com)



Funded by the European Union.

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Research Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.

Organizing committee

- Alexandre Campos (CIIMAR)
- Mário Araújo (CIIMAR)
- Aldo Barreto (CIIMAR)
- Marisa Freitas (E2S | P. PORTO)
- Rosário Martins (E2S | P. PORTO)
- Maria Turkina (LIU)

Place and date

In-person course during working hours: the course will be held in laboratories of **E2S | P. PORTO** and **CEMUP/FCUP** between **3rd and 6th December 2024**. Lunch and coffee break included.

Registration

The registration fee is **150 euros**, and follow this link for registration:
<https://forms.gle/5xiUgWkjfTpXNpQB8>

For additional information, contact:
info.BlueShellfish@gmail.com or Telephone (+351 223401813).

Institutional support

CIIMAR | Interdisciplinary Centre of Marine and Environmental Research,

UP | University of Porto

FCUP | Faculty of Sciences, University of Porto

CEMUP | Materials Centre of University of Porto

LIU | Linköping University

E2S | P. PORTO | School of Health, Polytechnic Institute of Porto



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Preliminary program



Day 1 - Tuesday, 3rd December (location: ESS-P.Porto)

9:00 – 9:30	Registrations	
9:30 – 11:00	Welcoming, course overview and introduction to proteomics Dr. Alexandre Campos (CIIMAR)	
11:00 – 12:30	Sample preparation, LC-MS/MS, protein identification and quantification Dr. Maria Turkina (LiU)	
12:30 – 14:00	Lunch break	
14:00 – 17:30	Sample preparation and fractionation methods (hands-on-training) Dr. Alexandre Campos (CIIMAR), Dr. Maria Turkina (LiU), Dr. Mário Araújo (CIIMAR)	


Day 2 – Wednesday, 4th December

9:00 – 12:30 location: ESS-P.Porto	Sample preparation and fractionation methods, continued (hands-on-training) Dr. Alexandre Campos (CIIMAR), Dr. Maria Turkina (LiU), Dr. Mário Araújo (CIIMAR)	
12:30 – 14:00	Lunch break	
14:00 – 17:30 location: CEMUP	LC-MS/MS analysis and data acquisition (demonstrations) Dr. Sílvia Maia (CEMUP), Dr. Maria Turkina (LiU)	

Day 3 - Thursday, 5th December (location: ESS-P.Porto)

9:00 – 12:30	Statistical analysis of proteomic data (hands-on-training) Dr. Aldo Barreiro-Felpeto (CIIMAR), Dr. Maria Turkina (LiU)	
12:30 – 14:00	Lunch break	
14:00 – 17:30	Functional analysis in proteomics (hands-on-training) Dr. Alexandre Campos (CIIMAR), Dr. Maria Turkina (LiU), Dr. Mário Jorge Araújo (CIIMAR)	

Day 4 – Friday, 6th December (location: ESS-P.Porto)

9:00 – 12:30	Wrap up, group presentations, Q&A Dr. Mário Jorge Araújo (CIIMAR)	
12:30 – 14:00	Lunch break	
14:00 – 16:30	Applications - Presentations from former students	



ESS-P. Porto Rua Dr. António Bernardino de Almeida, 400 4200 - 072, Porto
CEMUP Rua do Campo Alegre, 823, 4150-180 Porto



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