

THE COURSE

LEARNING OUTCOMES

- Synthesis of magnetic nanoparticles
- Functionalization of magnetic nanoparticles
- Use of nanoparticles in proteomics: Proteomic fractionation
- Protein identification & quantification
- Mass spectrometry-based personalized medicine
- Bioinformatics I: Protein identification and quantification
- Bioinformatics II: Prescriptomics and Personalized Medicine

COURSE OUTLINE

Nano-synthesis and characterization

- Synthesis of magnetic gold nanoparticles
- Characterization of magnetic nanoparticles by DLS and Z-potential

Proteomics and Personalized Medicine

- Proteome extraction in liquid biopsies and total protein quantification
- Proteomic sample preparation: Filter Aided Sample Preparation (FASP)
- Protein identification by Mass Spectrometry: MaxQuant
- Label-free quantification by MS: Total Protein Approach (TPA)
- Bioinformatics: MaxQuant, Perseus & Cytoscape
- Differential Personalized Pathway Index (dPPI) for Personalized Medicine

Summer Course 2024

3rd – 7th June

3rd June | Monday

9:00	Registration
9:30	Introduction to Proteomics Professor Capelo
10:30	Coffee break
11:30	Introduction to Nanoparticles Professor Lodeiro
12:30	Networking Lunch
14:00	Hands-on A: Nanosynthesis I Professor Fernández & Professor Pedro Hands-on B: Proteomics I Professor Carvalho & Professor Domingos
16:00	Coffee break
16:30	Hands-on A: Proteomics I Professor Carvalho & Professor Domingos Hands-on B: Nanosynthesis I Professor Fernández & Professor Pedro

4th June | Tuesday

9:00	Introduction to Biopsies Sampling and Preservation Professor Mercolini
11:00	Coffee break
11:15	Hand-on A B: Filter Aided Sample Preparation protocol (FASP)
13:15	Networking Lunch
14:00	Hand-on A B: Filter Aided Sample Preparation protocol (FASP)
16:00	Coffee break
16:30	Hand-on A B: Filter Aided Sample Preparation protocol (FASP)

5th June | Wednesday

9:30	Personalized Medicine & dPPi Professor Carvalho
10:30	Coffee break
11:30	Hand-on A B: MS data acquisition Professor Carvalho, Santos & Capelo
12:30	Networking Lunch
14:00	Hand-on A B: Bioinformatics I – MaxQuant Professor Carvalho, Santos & Capelo
16:00	Coffee break
16:30	All together – Beach time @ Costa de Caparica
19:30	Sunset @ Costa de Caparica

6th June | Thursday

9:30	Personalized Medicine in 21 st century Professor Jacinto
10:30	Coffee break
11:30	Hand-on A B: Bioinformatics I – MaxQuant Professor Carvalho, Santos & Capelo
12:30	Networking Lunch
14:00	Hand-on A B: Bioinformatics II – Perseus & Cytoscape Professor Carvalho, Santos & Capelo
16:00	Coffee break
16:30	Hand-on A B: Bioinformatics II – Perseus & Cytoscape Professor Carvalho, Santos & Capelo

7th June | Friday

9:00	Total Protein Approach (TPA) Professor Wisniewski
10:30	Coffee break
11:00	Hands-on A B: Bioinformatics III – Total Protein Approach Professor Wisniewski
13:00	Networking Lunch