

MÀSTER BIOMEDICINA

NAME: Genomics and Proteomics

3 ECTS

COORDINATORS: Diego Haro and Oriol Bachs

Program

- 1.- General introduction to the course
- 2.- Introduction to human genome
- 3.- DNA ultra sequencing
- 4.- Expression microarrays
- 5.- Chromatin immunoprecipitation (ChIP). ChIP on chip and ChIP-seq
- 6.- Genome annotation
- 7.- Gene Networks
- 8.- Introduction to Proteomics
- 9.- Protein Separation
- 10.- Sample preparation for mass spectrometry analysis
- 11.- Mass spectrometry analysis
- 12.- Bioinformatics applied to proteomics (**practical 4 hours**)
- 13.- Analysis of protein interactions
- 14.- Functional Proteomics
- 15.- Proteomics analysis for the identification of biological markers
- 16.- Integration of data from genomics and proteomics

Bibliography

Discovering Genomics, Proteomics and Bioinformatics (2nd Edition) by A. Malcolm Campbell and Laurie J. Heyer

Molecular Analysis and Genome Discovery, 2nd Edition by Ralph Rapley (Editor), Stuart Harbron (Editor)

Introducing Proteomics: From concepts to sample separation, mass spectrometry and data analysis by Josip Lovric

Genomics: Essential Methods by Mike Starkey (Editor), Ramnath Elaswarapu (Editor)

Proteomics of Biological Systems: Protein Phosphorylation Using Mass Spectrometry Techniques by Bryan M. Ham