



UNIVERSITÀ DEGLI STUDI DI TORINO

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TIC01\_DIP\_BIOTEC

## Visiting Professor Program Academic year 2020/2021

DEPARTMENT OF MOLECULAR BIOTECHNOLOGY AND HEALTH SCIENCES

TEACHING COMMITMENT: 24 hours

### COURSE TITLE

**Metabolomics by Mass Spectrometry**

### TEACHING PERIOD

1st term

### SCIENTIFIC AREA

Chemical Sciences

### LANGUAGE USED TO TEACH

English

The Degree Course is entirely taught in English

### COURSE SUMMARY

Metabolomics fundamentals: identification of biomolecules with different physical-chemical properties to be selected as potential biomarkers. Choosing and development of chromatographic separation methods. Ion sources for metabolomics. Targeted Vs. untargeted approaches in mass spectrometry data acquisition. Mass spectrometry analyzers for metabolomics: advantages and disadvantages. Description of applications.

### LEARNING OBJECTIVES

The teaching is part of the general objective of the course to provide knowledge and skills in the field of metabolomics, with particular reference to the knowledge and understanding of instrumental analytical methodologies currently in use in the laboratories of mass spectrometry. In particular the objectives to be reached are: ability to develop a chromatography-mass spectrometry method useful for a metabolomics application and competence in the use of metabolomics data for biomarker selection.

### **TUTORSHIP ACTIVITIES (IF APPLICABLE)**

The Visiting Professor may be tutor or co-tutor in the presentation of graduate students thesis work.

### **LAB ACTIVITIES (IF APPLICABLE)**

The involvement of the Visiting Professor in the research activity of the unit of mass spectrometry of the Department of Molecular Biotechnology and Health Sciences is encouraged.

### **OTHER ACTIVITIES (IF APPLICABLE)**

The teaching activity will be deepened in seminars for PhD students and research fellows, regarding different metabolomics fields: lipidomics, glycomics, etc. together with dissemination conferences intended for a graduate students audience.

### **VISITING PROFESSOR PROFILE DESCRIPTION**

Expert in high resolution mass spectrometry and analytical methods with multidisciplinary experiences in biochemistry. Skill in establishment of protocols for global metabolomics. Experience in GC-MS, LC-MS, deproteinization and SPE.

### **CONTACT PERSON AT THE DEPARTMENT**

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