Direzione Ricerca,
Innovazione e
Internazionalizzazione

UNIVERSITÀ
DI TORINO

ID

VP_011_BIOTEC

Visiting Professor Program
Academic Year 2025/2026

TEACHING COMMITMENT: **24 hours**

COURSE TITLE

Integrated Laboratory Tecnique + Cell Biology

TEACHING PERIOD

I semester

SCIENTIFIC AREA

Cell and Applied Biology

LANGUAGE USED TO TEACH

English

COURSE SUMMARY

The course will deal with the following topics:
- Basic Cell Culture Techniques;
- Specialized cells culture techniques: primary cultures from specialized tissues;
- 3D cultures;
- Organoids from normal tissues or from tumors;
- In vivo Protein Analysis;
- Intracellular localization of endogenous and exogenous proteins;
- Biochemical and microscopy assays for protein co-localization: pull-down, FRAP, FRET;
- Functional assays in cell biology:

Cell proliferation
Cell migration
Cell viability
Cell survival (apoptosis and anoikis)

Cell polarization
Cell-matrix adhesion assays (adhesion, spreading, focal adhesion organization)
Integrin-dependent functional assays (i.e. cytoskeleton organization)
- Cancer models:
Cell invasion
In vitro and in vivo tumorigenesis assays (soft agar, in vivo tumor growth, experimental metastasis, spontaneous metastasis
Patient-derived xenografts

LEARNING OBJECTIVES

The purpose of this teaching is to provide wide-date overview of essential experimental cell biology methods in basic research and applied biotechnology. In particular, the Cell Biology module will provide the knowledge necessary to learn the basis of cellular and biochemical technologies for the study of proteins into the main cell biological processes. The module will also offer a focus on primary cell culture in cancer, neuroscience and cardiovascular research. A key aspect of teaching will be highlighting how different technologies can be integrated to address complex biological questions. To this aim several case studies from recent literature will be analyzed.

OTHER ACTIVITIES BESIDE THE COURSE

Seminal work with PhD students and research fellow.
Conference for faculty members

VISITING PROFESSOR PROFILE

We look for an expert in the cell biology field, with specific focus on the techniques shown above in the Course Summary. We wish to have a scientist whose main research interest is the mechanism of integrin-mediated signaling in cell proliferation and migration. In particular, we will be interested in an expert in the field of integrin adhesion, integrin complexes and their role in cytoskeleton organization and tumor cell resistance to antitumour drugs.

CONTACT REFERENT

Paola Defilippi
paola.defilippi@unito.it