



Direzione Ricerca,  
Innovazione e  
Internazionalizzazione

**UNIVERSITÀ  
DI TORINO**

**ID**

**VP\_172\_STF**

## **Visiting Professor Program Academic Year 2025/2026**

**TEACHING COMMITMENT:** 16 hours

**COURSE TITLE**

**Advanced Drug Delivery Technologies**

**TEACHING PERIOD**

II semester

**SCIENTIFIC AREA**

Pharmaceutical Technology

**LANGUAGE USED TO TEACH**

English

**COURSE SUMMARY**

The course will develop the most recent advances in the field of drug delivery systems with a particular focus on nanocarriers for oncology.

1) Delivery of therapeutics at sub-cellular level: several therapeutics vectorized by nanosystems are now marketed and others in advanced clinical phases for the treatment of cancer. In fact, nanovectors can improve the bioavailability and pharmacokinetics of active molecules, reduce toxicity and enable combination therapy. Nanosystems can be functionalized to target specific tissues and cells. The next frontier is to target sub-cellular compartments and to combine nanotechnologies with physical methods.

2) Microbiota and cancer: recently, several relations have been found between microbiota and cancer. Exogenous as well as intestinal bacteria have been discovered to play an important role in cancer development, progression and, more particularly, to cancer treatment responsiveness. The course will present the new discoveries in this field and the future strategies.

3) Non-viral vectors for gene therapy and immune-modulation. One of the latest breakthroughs in the field of pharmaceuticals is the ability to efficiently deliver DNA and mRNA by non-viral vectors. The course will define the categories of non-viral vectors employed and detail the features and methods to develop them. The most recent successful examples of gene therapy and immune-modulation in which non-viral-vectors were used will be described in a comprehensive manner.

### **LEARNING OBJECTIVES**

Students will have an overall view of the cutting-edge discoveries and related therapies in the field of oncology. Future medicine will account more and more specific personalized treatments and by the end of this course the students will be informed on the three main research fields where the new discoveries are aimed at developing custom-made therapies. Each section of the course will include theoretical notions meant to make the students confident with the reading of scientific articles in each of the three fields. Then, they will learn how to use basic bioinformatics tools and discussions about recent research articles in each field will complete their understanding.

### **OTHER ACTIVITIES BESIDE THE COURSE**

The candidate Visiting Professor will present research seminars based on recent results from his/her laboratory in the area of discovering new molecular targets leading to a pre-clinical development of new vectorised molecules.

Focused dissertations with

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### **VISITING PROFESSOR PROFILE**

The candidate should have a Ph.D. degree or equivalent and research experience in the field of oncology and nanotechnologies applied to Health Science. The candidate should be confident in dealing with interdisciplinary domains from molecular biology to pharmaceutical science. More particularly, the candidate should have work experience in developing new anticancer strategies. Additional knowledge in bioinformatics is appreciated. The candidate should account several first-name peer review publications. Working experiences in several different Countries is highly appreciated as the candidate must present a certain aptitude in interacting with people with different points of view.

### **CONTACT REFERENT**

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