



UNIVERSITÀ DEGLI STUDI DI TORINO

ID

VP62\_DIP\_BIOTEC

## Visiting Professor Program Academic year 2022/2023

**TEACHING COMMITMENT:** 12 hours

### COURSE TITLE

**Stem Cells senescence: biological models and underlying molecular determinants**

### TEACHING PERIOD

2nd term

### SCIENTIFIC AREA

Molecular and Cellular Biology

### LANGUAGE USED TO TEACH

English

### COURSE SUMMARY

Program

- The nine hallmarks of aging;
- Organismal models in aging research: from yeast to primates;
- Epidemiological studies: what we learn from centenarians;
- The effect of age on tissue homeostasis and on the ability to cope with tissue damage;
- Concept of 'aging as disease' and the use of anti-aging interventions in organismal models and humans.

Course objectives

- Learn about molecular and cellular mechanisms associated with organismal aging, loss of tissue regeneration and chronic disease;
- Explore various models used in aging research and understand advantages and disadvantages of each system;
- Learn pharmacological and lifestyle interventions that can interfere with the aging process and promote tissue regeneration and rejuvenation;

- Understand how anti-aging approaches are implemented by the general population and in the clinic.

### LEARNING OBJECTIVES

Results of learning outcomes:

- Acquire the ability to connect and integrate different molecular and cellular processes to understand age-associated networks;
- Acquire good knowledge on how different organismal models can serve the purpose to identify age-associated mechanisms and to predict the most effective interventions;
- Gain insights on how age influences tissue regeneration and how this connects to disease and dysfunctions;
- Become acquainted with the use of pharmacological and lifestyle interventions to promote maintenance of tissue functions and the importance of cellular and molecular biomarkers for clinical evaluations.

### TUTORSHIP ACTIVITIES

Before each class, students are asked to read relevant literature which will be provided by the teacher. During class, the students will be asked to interact and propose ideas and concepts. Interactions will be taken into consideration for the final grade.

The teacher is always available for the students for 30 min. after each lesson. The teacher is also available for discussing issues related to the course subject, especially via email. The teacher will provide the material necessary to follow the course (mainly original articles and reviews) and guide to search for additional relevant literature critically reading of scientific papers

### LAB ACTIVITIES

not applicable

### OTHER ACTIVITIES BESIDES THE COURSE

Brief series of seminars for PhD students, about molecular mechanisms of cell senescence and models to detect it and exploit it therapeutically.

## ADDITIONAL COURSE

### COURSE TITLE

**Scientific Dissemination on social media**

### TEACHING PERIOD

2nd term

### SCIENTIFIC AREA

Molecular and Cellular Biology

### LANGUAGE USED TO TEACH

English

## **COURSE SUMMARY**

The course will focus on the most recent forms of scientific communication, both to peers and to lay people, namely Facebook, Twitter, Instagram, teaching how to use these now fundamental tools in a clear and attractive way..

## **LEARNING OBJECTIVES**

The students will learn how to best use these different tools, each with its specific language and public. Practicals will be included.

## **TUTORSHIP ACTIVITIES**

Support during the preparation of the practical essays.

## **LAB ACTIVITIES**

not applicable

## **OTHER ACTIVITIES BESIDES THE COURSE**

N/A

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## **VISITING PROFESSOR PROFILE**

The Visiting Professor should have an excellent record of publications and proven experience in the study of cellular senescence and ageing, focusing on the molecular mechanisms leading to loss of regeneration potential and chronic disease. His/her expertise should also focus on the development of experimental models to study this phenomenon and the mechanisms that control it during development, in stem cell biology and in pathological conditions.

Moreover, the Visiting Professor should be proficient in the use of social media for Scientific Communication.

## **CONTACT PERSON AT THE DEPARTMENT**

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