UNIVERSITÀ DEGLI STUDI DI TORINO

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VP20_DIP_ONC

Visiting Professor Program
Academic year 2019/2020

DEPARTMENT OF ONCOLOGY

TEACHING COMMITMENT: 16 hours

COURSE TITLE

Biochemistry of cancer metabolism and biochemistry-driven identification of anti-cancer pathways and drugs

TEACHING PERIOD

2nd term

SCIENTIFIC AREA

Biochemistry, cell biology, molecular oncology, medicinal chemistry

LANGUAGE USED TO TEACH

English

COURSE SUMMARY

One of the most common pathology with a predicted increasing incidence in the next decades is cancer.

The course of the Visiting Professor will be entirely dedicated to the biochemistry of cancer and cancer therapeutics, providing to the students additional and not-overlapping notions to those given in the remaining part of the course.

The course will be focused on the following topics:

- Biochemical differences between cancer cells and not transformed cells occurring during transformation and cancer progression
- Biochemical cross-talks between cancer cells and tumor environment, sustaining tumor progression
- Biochemical circuitries determining drug resistance, with a particular emphasis on the multidrug resistance phenotype and on the biochemistry of ABC transporters
- Metabolic pathways that can be targeted in order to improve the efficacy of currently used or future anti-cancer drugs

- Strategies behind the design of new anti-cancer drugs, on the basis of the acquired knowledge of cancer cell and cancer environment metabolism
- Strategies used to increase the selective targeting of tumor cells, reducing the side effects on healthy tissues

LEARNING OBJECTIVES

Biochemistry course aims at providing a basic knoweldge of metabolic processes occurring at cellular and tissue levels, under physiological conditions or occurring during the most common pathologies.
The learning objectives of the course of the Visting Professor are to provide the necessary biochemical background knowledge that allows to understand:
- why specific metabolic disorders and clinically-associated signs occur in oncological patients - at early and at advanced stages -, encountered in the future clinical practice of the student
- why specific anti-cancer treatments are prescribed to the oncological patients
- why specific anti-cancer treatments fail and/or are substituted by other treatments, in consideration of:
a) the metabolic effects produced on cancer cell and its environment;
b) the mechanisms of resistance adopted by tumors.
- why a more personalized and tumor-targeting medicine represents the future of the oncological treatments, in consideration of the peculiarit

OTHER ACTIVITIES BESIDES THE COURSE

1 seminar to undergraduate students (School of Medicine), focused on the organizations of the Schools of Medicine in foreigner Countries

1 seminar to PhD students on her/his research topic (PhD programs in: Molecular Medicine; Biomedical Sciences and Oncology; Biological Sciences and Applied Biotechnology; Complex Systems of Life; Pharmaceutical and Biomolecular Sciences)

1 seminar to research fellows and professors on her/his research topic

1 seminar to research fellows and professors on possible joint applications to international funding programs

VISITING PROFESSOR PROFILE

The Visiting Professor is expected to have a multidisciplinary portfolio of research and teaching expertises, including - but not limited - to: basic research in oncology (biochemistry-oriented and cell biology-oriented), mechanisms of cancer therapeutics, mechanisms of drug resistance in cancer cells, chemistry and medicinal chemistry, pharmacology, toxicology.
A documented experience of teaching these subjects to undegraduated, graduated and PhD students, the enrolment as faculty member (associate or full professor) at the Medical School of the Home Institution, the tutoring of undergraduated, graduated and PhD students are highly desirable. Other preferential titles: a high-quality research in the field of teaching (H-index:30); an international reputation as eminent scientist in the field; a scientific career documenting researchteaching periods in Isntitutions abroad from home Country; the translation of her/his research into clinical applicable tools (eg. filed patents).

CONTACT PERSON AT THE DEPARTMENT

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