UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Pathology and Immunology

2324-3-H4101D038

Aims

The course, on the whole, aims to provide tools necessary for comprehension of biological mechanisms of defense and pathological mechanisms of immune system, for comprehension of etiopathogenesis of human diseases. To acquire notions useful to face functional problems. In the present module these aspects are referred in particular to neoplastic pathology.

Contents

In the present module acquisition of knowledge and competence on:

Aging. Alteration of the Cell Homeostasis. Tumors. Cancerogenesis. Genomic instability, Heredity and Tumors. Tumors and Hormones, Paraneoplastic Syndromes. Metastases. Tumor metabolism, cachexia. Solid and systemic tumors. Tumors Epidemiology. Immunity and tumor.

Detailed program

AGING

- Definition, features of aging, primary and secondary aging.

- Mechanisms of aging in cells and tissues. Morphological and functional modifications of organs.

- Theories of aging process.

GENERAL ONCOLOGY

- Precancerous lesions, hyperplasia, metaplasia, dysplasia.

- Tumors. Benign and malignant tumors. Invasivity, metastasis. Histogenetic classification, TNM, Grading, Stadiation.

- Cancerogenesis. Chemical cancerogenesis. Physical cancerogenesis, radiations. Cancerogenesis biological agents. DNA RNA oncogenic virus.

- Multistep cancerogenesis. Initiation. Promotion. Tumor progression. Driver and passenger mutations. Precision medicine. Molecular events. Natural history of tumors. Hereditary tumors.

- Oncogenes, tumor suppressor genes and their role in cellular transformation. Alteration of proliferation and differentiation in tumors.

- Genomic instability. Inheritance and tumors.

- Hormones and tumors, paraneoplastic syndromes.

- Tumor metabolism, cachexia.

- Metastases. Multi drug resistance.

- Solid and systemic tumors. Epidemiology. Tumor and environment risk and work-related risk. Iatrogenic, dietary, luxury risk.

- Tumor and immunity. Immunosurveillance. Tumor antigens. Immonotherapy.

Prerequisites

Knowledge concerning the previous preparatory courses.

Teaching form

Lessons, exercises.

Textbook and teaching resource

- Patologia generale e fisiopatologia:

“Le basi patologiche delle Malattie" Robbins e Cotran IX ed. Elsevier;

“Patologia Generale” Pontieri, Russo, Frati. V ed. Piccin;

“Cellule, tessuti e malattia- Principi di Patologia Generale” Majno e Joris, ed. CEA.

- Immunologia e immunopatologia:

Roitt, Immunologia, Zanichelli;

Abbas, Immunologia cellulare e molecolare, Piccin;

Kuby, Immunologia, UTET.

- Pertinent bibliographic references

Semester

First semester, III year

Assessment method

Oral examination to evaluate the knowledge on the entire program.

Office hours

By appointment.

Sustainable Development Goals

GOOD HEALTH AND WELL-BEING