UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Citogenetica

2425-1-H4101D004-H4101D014M

Aims

The objectives of the cytogenetics course are aimed at providing an in-depth understanding of the structure, function and behavior of chromosomes in cells, during mitosis and meiosis. Cytogenetics is the science that deals with the identification of chromosomal abnormalities and the etiological and pathogenetic relationship with the phenotype in human diseases. Accordingly, cytogenetics deals with the prognosis of the patient carrying a chromosomal anomaly but also the risks of recurrence in the offspring, as well as the role of chromossomal abnormalities in the onset and progression of tumors.

Contents

Organization and structure of chromosomes; the techniques of cytogenetics and molecular cytogenetic; Numerical and structural chromosomal aberrations.
Consequences of chromosomal abnormalities on human health and genetic diseases and their diagnosis in prenatal and postnatal context.
Cytogenetics of Cancer: Role of chromosomal abnormalities in development and progression in oncology.

Detailed program

Study the organization and structure of the chromosomes, know the composition and function of the different chromosomal regions, such as centromers and telomers.
Study the Techniques of Cytogenetics:
Learn the techniques of chromosome preparation and coloring for microscopic analysis.
Use advanced techniques such as fluorescent hybridization in situ (FISH) and molecular cytogenetics.
Examine Chromosomal Aberrations:

Identify and understand the different types of chromosomal abnormalities, both numerical and structural.
Study the consequences of these abnormalities on human health and genetic diseases.
Apply Knowledge to Clinical Diagnosis:
Use cytogenetic techniques to diagnose genetic diseases and prenatal and postnatal chromosomal abnormalities.
Interpret cariotypes and recognize chromosomal variations associated with specific clinical conditions.
Deepening the Genetics of Cancer:
Study the role of chromosomal abnormalities in the development and progression of cancer.
Understand how genetic alterations can be used for diagnosis, prognosis and treatment of neoplasms.

Prerequisites

Basic sciences (chemistry, physics)

Teaching form

10 hours of didactic teaching (DE)
2 hours of supplementary teaching (DI)-formative evaluation, with the nature of ongoing questionnaires or tests.

Textbook and teaching resource

PPT presentation and video lessons

Semester

Second semester

Assessment method

See in the general part of the course "Biology and Genetics"

Office hours

On appointment
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Sustainable Development Goals

GOOD HEALTH AND WELL-BEING | QUALITY EDUCATION | GENDER EQUALITY | REDUCED INEQUALITIES