UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Molecular Biology 1

1920-1-H4101D004-H4101D013M

Aims

The course will provide the essential theoretical knowledge of molecular biology, also focusing on the possible future application in the medical field.

Contents

Structure and function of the most important cellular macromolecules; transcription and RNA processing; molecular biology techniques used in research and in molecular diagnostics.

Detailed program

Chemical composition and molecular organization of the cell – water, carbohydrates, lipids, proteins and nucleic acids. Identification of the chemical compound carrying the genetic information – Molecular basis of inheritance – DNA replication. Telomerases – Mechanisms of DNA repair. Correlation with human diseases, aging and cancer. -RNA, structure and function – Transcription and RNA maturation – The genetic code, and its biological implication (redundancy, frameshift). -Molecular genetic tools (restriction enzymes, vectors, Southern blotting, PCR, sequencing, microarrays). Molecular cloning.

Prerequisites

Basic sciences (chemistry, physics)

Teaching form

Lectures

Textbook and teaching resource

G. De Leo, E. Ginelli, S. Fasano. BIOLOGIA E GENETICA, EdiSES, 2013

other textbooks:

E.Ginelli, M.Malcovati. MOLECOLE, CELLULE E ORGANISMI, EdiSES, 2016

H. Lodish, A. Berk, S.L. Zipursky, P. Matsudaira, D. Baltimore, J. Darnell. MOLECULAR CELL BIOLOGY, FREEMAN, 2016.

Semester

Second semester

Assessment method

See information provided for the whole course

Office hours

By appointment