UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Histology

2425-1-I0303D003-I0303D009M

Aims

The student must:
? know and be able to describe the structure and ultrastructure of the eukaryotic cell and correlate the morphology with the function of each organelle.
? know and be able to describe the structure and morpho-functional characteristics of the tissues that make up the human organism

Contents

The Histology module provides the student with essential theoretical knowledge of the ultrastructure of the eukaryotic cell and the structure of the different tissues of the human organism.

Detailed program

Cytology
? Eukaryotic cell: general architecture;
? Plasma membrane: ultrastructure, functions, specializations (occluding, adherens and communicating junctions; specializations of the apical pole: microvilli, cilia, stereocilia);
? Nucleus and nucleolus: ultrastructure, functions;
? Cytosol;
? Cytoskeleton: ultrastructure and functions of the different components: microtubules, microfilaments, intermediate filaments;
? Ribosomes: ultrastructure and functions. Notes on protein synthesis;
? Endoplasmic reticulum: ultrastructure and functions of the rough and smooth endoplasmic reticulum. Notes on

vesicular transport;
? Golgi apparatus: ultrastructure and functions. Notes on post-translational modifications and sorting;
? Lysosomes: ultrastructure and functions. Notes on biogenesis;
? Peroxisomes: ultrastructure and functions;
? Mitochondria: ultrastructure and functions.

Histology
? General characteristics, classification and study methods of fabrics;
? Epithelial tissue: characteristics and classification of the epithelial lining and glandular tissue.
? Mode of secretion;
? Connective tissue proper: cells and extracellular matrix. Classification: embryonic connective tissue, loose, dense, reticular, elastic;
? Adipose tissue: characteristics and functions of unilocular and multilocular adipose tissue;
? Cartilage tissue: cells and extracellular matrix. Classification: hyaline cartilage, elastic, fibrous;
? Bone tissue: cells and extracellular matrix. Classification: compact and spongy bone tissue. Remodeling and hormonal control;
? Muscle tissue: characteristics of skeletal striated, cardiac striated, smooth muscle tissue. Functional aspects and regulation of muscle contraction;
? Nervous tissue: morpho-functional characteristics of neurons. Axonal transport. Nervous fibres. Notes on the generation and propagation of the nervous impulse. Synapses. Characteristics and classification of neuroglia;
? Blood: characteristics and functions of plasma and figured elements.

Prerequisites

Scientific knowledge at secondary school level

Teaching form

6 frontal lessons (2 hours long) carried out in attendance

Textbook and teaching resource

Bani D. et al.: ISTOLOGIA per le lauree triennali e magistrali. Idelson Gnocchi
Adamo S. et al.: ISTOLOGIA per i corsi di laurea in professioni sanitarie. Piccin
Last editions

Semester

First semester

Assessment method

The histology written test will consist of 15 multiple choice questions to check preparation on the exam programme.

Office hours

From Monday to Friday upon request for an appointment via email (gabriella.nicolini@unimib.it, Monza ; aallegri@asst-pg23.it, Bergamo).

Sustainable Development Goals

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