

Degree in Medicine and Surgery
Integrated course: Immunology and Immunopathology
SSD: MED/04
Coordinator: Prof. Monica Benvenuto

Professors' names:

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PREREQUISITES

Although there are no preparatory courses, basic knowledge of human anatomy, biology, histology, biochemistry is required.

LEARNING OBJECTIVES

The student must learn the general characteristics of antigens, antibodies, cytokines; cells, tissues and organs of the immune system; the mechanisms of regulation of central and peripheral tolerance; the components and molecular mechanisms of innate and adaptive immune responses. Furthermore, the student must learn the main immune mechanisms of pathogenetic relevance, in particular: the hypersensitivity reactions, the immunodeficiencies, the autoimmune disorders, transplantation and tumor immunology.

These objectives will be achieved through lectures designed to facilitate learning and improve the ability to address and resolve the main questions of immunology and immunopathology.

LEARNING OUTCOMES

Knowledge and understanding

At the end of the course, the student will have to recognize and autonomously understand the basic concepts of immunology, the molecular mechanisms of the activation of the immune response and the main immune mechanisms of pathogenetic relevance.

Applying knowledge and understanding

At the end of the course, the student will be able to use the acquired knowledge for an in-depth study of aspects relating to the specific field in which the student will devote himself to his professional activity. The student must be able to apply his/her knowledge to analyze and understand the alterations of the cellular, immunological and genetic mechanisms underlying the human pathologies.

Communication skills

At the end of the course, the student must be able to use specific scientific terminology appropriately. The student must be able to communicate information, ideas, problems and solutions to expert and others interlocutors, in relation to the molecular mechanisms of the activation of the immune response and to the main immune mechanisms of pathogenetic relevance.

Making judgements

At the end of the course the student must be able to make general assessments related to the topics covered. The student must be able to use the acquired knowledge to identify and explain the molecular, immunological and pathophysiological mechanisms that lead to a disease.

Learning skills

at the end of the integrated teaching, the student will acquire skills useful to deepen and expand their knowledge in the field of the course, also through the consultation of scientific literature, databases, specialized websites.

COURSE SYLLABUS

Immunology

General characteristics of the immune response. Innate immunity. Cells and tissues of the immune system. Leukocyte migration. Antibodies and repertoire diversity. Monoclonal antibodies. B lymphocyte development and humoral immunity. Complement. Major Histocompatibility Complex and Antigen presentation to T lymphocytes. T lymphocyte cell-mediated immunity.

Immunopathology

Hypersensitivity disorders. Immunologic tolerance and autoimmunity. Congenital and acquired immunodeficiencies. Transplantation immunology. Immunity to tumors.

COURSE STRUCTURE

The course is structured in 40 hours of frontal teaching, divided into lessons of 2 hours according to the academic calendar. During the lessons will be shown slides containing topics of the program that will allow students to achieve the educational objectives.

COURSE GRADE DETERMINATION

The exam consists of an oral test. The student will have to answer questions in order to demonstrate the acquisition of the knowledge and skills described in the educational objectives. The following will be assessed: making judgements, communication skills and learning skills as indicated in the Dublin descriptors.

OPTIONAL ACTIVITIES

Not planned.

READING MATERIALS

-Slides and materials delivered by the teacher.

-Textbook: Cellular and Molecular Immunology, 9th Edition, Abul Abbas, Andrew H. Lichtman, Shiv Pillai. Elsevier.