Immunopathology
Code: 101929
ECTS Credits: 3

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<th>Degree</th>
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<td>2501230 Biomedical Sciences</td>
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Contact
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Use of languages
Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: No
Some groups entirely in Spanish: No

Other comments on languages
Un 50% de les classes s’impartiran en anglès

Teachers
Marta Vives Pi
Oscar de la Calle Martin
Juan Francisco Delgado de la Poza
Eva María Martínez Cáceres
Candido Juarez Rubio
Manuel Hernández González
Maria Jose Amengual Guedan
Aina Teniente Serra
Laura Martínez Martínez
Maria Esther Moga Naranjo
Roger Colobrán Oriol
Mónica Martínez Gallo

External teachers
Bibiana Quirant Sánchez
Clara Franco Jarava
Gemma Vila Pijoan
Janire Perurena Prieto
Joan Climent Martí
Laura Viñas Giménez
Prerequisites

It is absolutely necessary to have adequate knowledge of:

- Cell Biology
- Structure and Function of Biomolecules (Biochemistry I)
- Human anatomy
- Experimental methods in Biomedicine
- Metabolism of Biomolecules (Biochemistry II)
- Basic Immunology

Objectives and Contextualisation

1) To learn the role of the immune system in the following pathological processes:
   - a. Infections
   - b. Allergies and hypersensitivity disorders.
   - c. Autoimmune diseases
   - d. Primary and secondary immunodeficiencies
   - e. Neoplasms and paraneoplastic diseases. Anti-tumor response
   - f. Transplantation, rejection and graft versus host disease

2) To be familiar, understand and interpret diagnostic tests and studies that have clinical value for immune-mediated diseases.

3) To understand the mechanisms of action of immunology-based therapies, i.e., vaccines, immunosuppressive drugs, immunoglobulins, monoclonal antibodies, cytokines and cellular immunotherapy.

Content

Immunopathology: a) the immune system as a cause of disease, main mechanisms; b) the immune system for the cure of diseases, main immunology-based therapies

Organized by Teaching Units (TU)

TU1. Immune response and disease

Lecures

1 - Immune response in infectious diseases I. General aspects of the immune response and response to viral infections.
2 - Immune response in infectious diseases II. Immune response to bacteria, protozoa, fungi and helminths. Emerging infections.
S1 Immunopathology Seminar 1: animal models of autoimmune diseases.
S2 Immunopathology Seminar 2: proliferations of cells of the immune system and disease, presentation of a case of myeloma and of lymphoma.

**TU2. Immune responses in special clinical situations**

**Lectures**


S3 Immunopathology Seminar 3: The problem of histocompatibility and its approach in the HLA typing laboratory.

S4 Immunopathology Seminar 4: Approaches in the diagnosis of immunodeficiencies and discussion of paradigmatic cases.

**TU3. The laboratory of diagnostic immunology**

S5 Immunopathology Seminar 5: The diagnostic process. The properties of the diagnostics tests, the test catalo. The quality system and regulations. Laboratory the accreditations. The laboratory of diagnostic immunology: contributions to disease prevention and diagnosis and treatment monitoring.

P1 Practical - demonstration 1: Diagnosis of plasma cell diseases in the laboratory. Demonstration of the techniques and interpretation of results.

P2 Practical - demonstration 2: Flow cytometry applied to diagnosis. Interpretation of the plots and results.

P3 Practical - demonstration 3: Use of indirect immunofluorescence (IFL) for the diagnosis of autoimmune diseases. Interpretation of the most frequent IFL patterns and their correspondence with the antigens recognized by ELISA and immunoblot.

P4 Practical - demonstration 4: HLA typing, methodologies and the quest for the best kidney and hematopoietic stem cell donors.

**TU4. Therapies based on immunology**

**Lectures**

10 - Immunotherapy I. General concepts. Vaccines, serum therapy, intravenous immunoglobulins.

11 - Immunotherapy II. Cytokines and anti-cytokines. Cell therapies, from transfusion to advanced cell therapies.