

Degree programme	Type	Course
Medicine	OP	3

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Group languages

You can consult this information at the [end](#) of the document.

Prerequisites

The student should be at least registered in the medical immunology course

Objectives

Contextualization

The subject aims to introduce students who already know immunology to the techniques used in the laboratory of diagnostic immunology and the algorithms applied to support clinical diagnosis. It focuses on hypersensitivity, autoimmunity, immunochemistry, immunodeficiencies, histocompatibility and immunogenetics. A brief introduction to the principles of laboratory management will be also provided.

Justification

Since the middle of the last century, when LE cells were discovered, many immunological diagnostic tests have been added to the clinical practice. Diagnostic immunology is a term used to define this particular area of immunology and is different and more restricted than clinical immunology, which includes a more global approach to immunological diseases and includes clinical diagnosis and therapeutics.

The techniques used in the laboratories of diagnostic immunology constitute a compendium of the most reliable, robust, reproducible and quantitative methods of the spectrum available to the immunologist. They include specific development, which sometimes constitute very advanced biotechnical and engineering techniques to generate reproducible results in the shorter possible time from very small samples.

The number of diagnostic immunology tests performed in the healthcare system is important, since they are not only performed in specialized laboratories but also in many general clinical analysis laboratories.

There is an important industry that manufactures kits and equipment for immunology tests. Since immunology is a very active research area and there is ample room to improve present tests and to develop new ones for many diseases still orphan of immunological diagnosis and monitoring tests, this is a very promising area,

Learning outcomes

1. Identify the cost efficiency of analytic tests.
2. Apply analytic tests in accordance with their cost efficiency.
3. Maintain and sharpen one's professional competence, in particular by independently learning new material and techniques and by focusing on quality.
4. Communicate clearly, orally and in writing, with other professionals and the media.
5. Use information and communication technologies in professional practice.
6. Describe legislation that regulates the use and confidentiality of analysis results.
7. Describe the principles of the scientific method and their application to experimental work.
8. Make deductions on the basis of experimental findings.
9. Describe the indications of anatomopathological tests.
10. Describe the indications of biochemical tests used in the diagnosis of genetic diseases.
11. Interpret measurable clinical and biological parameters that indicate a normal immune function and the changes resulting from interactions with the environment.
12. Identify the main mechanisms by which the immune system can cause or contribute to illness.
13. Describe the clinical and biological parameters generated in immunomediated diseases.
14. Identify the semiological value of laboratory tests used in the most common human pathologies.
15. Know the main diseases mediated by the immune system and how they are reflected in the main parameters evaluating the state of the immune system.
16. Choose an experimental technique that allows development of a working hypothesis and the diagnostic process.
17. Know and interpret in the physiological and pathological context the main techniques for diagnosing the different diseases.
18. Know the therapeutic principles applicable to immunomediated diseases.
19. Apply the results of clinical and biological parameters indicative of the immune response to construct diagnosis and treatment algorithms.
20. Know the main forms of preventive immunotherapy, especially vaccines, and the mechanism by which

they confer protection.

21. Correctly write reports on the results of different types of tests (analytic, genetic).

Contents

Practical aspects of laboratory tests

1.- The immunology laboratory. Principles of operation and elements of the diagnostic process. Interpretation of diagnostic tests.

2.- Allergy diagnostic tests.

3.- Diagnostic tests of cellular and immunogenetic immunology (2 h). 4. - Diagnostic tests of immunochemistry.

5.- Diagnostic tests of systemic autoimmunity.

6.- Diagnostic tests of organ-specific autoimmunity (2 h). 7. - Diagnostic histocompatibility tests (2 h).

Clinical case seminars

SCC1: clinical cases: autoimmunity. SCC2: clinical cases: immunochemistry. SCC3: clinical cases: allergy.

SSC4: clinical cases: primary immunodeficiencies.

SSC5: clinical cases: transplant.

Learning activities and methodology

Title	Hours	ECTS	Learning outcomes
TUTORIALS	8	0.32	
CLINICAL CASE SEMINARS (SCC)	5	0.2	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 21
SELF-STUDY/READING ARTICLES /REPORTS OF INTEREST	47	1.88	1, 2, 3, 5, 7, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 21
LABORATORY PRACTICALS (PLAB)	10	0.4	

General coordinator: Eva Martínez Cáceres

UD HVH: Monica Martinez Gallo

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UD P Tauli: J Francisco Delgado de la Poza

UD GTP: Eva Martinez Cáceres

Clinical Case Seminars (SCC). It also includes problem-based learning (PBL) activities. Group measure: 2-10 students. Scheduled sessions: 5 sessions of 1 hour. The students, in small groups, will discuss typical clinical assumptions, under the direction of a tutor.

Laboratory practices (PLAB): Participation in the tasks of the clinical immunology laboratory with an immunology laboratory technician as instructor.

Autonomous work: Comprehensive reading of texts and articles, study and realization of schemes, summary and conceptual assimilation of the contents. Preparation of presentations and deliveries.

In the current exceptional circumstances, at the discretion of the teachers and also depending on the resources available and the public health situation, some of the theoretical classes, practicals and seminars organized by the Teaching Units may be taught either in person or virtually.

Annotation: within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

Assessment

Continuous assessment activities

Title	Weight	Hours	ECTS	Learning outcomes
Attendance and active participation in class and in seminars by questions (test or short questions) during the class	20%	0.5	0.02	1, 2, 3, 5, 7, 8, 9, 10, 12, 13, 14, 16, 17, 18, 21
Practical type evaluation : case studies	40%	2.5	0.1	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21
Oral Assessment :structured tests	40%	2	0.08	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21

Revaluation (Recovery test): resolution of clinical case (40%) and examination, 4 short questions (60%).

Students who do pass the tests will have to enrol again.

The students that won't perform all the necessary tests, will be considered: NOT AVALUABLE

This subject/module does not provide for the single assessment system

The performance of any irregularity in an evaluation act (academic fraud, plagiarism or improper use of AI, unless this use is expressly authorized by the teaching guide), which may lead to a significant variation in the grade, assumes that this act will be graded with a 0. In the event that the teaching guide foresees that in order to pass the subject it is an essential requirement to have obtained a minimum grade in this evaluation act or that there are several irregularities in the evaluation acts of the same subject, the final grade of this subject is 0. Apart from this, a disciplinary process may be instructed to the student that incurs any of these irregularities.

Bibliography

Textos

Blaney, Kathy D., and Paula R. Howard. Basic and Applied Concepts of Immunohematology. Mosby, 1999.

Brostoff, Jonathan, Alexander Gray, David Male, and Ivan Roitt. Case Studies in Immunology. 2nd ed. Gower Medical Pub, 1996.

Chapel, Helen. Essentials of Clinical Immunology. Fifth Edition Saunders, 2006.

Detrick, Barbara. Manual of Clinical Laboratory Immunology. 6th ed. Ed. Barbara Detrick. American Society Microbiology, 2002.

Gorczynski, Reginald M., and Jacqueline Stanley. Problem-Based Immunology. Saunders, 2006. Mackay, Ian R. The Autoimmune Diseases, Fourth Edition. 4th ed. Ed. Ian R. Mackay. Academic Press, 2006.

Yehuda Shoenfeld (Editor), Pier Luigi Meroni (Editor), M. Eric Gershwin MD (Editor) Autoantibodies, Third Edition -2014.

Hans D. Ochs, C. I. Edward Smith, Jennifer M. Puck. Primary Immunodeficiency Diseases: A Molecular & Cellular Approach. Oxford University Press, USA, 2013

Clinical Immunology: Principles and Practice. 5th edition Robert R. Rich MD , Thomas A Fleisher MD, William T. Shearer MD PhD, Harry Schroeder, Anthony J. Frew MD FRCP, Cornelia M. Weyand MD PhD, 2018.

Software

Power point

Course groups and languages

The information provided is provisional until November 30. After this date, you will be able to consult the language of each group through this [link](#). To access the information, you will need to enter the course CODE