



MODULE 8: IMMUNOLOGIC, RESPIRATORY AND ENDOCRINE DISEASES

Code: 43375

Type: Elective

Credits: 6 ECTS

Language: English / Spanish

Module's Coordinator: Clara Franco Jarava

✉ cfranco@vhebron.net

Schedule for mentoring: Tuesday and Wednesday, from 11 to 12h

*Although having this timetable proposal, the **students have to arrange an appointment with the teacher by e-mail.***

OBJECTIVES

This module aims to show the principal respiratory, immune-mediated and endocrine system diseases and the experimental approaches used for understanding the pathophysiological processes underlying these diseases.

SKILLS

E01. Identify and use the tools, techniques and methodologies of translational clinical research to solve problems in human health.

E01.18. Know the laboratory techniques and methodologies used in respiratory disease research and their applicability.

E01.19. Know and apply molecular techniques to detect antibodies and diagnosis of immune mediated diseases

E01.20. Know the methodologies to diagnose and study the underlying cause of complex metabolic diseases.

E03. Analyze the pathophysiology at the molecular level using the scientific method and identify its relationship with the clinical process of different diseases.

E03.11. Deepen the fundamentals of respiratory diseases in terms of epidemiology, physiopathology, clinic and diagnostic.

E03.12. Improve the understanding of the immune system function and identify disturbances causing diseases.

E03.13. Understanding the mechanisms of action and regulation of endocrine processes.

E03.14. Deepen into the main endocrine pathologies from a clinical and therapeutic point of view.

CONTENT

SECTION I: RESPIRATORY DISEASES

- 1.1. New advances in the pathology of asthma and COPD
- 1.2. Occupational and environmental respiratory diseases
- 1.3. Laboratory techniques for research in respiratory diseases
- 1.4. Environmental studies in respiratory research
Practicum: Laboratory techniques and environmental studies for research in respiratory diseases: Laboratory practices.
- 1.5. Non-invasive methods for studying pulmonary inflammation
- 1.6. Lesson Animal models for research in respiratory diseases

SECTION II: ENDOCRINE SYSTEM DISEASES

- 2.1. Overview of endocrine related diseases: basic concepts and clinical features
- 2.2. Diabetes and its complications: the clinical point of view
- 2.3. Obesity: etiology and therapeutic strategies
- 2.4. Etiology of type 2 diabetes and insulin resistance: lipotoxicity
- 2.5. Etiology of type 2 diabetes and insulin resistance: Inflammation
- 2.6. Etiology of type 2 diabetes and insulin resistance: role of mitochondrial dysfunction.
- 2.7. Brown adipose tissue and energy homeostasis: a new therapeutic target for metabolic diseases.
- 2.8. New therapeutic target against obesity. Introduction to sex hormone-binding globulin (SHBG) and sex steroids
- 2.9. New functions of SHBG in human physiology
- 2.10. Practicum
- 2.11. Type 1 diabetes: Beta cell replacement and regeneration for the treatment of Type 1 Diabetes Mellitus
- 2.12. Different Sex Development (DSD): Genetic and hormonal regulation of sex development during foetal life, genetic diagnosis and functional studies

SECTION III: IMMUNE SYSTEM DISEASES

- 3.1. Review of the immune response in healthy individuals. Overview of the immune-mediated diseases
- 3.2. Mechanisms of tolerance and autoimmunity. Key aspects of autoimmune diseases
- 3.3 Etiology of primary immunodeficiencies. Laboratory techniques for the research in inborn errors of immunity.
- 3.4. Mechanisms of hypersensitivity and allergy. Laboratory techniques for research in molecular allergy.

METHODOLOGY

Lectures
Solving problems / case study
Making reports/works
Autonomous study
Reading articles/reports of scientific interest
Presentation/ oral defence of works
Tutorials

EVALUATION

Theoretical exam	50%
Oral presentation	50%

A minimal note of 4.5 in each exam is required to pass.

Attending a minimum of 80% of the classes is required for taking the exam and passing the course.

TEACHING STAFF

[María Jesús Cruz Carmona](mailto:mj.cruz@vhir.org), PhD - mj.cruz@vhir.org

Head of Pneumology Research Group. VHIR.

[Clara Franco](mailto:clara.franco@vallhebron.net), PhD - clara.franco@vallhebron.net

Principal Investigator in Diagnostic Immunology Research Group. VHIR.

[Josep A Villena Delgado](mailto:josep.villena@vhir.org), PhD - josep.villena@vhir.org

Principal Investigator in Diabetes and Metabolism Research Group. VHIR.

ACADEMIC SCHEDULE

Timetable: From 19th December to 18th January 2023, every afternoon from 3 to 7 pm.

Exam date:

- February 31st, from 9 am to 1 pm (oral presentations).
- February 3th, from 9 am to 1 pm (exam).

[See the Master's Degree Schedule for academic year 2022-2023](#)

Classroom: Teaching Pavilion UAB-HUVH.

Please, check the information board at the Academic Office of the Teaching Pavilion in order to confirm the classroom before the class starts.