



MODULE 8: IMMUNE, RESPIRATORY, SYSTEMIC AND ENDOCRINE SYSTEM DISEASES

Code: 43375

Type: Elective

Credits: 6 ECTS

Language: English

Module’s Coordinator: Josep A Villena

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Schedule for mentoring: Wednesday and Friday, from 15 to 16h

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

Professors responsible for each section:

Ricardo Pujol	rpujolb@vhebron.net	Section I: Immune system diseases
María Jesús Cruz	mj.cruz@vhir.org	Section II: Respiratory diseases
Josep Villena	josep.villena@vhir.org	Section III: Endocrine system diseases

OBJECTIVES

This module aims to show the principal respiratory, immune, systemic 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 systemic autoimmune diseases.

E01.20. Develop new therapeutic targets against endocrine 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. Learn about the immune system functioning and identify disturbances causing diseases.

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

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

CONTENT

SECTION I: IMMUNE SYSTEM DISEASES

- 1.1. Review of the immune response in health and disease. New and evolving concepts relevant to the immunopathology.
- 1.2. Natural and Intrinsic immunity, main mechanisms and implications for disease.
- 1.3. Thymus gland, maturation of T lymphocytes relationship to autoimmunity. The role of AIRE gene in tolerance and autoimmunity.
- 1.4. Tumor immunology, classical and new approaches.
- 1.5. Genomic Biomarkers in Immune Mediated Inflammatory Diseases (IMID)

SECTION II: RESPIRATORY DISEASES

- 2.1. New advances in the pathology of asthma and COPD
 - 2.2. Occupational and environmental respiratory diseases
 - 2.3. Laboratory techniques for research in respiratory diseases
 - 2.4. Environmental studies in respiratory research
- Practicum: Laboratory techniques and environmental studies for research in respiratory diseases: Laboratory practices.
- 2.5. Non-invasive methods for studying pulmonary inflammation
 - 2.6. Lesson Animal models for research in respiratory diseases

SECTION III: ENDOCRINE SYSTEM DISEASES

- 3.1. Overview of endocrine related diseases: basic concepts and clinical features
- 3.2. Diabetes and its complications: the clinical point of view
- 3.3. Mechanisms of hormone action: membrane and nuclear receptors.
- 3.4. Etiology of type 2 diabetes and insulin resistance: lipotoxicity
- 3.5. Etiology of type 2 diabetes and insulin resistance: Inflammation & ER stress
- 3.6. Mitochondrial function and metabolic disease
- 3.7. Brown adipose tissue and energy homeostasis: a new therapeutic target.
- 3.8. New therapeutic target against obesity. Introduction to sex hormone-binding globulin (SHBG) and sex steroids
- 3.9. SHBG as a marker of metabolic disorders.
- 3.10. In vitro and in vivo models to study SHBG role in the obesity development
- 3.11. New functions of SHBG in human physiology
- 3.12. Thyroid disorders (Thyroid Dyshormonogenesis): Genetic and hormonal regulation and clinical diagnosis
- 3.13. Thyroid disorders: Genetic diagnosis and functional studies
- 3.14. Different Sex Developments (DSD): clinical, biochemical and genetic diagnoses
- 3.15. Different Sex Development (DSD): challenges for the management

METODOLOGY

Theoretical classes

Reading scientific papers, trying to understand them and answer a questionnaire

Presentation and join discussion of papers

Work in group

Tutorials

EVALUATION

Theoretical tests. 50%

Preparation of reports/works. 50%

TEACHING STAFF

Section I: Immune System Diseases

Isabel Caragol	icaragol@vhebron.net
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Section II: Respiratory Diseases

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Section III: Endocrine System Diseases

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ACADEMIC SCHEDULE

Duration: from 10 January to 25 January. Exam on 12 February.

Timetable: From 15 to 19h.

[See the Master's schedule for year 2017-2018](#)