



MODULE 6: LIVER AND DIGESTIVE DISEASES

Code: 43373

Type: Elective

Credits: 6 ECTS

Language: Spanish/ English

Module's Coordinator: María Martell, PhD

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Schedule for mentoring: Thursdays, 2-4 pm.

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

OBJECTIVES

The aim of this module is to know and understand the immunopathological basis of gastrointestinal diseases, the pathophysiology of the most relevant liver diseases and its complications, as well as to identify the biological markers and the current diagnostic methods and the approaches and research lines used to find solutions.

SKILLS

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

E01.20. Learn the methodologies used in liver and digestive diseases research.

E01.21. Learn morphological, imaging, biochemical, genetic, molecular and cellular techniques used in liver and digestive diseases research.

E01.22. Knowing the state of the art in diagnosis, treatment and outcome of patients with liver and digestive diseases.

E02. Use of modification techniques in living organisms (or part of them) to improve pharmaceutical and biotech processes or to develop new products.

E02.5. Study animal experimental models that reproduce alterations in liver and digestive diseases and that enable to investigate the molecular mechanisms causing these alterations.

E02.6. Develop new pharmacological and non-pharmacological therapeutical strategies for the treatment of liver and digestive diseases.

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

E03.7. Analyze the bases of liver and digestive diseases from the point of view of epidemiology, pathophysiology and diagnostic.

E03.8. Identify processes of bowel dysfunction, hepatic viral infection, developing cirrhosis and its complications, and the development of liver tumors.

CONTENTS

SECTION I: LIVER DISEASES

Lesson 1. The liver and chronic liver damage

- Definition, causes and physiopathology of liver fibrogenesis and portal hypertension. Physiopathology of hemodynamic changes and therapeutic implications. Research areas and clinical implications.

Lesson 2. Complications of liver cirrhosis.

- Compensated and non-compensated state of cirrhosis. Ascites, variceal bleeding and hepatic encephalopathy. Physiopathology of the alterations, clinical consequences and therapeutic possibilities. Research areas and therapeutic implications

Lesson 3. Viral hepatitis

- History, etiology, clinical, pathogenesis, treatment. Immunology of viral hepatitis: areas of research and therapeutic implications.

Lesson 4. Hepatitis B

- Epidemiology, natural history and stages of the disease, new viral markers and diagnostic methods and therapeutic implications. Viral variability: areas of research and clinical implications.
- Practicum. Massive sequencing in viral hepatitis for clinical diagnostic and basic research

Lesson 5. Non-alcoholic fatty liver disease

- Spectrum of lesions and disease evolution. Mechanisms of hepatic alteration in esteatohepatitis. Clinical prevalence and experimental treatments. Research areas and clinic implications.

Lesson 6. Liver tumors-Hepatocellular carcinoma

- Epidemiology, prevalence, clinical symptoms and treatment. Advanced molecular biology of hepatocellular carcinoma: animal models, clinical translation, research areas and therapeutic implications.

Lesson 7. Animal models in liver diseases and experimental research lines

- Preclinical models in cirrhosis and portal hypertension, alcoholic and nonalcoholic steatohepatitis. Usefulness, hemodynamic measurements and standard techniques.
- Experimental research lines: experimental treatments; nervous system alterations associated to portal hypertension, obesity and microbioma.
- Practicum. Experimental models of cirrhosis/portal hypertension
- Practicum. Supervised clinical rounds in patients with more relevant hepatic diseases.
- Practicum. Diagnostic tests in hepatology

SECTION II: DIGESTIVE DISEASES

Lesson 1. Anatomy and physiology of the gastrointestinal tract.

- Irritable bowel syndrome and celiac disease.
- Practicum. Experimental evaluation of intestinal barrier function.

Lesson 2. Diseases of the esophagus.

- Pathophysiology and therapeutic approaches in gastroesophageal reflux disease and eosinophilic esophagitis.
- Practicum. Evaluation of gastrointestinal function.

Lesson 3. Design of methodological strategies for identifying pathophysiological mechanisms in gastrointestinal diseases.

Lesson 4. Microscopic colitis

- Epidemiology, clinical symptoms and pathophysiology.

Lesson 5. Inflammatory bowel disease.

- Epidemiology, etiopathogenesis and clinical presentation of ulcerative colitis and Crohn's disease.

Lesson 6. *H.pylori* infection and related diseases.

- Pathophysiology and therapeutic approaches in gastroesophageal reflux disease and eosinophilic esophagitis.

Lesson 7. Physiology of the gastrointestinal tract.

Lesson 8. New advances in the pathophysiology of abdominal distension

- Practicum. Experimental and clinical techniques to evaluate abdominal distension.

METHODOLOGY

Theoretical classes
 Laboratory practice
 Making reports/works
 Autonomous study
 Reading articles/reports of scientific interest
 Presentation/ oral defense of works
 Tutorials

EVALUATION

Theoretical exam	50%
Submission of reports/works	20%
Oral presentation	30%

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

TEACHING STAFF

Carmen Alonso Cotoner, MD PhD – carmen.alonso@vhir.org

Specialist physician in Digestive Department. HUVH.

Principal Investigator in Physiology and Pathophysiology of Digestive Tract Research Group. VHIR.

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María Martell Pérez-Alcalde, PhD – maria.martell@vhir.org

Principal Investigator in Liver Diseases Research Group. VHIR.

ACADEMIC SCHEDULE

Timetable: From November 8th to 23th 2021, from 4 to 8 pm.

Exam dates: 16th December 2021, from 3 to 5:00 pm. (EXAM)

17th December 2021, from 3 to 6:00 pm. (Oral Presentations)

[See the Master's Degree Schedule for academic year 2021-2022](#)

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