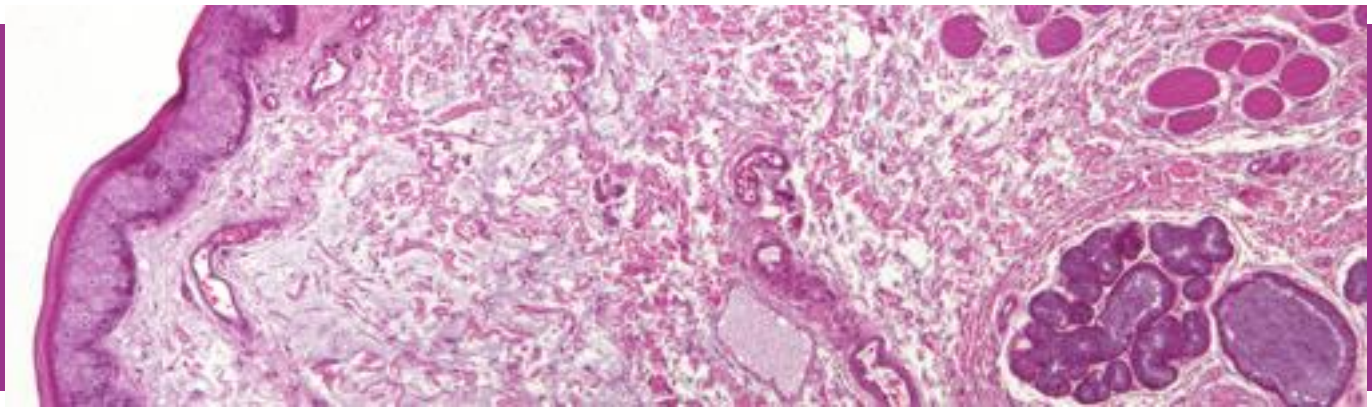

MODULE 6:

LIVER AND DIGESTIVE DISEASES

Code: 43373 **Type:** Elective

Credits: 6 ECTS **Language:** Spanish/ English

Module's Coordinator: Carmen Alonso, MD PhD ✉ mariacarmen.alonso@vallhebron.cat

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; nanoparticle drug delivery directed to liver sinusoidal endothelial cell (LSEC); new experimental models for metabolic associated steatotic liver disease (MASLD); 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 pathophisiology.

Lesson 5. Inflammatory bowel disease.

- Epidemiology, ethiopathogenesis 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%

Note that:

- This module does not include a single evaluation system.
- Attending a minimum of 80% of the classes is required for taking the exam and passing the course.
- In order to pass the course, a minimum of 5 out of 10 points will be required, both in the theory exam and in the oral presentation

Second-chance examination:

- Students who fail the course (grade lower than 5), will be entitled to a second evaluation, provided that they have participated in all the evaluation activities and have a final average grade equal to or higher than 3.5.

- Second-chance evaluation will consist on the delivery of a written work about a journal article proposed by the Module Coordinator.

- The maximum grade of the second-chance evaluation will be a pass mark (5).

TEACHING STAFF

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ACADEMIC SCHEDULE

Timetable: From November 11th to 26th 2024, from 4 to 8 pm / 3 to 7 pm.

Exam dates: 13th December 2024, from 3 to 5:00 pm. (Exam)

16th December 2024, from 3 to 6:00 pm. (Oral Presentations)

See the Master's Degree Schedule for academic year 2024-2025

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