Molecular Bases and Disease Mechanisms

Code: 102658
ECTS Credits: 3

Contact
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Use of Languages
Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Teachers
Maria Fátima Bosch Tubert
Marcel Jiménez Farrerons
Fernando de Mora Pérez
Carlos Alberto Saura Antolin
Verónica Jiménez Cenzano

Prerequisites
There are no prerequisites for taking this course. However, it is recommended to revise the contents of Biochemistry, Physiology and Pathology

Objectives and Contextualisation
The general objective is that the student understands the molecular mechanisms of the disease, that is, which are the underlying biochemical and physiological processes, whose imbalance leads to the appearance of certain pathologies.

Currently, biomedical research is focused on the unraveling of the molecular mechanisms that cause the disease. It is from this molecular knowledge that new therapeutic strategies can be identified, to design new drugs against known molecular targets and to establish effective prevention mechanisms.

In this context, the veterinarian plays an important role and can not stand aside, as it has the clinical basis necessary to know the applicability of the research.

This subject intends to complement essential basic knowledge for the comprehensive understanding of pathological processes.

The subject focuses on diseases of great importance in human medicine due to their great impact, and which are the subject of very active basic research, both in our environment and in the international arena. The final objective is to bring the veterinarian closer to Human Medicine in order to enhance his/her role in Biomedical Research Centers, Pharmaceutical Industries, Animal Facilities, Tissue Banks, etc.
Competences

- Apply scientific method to professional practice, including medicine
- Demonstrate knowledge and understanding of structural and functional disorders of the animal organism.

Learning Outcomes

1. Apply scientific method to professional practice, including medicine
2. Explain the molecular and physiological bases of the pathologies of greatest interest in experimental animals.

Content

LECTURE TOPICS

1) Cancer
2) Hereditary diseases of the musculo-skeletal system
3) Metabolic diseases (Type I and II diabetes, obesity)
4) Hereditary storage diseases (mucopolysaccharidosis)
5) Cardiovascular diseases
6) Diseases of the central nervous system (Alzheimer's disease)
7) Digestive diseases
8) Respiratory diseases

SEMINARS

Students must prepare and perform an oral presentation of the molecular and physiological basis of a disease not included in the lectures. After the presentation, questions will be asked to the student for discussion.

PRACTICAL WORK

There is no practical laboratory work.

Methodology

The methodology used in this subject combines theoretical lectures where the teacher exposes the most relevant concepts of each topic, together with active self-learning by the student on topics of interest. The student is supposed to perform the following activities:
- Presentational classes with ICT support explaining the basic concepts of the topic
- Self-learning work, individually or in groups, to prepare the topic, which
- Further reading
- Discussion with teachers and peers

Activities

<table>
<thead>
<tr>
<th>Title</th>
<th>Hours</th>
<th>ECTS</th>
<th>Learning Outcomes</th>
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Assessment

The evaluation system is organized in three tests. The final qualification is obtained from the sum of the qualifications of these modules:

Test 1. Theory
- Assessment system: short questions. Duration: 1 hour
- Weight in the global rating: 35%.

Test 2. Interpretation of data
- Assessment system: resolution of cases, exercises, problems. Duration: 1 hour
- Weight in the global rating: 35%.

According to the regulations of the Faculty of Veterinary Medicine and in dealing with a subject of 3 ECTS, tests 1 and 2 will be done the same day.

Test 3. Self learning work:
- Assessment system: The oral and written presentation of the work will be assessed, as well as the competence when discussing the topic.
- Weight in the global rating: 30%.

Self-learning work is mandatory. Therefore, the student who does not give the oral presentation will not be evaluated. The student needs to obtain a minimum overall grade of 5.0. One student will be evaluated if he/she takes any of the three tests.

Assessment Activities

<table>
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<tr>
<th>Title</th>
<th>Weighting</th>
<th>Hours</th>
<th>ECTS</th>
<th>Learning Outcomes</th>
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<td>1, 2</td>
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<tr>
<td>Test 1</td>
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<tr>
<td>Test 2</td>
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<td>0.5</td>
<td>0.02</td>
<td>1, 2</td>
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</tbody>
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Bibliography

- Textbook of Gastroenterology Editor(s): Tadataka Yamada (2012)

- Reasearch and review articles contributed by the professors