COURSE DATA

Data Subject

Code	43032
Name	Inflammation of airways and pulmonary circulation
Cycle	Master's degree
ECTS Credits	5.0
Academic year	2022 - 2023

Study (s)

Degree	Center	Acad. year	Period
2138 - M.D. in Research in and Rational Use of Medicines	Faculty of Pharmacy and Food Sciences	1	First term
3103 - Biomedicine and Pharmacy	Doctoral School	0	First term

Subject-matter

Degree	Subject-matter	Character
2138 - M.D. in Research in and Rational Use of Medicines	8 - Pharmacology of inflammation and immunity	Optional
3103 - Biomedicine and Pharmacy	1 - Complementos Formación	Optional

Coordination

Name	Department
PIQUERAS RUIZ, LAURA	135 - Pharmacology
SANZ FERRANDO, MARIA JESUS	135 - Pharmacology

SUMMARY

The course of airway inflammation and pulmonary circulation studies the inflammatory reaction in the airways, these to be exposed directly to the outside are not only organs that produce the body's gas exchange, but also a major organ of defense against to numerous aggressive agents (microorganisms, allergens, pollutants, toxic ...), which causes the lungs are frequently exposed to a body of different sign inflammatory reactions and therefore with great clinical and economic significance.
The course is devoted to work and is known as the inflammatory response in this organ as particular as clinical response, cellular biochemistry from the point of view of the vascular pulmonary parenchyma. We also study its response to different pharmacological agents used in the control of lung response against different types of attacks suffered lung, pharmacological prespectivas future and the study of specific problems arising from the pulmonary aggression.

It is noteworthy that the competencies and learning outcomes to be achieved in this subject, as well as the teaching methodology used, integrate the Sustainable Development Goals (SDGs) promoted by the United Nations (Agenda 2030). Among them, it is important to highlight the Rational Use of Medicines and the promotion of Community Health (Objective 3: Health and Wellness) and Quality Education (Objective 4).

PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

The student must have foresight coneixements of Pharmacology, Physiology, Pathophysiology and Biochemistry.

OUTCOMES

2138 - M.D. in Research in and Rational Use of Medicines

- Manejar adecuadamente las fuentes de información biomédica y poseer la habilidad de hacer una valoración crítica de las mismas integrando la información para aportar conocimientos a grupos asistenciales multidisciplinares
- Utilizar adecuadamente las herramientas informáticas, métodos estadísticos y de simulación de datos, aplicando los programas informáticos y la estadística a los problemas biomédicos
- Students should apply acquired knowledge to solve problems in unfamiliar contexts within their field of study, including multidisciplinary scenarios.
- Students should demonstrate self-directed learning skills for continued academic growth.
- To acquire basic skills to develop laboratory work in biomedical research.
- Students should possess and understand foundational knowledge that enables original thinking and research in the field.
- Be able to integrate new technologies in their professional and/or research work.
- Know how to write and prepare presentations to present and defend them later.
- Ser capaces de analizar de forma crítica tanto su trabajo como el de su compañeros.
- Be able to access to information tools in other areas of knowledge and use them properly.
- Be able to apply the research experience acquired to professional practice both in private companies and in public organisations.
- Resolver de dilemas éticos derivados del empleo de medicamentos.

- Dominar la comunicación científica. Poseer habilidades sociales y comunicativas en la práctica asistencial.
- Capacidad de seleccionar y gestionar los recursos disponibles (instrumentales y humanos) para optimizar resultados en investigación.
- Dominar el método científico, el planteamiento de protocolos experimentales y la interpretación de resultados en la búsqueda, desarrollo y evaluación de nuevos fármacos.

LEARNING OUTCOMES

The subject of Inflammation of the airways and pulmonary circulation studies the inflammatory reaction in the airways. At the end of the teaching-learning process the student should be able to:

- Understand the molecular and cellular basis of the inflammatory process, and the effect and mechanism of action of the main groups of anti-inflammatories.
- Establish new potential targets for controlling the inflammatory process.
- Interpret, with critical insight, information obtained on the inflammatory process and new anti-inflammatory.
- Learn the basics tissue, cellular and molecular respiratory system to understand its operation and involvement in asthma and COPD.
- Develop experimental techniques used in the investigation of asthma and COPD.
- Interpret, critical-thinking, experimental results and their significance on disease processes with an inflammatory basis
- Handle with skill and the most appropriate laboratory animals, knowing and respecting at all times therules of use of animals for experimentation.
- Set up and develop in vivo experimental models, knowing their advantages and limitations.
- To work properly with cell cultures, both cell lines and primary.
- To choose and apply analytical techniques (fluorimetry, spectrophotometry, chemiluminescence) more suitable for determinations of mediators and interesting parameters in each experimental model.
- To evaluate the effect and mechanism of action of anti-inflammatory and immunosuppressive

DESCRIPTION OF CONTENTS

1. Characteristics of acute and chronic pulmonary inflammation. Role of inflammatory cells in the lung.
Vascular aspects of inflammation. Cytokines. Complement: Role in lung inflammation. Mucus: regulation and immunopharmacology. Inhalation therapy. Adrenergic agents, anticholinergics and phosphodiesterase inhibitors. Topical and systemic steroids. Immunopharmacology of lung inflammation.
New anti-inflammatory and immunomodulatory agents

WORKLOAD

ACTIVITY	Hours	% To be attended
Laboratory practices	20,00	100
Theory classes	20,00	100
Group work	10,00	100
TOTAL	**50,00**	

TEACHING METHODOLOGY

In this course the basic methodology in the first session is the keynote. To complement the lectures will be held seminars to discuss and answer questions to students about the different topics studied throughout the program. During the development of the course, students will have a job by preparing individual and / or couples over some of the content viewed and will be based on analysis of recent publications in each reserca lines studied. In the last session, students must exhibit the work, contributing their own conclusions with a critical view.
To complete the classroom hours, the materials provided for face-to-face teaching will be adapted, so that the student can access them at any time. Use of the virtual classroom forum to answer questions.
For the practical sessions of the theoretical content, the completion of the exercises proposed would be combined using the "Task" option in the virtual classroom.

During the activities, both theoretical and practical, the applications of the contents of the subject in relation to the Sustainable Development Objectives (SDGs) will be indicated. The aim is to provide knowledge, skills and motivation to understand and address these SDGs, while promoting reflection and criticism.

EVALUATION

Attendance to both face-to-face classes and seminars will be an essential requirement to pass the subject. The participation in the debates and discussions on the contents of the course will be especially valued, as well as the individual work and / or in pairs carried out.

REFERENCES

Basic

- Se trabajará con articulos de investigación y revisiones publicados en los últimos 5 años