DEPARTMENT OF MEDICINE, HUDDINGE

H7F3178, Mucosal Immunology, 3 credits (hec)

Mukosans immunologi, 3 högskolepoäng

Third-cycle level / Forskarnivå

Approval

This syllabus was approved by the The Committee for Doctoral Education on 2023-11-28, and was last revised on 2024-02-12. The revised course syllabus is valid from autumn semester 2024.

Responsible department

Department of Medicine, Huddinge, Faculty of Medicine

Contributing department/s

Department of Medicine, Solna

Prerequisite courses, or equivalent

Basic knowledge in immunology corresponding to the course K8F3187 or K2F3139.

Purpose & Intended learning outcomes

Purpose

The primary purpose of the course is to introduce doctoral students to key concepts that underlie immune function in mucosal tissues (gut, lung) and to develop their skills to apply these concepts to their own research. Another purpose of the course is to inspire students by giving them the opportunity to interact with scientists who are performing cutting-edge research in the area of mucosal immunology.

Intended learning outcomes

After the course, the doctoral student should be able to:
Understand and explain the differences between the mucosal immune system and the immune system in lymphoid organs.
Discuss how the microbiota shapes immune function.
Explain how altered mucosal immune function and changes in the microbiota can cause

inflammatory disease.
Critically evaluate experimental approaches that are used to study the mucosal immune system.
Use the gained knowledge to critically assess experimental data related to mucosal immunology.

Course content

The following main topics will be covered during the course: gut immune system, lung immune system, microbiota and its interaction with the immune system, role of immune-microbiota interaction in inflammatory diseases (with focus on gut and lung).

Forms of teaching and learning

The teaching is mainly through lectures/seminars by the course leaders and other scientists from Karolinska Institutet who work in the field of mucosal immunology. The lectures include introduction to the various topics as well as examples of specific research projects from the lecturer's research group. This will allow the student to become familiar with experimental approaches that are used to study the mucosal immune system. In addition, there will be seminars by external speakers with expertise in mucosal immunology. At the end of each course day, there will be an interactive Question & Answer session to summarize the main points. There will also be group work by the students in the form a scientific figure quiz to learn how to interpret experimental data. Finally, one course day will consist of a practical laboratory session to illustrate how to study the gut and lung immune system. The practical session includes work with mouse tissues.

Language of instruction

The course is given in English

Grading scale

Pass (G) /Fail (U)

Compulsory components & forms of assessment

Compulsory components

Students are required to attend all course days, to actively participate in the group work, and to take the course exam in order to pass the course. Absence can be compensated with an individually written report.

Forms of assessment

The course examination will be in the form of individual and group assignments that are presented orally. As the individual assignment, students will be given scientific questions related to mucosal immunology. The answers are presented by each student individually as short talk presentation. There will also be group work by the students in the form a scientific figure quiz to learn how to interpret experimental data. Both individual and group presentations are peer-reviewed by the course leaders and the other students. Each student has to show that all

intended learning outcomes have been reached.

Course literature

Before the start of the course, relevant scientific publications will be distributed to the students.