



DEPARTMENT OF LABORATORY MEDICINE

H5F3175, Extracellular Vesicles: Progress Towards Diagnostics and Therapy, 2 credits (hec)

Extracellulära vesiklar: framsteg mot diagnostik och terapi, 2 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 2025-03-05. The revised course syllabus is valid from autumn semester 2025.

Responsible department

Department of Laboratory Medicine, Faculty of Medicine

Prerequisite courses, or equivalent

No prerequisite courses, or equivalent, demanded for this course.

Purpose & Intended learning outcomes

Purpose

It is only in the past decade that extracellular vesicles (EVs) have been discovered to mediate essential biological processes and cell-cell communication in both health and disease. In addition to characterizing their roles in vivo, these findings have also given rise to unique strategies to treat and diagnose disease. The goal of this course is to expand student's knowledge of EV diversity, biological function and potential applications.

Intended learning outcomes

At the end of the course, the student is expected to be able to:

- discuss the basics of EV biology and function, as well as a number of novel technologies for EV isolation and characterization.
- explain the methods used in the EV field.
- describe the latest strategies for utilizing EV tools in diagnostics and treatment of disease

Course content

H5F3175 Extracellular Vesicles: Progress Towards Diagnostics and Therapy, 2 higher education credits (hec) / Extracellulära vesiklar: framsteg mot diagnostik och terapi, 2 högskolepoäng
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The course will cover key developments in EV biology, function and clinical application. This will begin with an introduction to EV diversity and biogenesis, as well as important examples of their in vivo roles in health and disease. It will include an overview of the most important methods used for EV isolation and characterization. Finally, we will discuss the latest strategies for utilizing EVs as tools in diagnostics and the treatment of disease. Students will play an active role in discussions with experts, as they give summaries of the latest findings in the EV field.

Forms of teaching and learning

This course will primarily consist of interactive lectures with self-study of corresponding review papers. The information gained from these will be used for small group discussions and presentations, where the students will be required to take part in assessing the progress and pitfalls within the field.

Language of instruction

The course is given in English

Grading scale

Pass (G) /Fail (U)

Compulsory components & forms of assessment

Compulsory components

Students will be required to attend the lectures and discussions held during the first five days of the course at Campus Flemingsberg. Absence from any component must be compensated for by individual written assignments on the topics missed.

Forms of assessment

A written project report, consisting of two A4 pages covering one of the three topics provided by the course leaders, is expected to be handed in latest on the last day of the course. We will also evaluate individuals for their contributions to group discussions and presentations. These elements will be evaluated for each student's understanding of the central concepts in EV biology, function and clinical application.

Course literature

The course literature will consist of research and review articles on selected topics within the field of extracellular vesicles, as well as the latest articles from the expert lecturers. Printouts from the lectures will also be available. The course literature is recommended.