FCB3206 Mammalian Cell Technology 6.0 credits

Mammaliecellteknologi

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for FCB3206 valid from Spring 2022

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Eligible for studies at the third-cycle level.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

Upon completion of the course, the course participant is expected to be able to

- demonstrate knowledge of key theoretical concepts and basic methodology regarding the cultivation process of animal cells, as well as skills in communicating, reviewing, analyzing, and discussing the course topics (ÖVN1)
- demonstrate the ability to use acquired knowledge to independently design, motivate and present strategies for animal cell culture process in order to manufacture a therapeutic biologics (PRO1)
- demonstrate a basic understanding of the possibilities and limitations of the application of animal cell-culture techniques for the development of therapeutic biologics, and reflect on their use in a sustainable and ethical perspective (PRO1)

Course contents

The course teaches theory and methodology in the field of cell technology applied to animal cells.

Theoretical concepts included

- basic techniques for animal cell culture in shake flasks and small-scale bioreactors
- description and use of stable expression systems (cell lines)
- overview of animal cell metabolism during cultivation, and its application in process design
- aspects concerning commercial production such as patient safety and regulatory compliance
- cells as products
- application of knowledge from the course to develop and design culture processes

The student also receives practical training in

- developing a process flow chart and strategy for cell culturing
- choosing an appropriate cell line and expression system
- developing a culture process for industrial application (scale-up constraints)
- understanding the concept of "Good Manufacturing Practice" (GMP)
- deciding on patient safety level and from that design a suitable process

Examination

- PRO1 - Project, 4.0 credits, grading scale: P, F
- ÖVN1 - Exercises, 2.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Other information about the course and grade criteria are found in the course memo.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.

Additional regulations

Five students is the minimum number of participants for a course offering to be given.