

## Human and Animal Biotechnology (I002613)

**Course size** *(nominal values; actual values may depend on programme)*

**Credits** 5.0

**Study time** 150 h

**Contact hrs**

50.0h

**Course offerings in academic year 2022-2023**

A (semester 2)

English

Gent

**Lecturers in academic year 2022-2023**

Vanrompay, Daisy

LA22

lecturer-in-charge

**Offered in the following programmes in 2022-2023**

**crdts**

**offering**

[Master of Science in Bioscience Engineering: Cell and Gene Biotechnology](#)

5

A

[Exchange Programme in Bioscience Engineering: Cell and Gene Biotechnology \(master's level\)](#)

5

A

**Teaching languages**

English

**Keywords**

Cell and tissue engineering, 3D culturing, gene transfection and expression in eukaryotic cells, biotechnology and genetic engineering in new drug and therapy development, gene therapy, vaccinology

**Position of the course**

Human and Animal Biotechnology

**Contents**

1) general aspects of cell and tissue engineering, 2) 3D culturing, organoids, 3) embryology and stem cells, 4) gene transfer and expression in eukaryotic cells, 5) production of classic and recombinant vaccines, including DNA and mRNA vaccines, 6) nanobody engineering, 7) gene therapy, 8) recombinant drugs and their registration

**Initial competences**

General knowledge on cell biology, microbiology and gene technology

**Final competences**

**Conditions for credit contract**

Access to this course unit via a credit contract is determined after successful competences assessment

**Conditions for exam contract**

This course unit cannot be taken via an exam contract

**Teaching methods**

Practicum, Demonstration, Lecture

**Extra information on the teaching methods**

Theory: lecture using power point presentations which will be made available via the electronic learning platform and also movies on the topic. Practical: biotechnological engineering techniques focused on the contents of the course and to be performed by the student in the laboratory. Master's dissertation: possibility to prepare a Master's dissertation.

**Learning materials and price**

Course book. Estimated price 20 euro

## References

- 1) Animal Cell culture: essential methods; Wiley-Blackwell, (2011). J.M. Davis, J. Wiley and Sons Inc., Hoboken, New Jersey, US.
- 2) Methods in Molecular Biology: 3D Cell Culture, Zuzana Koledova (Editor), Humana Press (2017);
- 3) The immortal life of Henrietta Lacks by Rebecca Skloot, (2010), Crown Publishers New York,
- 4) Textbook of drug design and discovery (2016), 5th Edition, K. Stromgaard, P. Krosgsgaard-Larsen, Ulf Madsen (editors), CRC Press,
- 5) Methods in Molecular Biology, Vaccine design, S. Thomas (editor), Springer, New York

## Course content-related study coaching

Teacher and assistant available for student counseling

## Assessment moments

end-of-term and continuous assessment

## Examination methods in case of periodic assessment during the first examination period

Report, Written examination

## Examination methods in case of periodic assessment during the second examination period

Report, Written examination

## Examination methods in case of permanent assessment

Report, Participation

## Possibilities of retake in case of permanent assessment

examination during the second examination period is not possible

## Extra information on the examination methods

Lectures: written examination  
Practical: written report

## Calculation of the examination mark

Lectures: 90% and practical 10%  
Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner.