Hanze

Vak: Genetics 2 credits: 3

Vakcode	BOVH20RGENS2
Naam	Genetics 2
Studiejaar	2023-2024
ECTS credits	3
Taal	Engels
Coördinator	J.A. Komduur
Werkvormen	Hoorcollege
Toetsen	Genetica 2 - Computer, organisatie ToetsCentrum

Leeruitkomsten

- The student is able to describe the structure of DNA and how DNA is replicated in prokaryotes and eukaryotes
- The student is able to describe DNA- recombination processes
- The student can explain how several types of mutations occur and can describe several repair mechanisms
- The student can describe several types of gene regulation in eukaryotes
- The student can describe some aspects of developmental genetics of fruit flies and can connect these aspects with human developmental genetical processes
- The student can explain how the cell cycle is regulated and which types of mutations lead to cancer

Inhoud

Molecular genetics, focussing on genetical changes and tumor genetics. The course emphasises on the details of the DNA structure, replication, telomeres, recombination, and different types of mutations and corresponding repair mechanisms in the cell. Also the regulation of gene expression in eukaryotes (e.g. transcription factors, epigenetics) and developmental genetics are discussed: how does a zygote develop into a mature individual, via differential gene regulation? The last chapter is about cancer: usually a consequence of several genetical changes in a cell, that together lead to the derangement of a cell.

Literature:
Concepts of Genetics, 12th ed. (2019), W.S. Klug, M.R. Cummings & C.A. Spencer, Pearson Education, ISBN 9781292265322
Chapters form previous edition were:
C 10 DNA Structure and Analysis
C 11 DNA Replication and Recombination,
C 15 Gene Mutation and DNA tot 15.8
C 17 Regulation of Gene Expression in Eukaryotes
C 18 Developmental genetics (tot 8.6)
C 19 Cell Cycle Regulation and Cancer

Opgenomen in opleiding(en)

Major Biologie en Medische Research

School(s)

Instituut voor Life Science & Technology

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