

SCHEDULE

Recombinant peptides and proteins (15 hp, KN7003)

2017-10-31 – 2018-01-12

Lecturers and Lab. assistants:

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|----|-----------------|
| EH | Einar Hallberg |
| TL | Tiit Land |
| BM | Bengt Mannervik |
| EI | Elena Ivanova |
| FN | Frida Niss |
| MH | Mehedi Hassan |
| CB | Cissi Bergqvist |
| DT | Daniel Twohig |

Exam assistants:

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| DT | Daniel Twohig (exam assistant) |
| CPC | Carmine Pasquale Cerrato (exam assistant) |
| MD | Moataz Dowaidar (exam assistant) |

Literature

Principles of Gene Manipulation and Genomics (Eds. SB Primrose, RM Twyman), Blackwell Publishing, 2006, also other material handed out by the teachers and your own search in PubMed

Please, note that this is a **VERY LAB-INTENSIVE** course
 You have lab at all times, when no lectures.
 Lab starts at **08.30** all days

31/10 – 29/11 Lab. Phase I: Construction of genes and expression in *E. coli* (M213)

4/12 – 18/12 Lab. Phase II: Expression of proteins in eukaryotic cells (M213, cell lab, microscope room)

Location

Roll call: "Heilbronnsalen" room **C458**

Lectures & lab seminars: Room **C456**

Laborations: Room **M213**

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Lab. Phase I: Construction of genes and expression in *E. coli*

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|-----------------|--------------|--|---------------|
| 31/10 Tu | 10.00 | Roll call (<i>upprop</i>) and Introduction | ALS,EH |
| | 12.30 -15.00 | DNA cloning 1 | EH |
| | 15.30 | Planning for lab: Construction of genes and presentation of expression system Lab start | EI, MH, FN |
| 1/11 we | 9.30 – 12.00 | Enzymes as tools in gene manipulation | EH |
| 2/11 Th | 9.30 – 12.00 | DNA cloning 2 | EH |
| 3/11 Fr | 9.30 – 12.00 | | EI, MH, FN |

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|-----------------|-----------------------------|---|---------------------|
| 7/11 Tu | 9.30 - 12.00 | Gene assembly, Oligonucleotide synthesis & PCR (assign 1) | EH |
| 8/11 We | 9.30 - 12.00 13.00-15.00 | Expression of foreign genes in E. coli 1 Assignment 1 report Lab seminar 1 | EH EI, MH, FN |
| 10/11 Fr | 9.30 - 12.00 | Expression of foreign genes in E. coli 2 (assign 2) | EH |

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|-----------------|-------------------------------|--|---------------------|
| 13/11 Mo | 9.30 - 12.00 | Directed mutagenesis | EH |
| 14/11 Tu | 9.30 - 12.00 | Eukaryotic expression 1 | EH |
| 15/11 We | 9.30 - 12.00 13.00 - 15.00 | Eukaryotic expression 2. Assignment 2 report Lab seminar 2 | EH EI, MH, FN |
| 17/11 Fr | 9.30 - 12.00 | Intracellular distribution of proteins and peptides. | EH |

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|------------------|---------------|--|---------------------|
| 20/11 Mo | 9.30 - 12.00 | Introduction to proteomics. Lab seminar 3 | EH EI, MH, FN |
| 21/11 Tue | 13.00 – 15.30 | Yeast expression system | TL |
| 22/11 We | 9.30 - 12.00 | Posttranslational modifications of peptides and proteins. Methods for analysis of peptides and proteins. | TL |
| 23/11 Th | 9.30 - 12.00 | Analysis of RNA/DNA, DNA sequencing. | EH |
| 24/11 Fr | 9.30 - 12.00 | Redesign of proteins for novel functions. | BM |

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|-----------------|--------------|----------------------------|----------------------|
| 29/11 We | 9.30 - 15.00 | Oral report of Lab Phase I | EH, EI, MH, FN |
| 1/12 Fr | 9.30 – 15.00 | Search in gene bank | EH |

V 49 Start of Lab. Phase II: Expression of proteins in eukaryotic cells

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|----------------|-----------------------|--|---------------|
| 4/12 Mo | 9.30 - 12.00 12.30 | "Dugga" (test exam) Lab. Phase II: Expression of proteins in eukaryotic cells (C456, Cell lab) | CPC CB, DT |
| 7/12 Th | 9.00 – 17.00 | M213 | CB, DT |
| 8/12 Fr | 09.00 – 17.00 | M213, microscope & computer rooms | CB, DT |

V 50 Lab. Phase II: Expression of proteins in eukaryotic cells

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| 11/12 Mo | 9.00 – 17.00 | M213, microscope & computer rooms | CB, DT |
| 12/12 Mo | 9.00 – 17.00 | M213, microscope & computer rooms | CB, DT |
| 13/12 Mo | 9.00 – 17.00 | M213, microscope & computer rooms | CB, DT |
| 14/12 Mo | 9.00 – 17.00 | M213, microscope & computer rooms | CB, DT |
| 15/12 Fr | 9.30 – 15.00 | M213, microscope & computer rooms | CB, DT |

V 51 Lab. Phase II: Expression of proteins in eukaryotic cells

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| 18/12 Mo | 9.30 – 15.00 | Oral report of Lab Phase II, deadline for written report phase II | EH, CB, DT |
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6/12 We Deadline for written report lab phase I

Study period

V1 Lab. Phase II: Expression of proteins in eukaryotic cells

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| 4/1 Th | | Lab. Phase II: Expression of proteins in eukaryotic cells (reserve) DEADLINE: Mail in abstract for your literature seminar to EH | CB,DT |
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| 8/1 Mo | 10.00-16.00 16.00-17.30 | Literature seminars Research presentations | EH |
| 12/1 Fr | 9.30 - 14.30 | Written exam | DT,MD |