

2nd PROGRAMMABLE NUCLEASES (CRISPR/Cas9) Transgenesis Course

Preliminary program

Day 1 – Monday 3rd April 2017

10:00 – 10:15	Arrival and Registration
10:15 – 10:45	Welcome and Introduction to the course and teaching material Introduction of team members Radislav Sedlacek (IMG/CCP)
10:45 – 12:30	Participants: presentation individual projects Radislav Sedlacek (IMG/CCP) and all instructors
12:30 – 13:30	LUNCH
13:30 – 14:00	Lecture: Pros-and-cons of programmable nucleases Radislav Sedlacek (IMG/CCP)
14:00 – 14:30	Lecture: Gene targeting with programmable nucleases: The basics Björn Schuster (IMG/CCP)
14:30 – 16:00	Practical training session: gRNA validation I Jana Kopkanová & Björn Schuster (IMG/CCP)
16:00 – 16:15	TEA & COFFEE
16:15 – 17:00	Lecture: Historical perspective - how we came to nucleases Lluís Montoliu (CNB, Spain)
17:00 – 18:00	Get together with time for discussions with the speaker and instructors
19:00	COURSE DINNER I

Day 2 – Tuesday 4th April 2017

08:00 – 08:45	Lecture: Breaking-Cas, a new guide designing program and CRISPR/Cas function Lluís Montoliu (CNB, Spain)
08:45 – 09:00	Daily agenda and outcomes overview
09:00 - 10:00	Practical training session: gRNA preparation I Jana Kopkanová & Björn Schuster (IMG/CCP)
10:00 – 10:15	TEA AND COFFEE
10:15 – 13:15	Practical training sessions: A. Zygote injection – Ronald Naumann (MPI-CBG, Dresden) and Inken Beck (IMG/CCP) B. Genotyping, digital PCR - Jana Kopkanova (IMG/CCP) and Guillaume Pavlovic (PHENOMIN-ICS, Strasbourg) C. Bioinformatics, gene targeting and CRISPR design - Björn Schuster (IMG/CCP), Marie-Christine Birling (PHENOMIN-ICS, Strasbourg), Lluís Montoliu (CNB, Spain), Bernd Zetsche (Broad Institute, USA)
13:15 – 14:15	LUNCH
14:15 – 14:45	Lecture: gRNA validation and genotyping of Indel mutations Björn Schuster (IMG/CCP)
14:45 - 16:15	Practical training session: gRNA preparation II Jana Kopkanová & Björn Schuster (IMG/CCP)
16:15 – 16:30	TEA & COFFEE
16:30 – 17:15	Lecture: Title to be fixed Francis Steward (BIOTEC, TU Dresden)
17:15 – 18:00	Get together with time for discussions with the speaker and instructors
18:00	END OF DAY

Day 3 – Wednesday 5th April 2017

08:00 – 08:45	Lecture: repertoire of gene targeting methods in rodents Guillaume Pavlovic (PHENOMIN-ICS, Strasbourg), Marie-Christine Birling (PHENOMIN-ICS, Strasbourg)
08:45 – 09:00	Daily agenda and outcomes overview
09:00 - 10:00	Practical training session: gRNA preparation III Jana Kopkanová & Björn Schuster (IMG/CCP)
10:00 – 10:15	TEA AND COFFEE
10:15 – 13:15	Practical training sessions: A. Zygote injection – Ronald Naumann (MPI-CBG, Dresden) and Inken Beck (IMG/CCP) B. Genotyping, digital PCR - Jana Kopkanova (IMG/CCP) and Guillaume Pavlovic (PHENOMIN-ICS, Strasbourg) C. Bioinformatics, gene targeting and CRISPR design - Björn Schuster (IMG/CCP), Marie- Christine Birling (PHENOMIN-ICS, Strasbourg), Lluís Montoliu (CNB, Spain), Bernd Zetsche (Broad Institute, USA)
13:15 – 14:15	LUNCH
14:15 –14:45	Lecture: Targeting vector design Björn Schuster (IMG/CCP)
14:45 - 16:15	Practical training session: gRNA validation II Jana Kopkanová & Björn Schuster (IMG/CCP)
16:15 – 16:30	TEA & COFFEE
16:30 – 17:15	Lecture: Expanding the Research Applications for CRISPR Guillaume Pavlovic (PHENOMIN-ICS, Strasbourg)
17:15 – 18:00	Get together with time for discussions with the speaker and instructors
18:00	END OF DAY

Day 4 – Thursday 6th April 2017

08:00 – 08:45	Lecture: Development CRISPR-Cas9 & Cpf1 technology Bernd Zetsche (Broad Institute, USA)
08:45 – 09:00	Daily agenda and outcomes overview
09:00 - 10:00	Practical training session: gRNA validation III Jana Kopkanová & Björn Schuster (IMG/CCP)
10:00 – 10:15	TEA AND COFFEE
10:15 – 13:15	Practical training sessions: A. Zygote injection – Ronald Naumann (MPI-CBG, Dresden) and Inken Beck (IMG/CCP) B. Genotyping, digital PCR - Jana Kopkanova (IMG/CCP) and Guillaume Pavlovic (PHENOMIN-ICS, Strasbourg) C. Bioinformatics, gene targeting and CRISPR design - Björn Schuster (IMG/CCP), Marie-Christine Birling (PHENOMIN-ICS, Strasbourg), Lluís Montoliu (CNB, Spain), Bernd Zetsche (Broad Institute, USA)
13:15 – 14:15	LUNCH
14:15 – 14:45	Lecture: CRISPR/nuclease troubleshooting and genotyping Bjorn Schuster and Jana Kopkanova (IMG/CCP)
14:45 - 16:15	Practical training session: collection of results and time for discussion/ trouble shooting All instructors
16:15 – 16:30	TEA & COFFEE
16:30 – 17:15	Lecture: CRISPR technology in cell culture Qingzhou Ji (Sigma)
17:15 – 18:00	Get together with time for discussions with the speaker and instructors
19:00	COURSE DINNER II

Day 5 – Friday 7th April 2017

08:00 – 08:45	Lecture: genome editing using nucleases: new possibilities and application to reveal gene function in diseases Marie-Christine Birling (PHENOMIN-ICS, Strasbourg)
08:45 – 09:00	Daily agenda and outcomes overview
09:00 - 10:00	Collection of results and preparation of short presentations All instructors
10:00 – 10:15	TEA AND COFFEE
10:15 - 12:30	Short group presentations Summary & Conclusions
12:30 – 13:15	Lecture: “from genotype to phenotype” Yann Herval (PHENOMIN-ICS, Strasbourg)
13:15 - 14:15	LUNCH
14:15	End of course

Optional:

14:30 – 16:00 Tour through Czech Centre for Phenogenomics (phenotyping and breeding)

The lecturers and instructor team

The participants of the 2nd programmable nucleases (CRISPR/Cas9) Transgenesis Course will be trained by the experienced team of people who are also equipped with the experience of organizing the “hands-on nuclease course’ accompanying the Transgenic technology meeting TT2016.

Guest Speakers

Lluis Montoliu (CNB, Spain)
Bernd Zetsche (Broad Institute, USA)
Ronald Naumann (MPI-CBG, Dresden)
Francis Steward (BIOTEC, Dresden)
Qingzhou Ji (Sigma)

Czech Centre for Phenogenomics (IMG/BIOCEV)

Radislav Sedlacek
Björn Schuster
Inken M Beck
Jana Kopkanova
and all other members of Transgenic and Archiving Module

PHENOMIN-ICS, Strasbourg

Yann Herval
Marie-Christine Birling
Guillaume Pavlovic