



PHENOMIN-ICS, Institut Clinique de la Souris (IGBMC building entrance)

***In vivo* CRISPR/Cas9 genome editing**

This training aims to provide a general framework to get scientists started using CRISPR/Cas9 for *in vivo* gene editing in rodents. **The main topics are:**

- i) Learn more about gene editing and how it works,
- ii) Summarize current advances on many technical aspects
- iii) Optimize the RNA guide design to the genotyping analysis (bioinformatics workshop),
- iv) Discuss your own scientific project.

Agenda

Day 1

Welcome

8:00-8:20 (IGBMC reception) Point meeting

E. BEDU

8:30-8:40 (Room 3013) Welcome-Introduction

MC. BIRLING

Lectures

8:45-10:30 (Room 3013)

Introduction and applications of *in vivo* CRISPR-Cas9 genome editing in rodents

- Principles of CRISPR/Cas9 genome editing
- What mouse or rat model could be achieved through *in vivo* genome editing?
- *In vivo* genome editing achievement using mouse and rat models
- PRO and CONS of the CRISPR/Cas9 technology. Comparison with gene targeting by homologous recombination in ES cells.
- Future challenges (gene therapy, new nucleases,...)

MC. BIRLING
G. PAVLOVIC

10:30-10:45 **Break**

10:45-12:45 (Room 3013): **Case study**

- Practical illustrations using *in vivo* CRISPR-Cas9 genome editing in house results and bibliographic analysis

MC. BIRLING

12:45-14:15 (Room 3013): **Lunch - K'torze restaurant**

14:15-16:15 (Room 3013): **WORKSHOP; Design of CRISPR/Cas9 genome editing experiment**

Selection of the target sequence and the guide RNAs (gRNA) - Validation of gRNAs- Genotyping method- Advised web resources- Practical session on computer.

Part 1

MC. BIRLING

Day 2

09:00-12:00 (Room 3013): **WORKSHOP; Design of CRISPR/Cas9 genome editing experiment**

Selection of the target sequence and the guide RNAs (gRNA) - Validation of gRNAs- Genotyping method- Advised web resources- Practical session on computer.

Part 2

MC. BIRLING

12:00-13:00 (Room 3013): **Lunch- (lunch boxes)**

13:00-16:00 (Room 3013): **WORKSHOP; Design of CRISPR/Cas9 genome editing experiment**

Selection of the target sequence and the guide RNAs (gRNA) - Validation of gRNAs- Genotyping method- Advised web resources- Practical session on computer.

Part 3

This session consists of open questions and will allow each attendee to consider their own scientific issues.

MC. BIRLING

16:00-16:30 (Room 3013): **debriefing**

ALL

