

Advanced techniques in immunohistochemistry and transgenesis

Institute of Molecular Genetics AS CR
Prague, 10.12.-12.12. 2014

Czech Centre for Phenogenomics together with Institute of Molecular Genetics offers a practical laboratory course focused on histological analysis of mouse tissue, including analysis of transgenic mouse strains. The three-day course will cover the following techniques:

(1) Immunohistochemistry using paraffin sections

It includes: (i) tissues fixation (using three different techniques), processing and embedding in paraffin; (ii) antigen retrieval (comparison of two different techniques); (iii) staining with an antibody of interest

(2) Immunohistochemistry using frozen section

It includes: (i) tissues fixation and sucrose saturation, preparation of blocks for sectioning; (ii) cryosectioning; (iii) staining with an antibody of interest, comparison of results with staining of paraffin sections

(3) Lineage tracing experiments in transgenic mice

It includes: (i) labeling of living cells in mouse tissues; (ii) visualization and isolation of labeled cells

(4) Transgenic techniques in mouse and fish

Two lectures covering the newest approaches applicable for generation of transgenic mouse and fish.

The course will be held at the Histology core facility at the Institute of Molecular Genetics ASCR, Prague (<http://www.img.cas.cz/core-facilities/histology-lab/>). The language of the course will be both Czech and English. Each participant will be provided with printed material describing techniques practiced in the course and lectures hangouts.

Due to the experimental nature of the course, the total number of participants is limited to 12 on the first-come-first-served basis. The students (both graduate and undergraduate), postdocs and other scientist are

welcome to apply. The participant has to be either a student of any Czech university (except universities from Prague) or has to be employed in any Czech research institution (that meets criteria of the law 130/2002 Sb.) outside Prague. The applicant can be of a foreign origin, however, must conform to the above criteria.

There is no fee associated with the course. The cost of accommodation, diets and travel of all participants will be covered by ECOP CZ.1.07/2.3.00/30.0027 "Founding the Centre of Transgenic Technologies".

Applications indicating current status (student, postdoc, staff scientist, technician, group leader) should be submitted by email to Libor Daněk. Possible interest in histological analysis of any particular tissue or your own samples can be also included. The deadline for the application is Sunday, November 30. First 12 applicants will be notified as soon as the capacity is filled, the latest by Monday, December 1, 2014.

For question regarding administrative support please contact Libor Daněk, for details on course program please contact Bohumil Fafílek.

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Detailed program

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10.12.2014

– 12:00 Arrival, welcome

12:00 – 13:00 **Histology techniques**, lecture

Course program explanation. Basic overview of method application, tissue processing, fixation, sectioning, antigen retrieval and staining.

13:00 – 14:00 Lunch break

14:00 – 14:30 Injecting LacZ reporter mouse; *introduction to Cre/loxP system and mouse reporter strains*

14:30 – 15:30 Organ collection from mouse, tissue fixation

15:30 – 17:00 Paraffin blocks sectioning

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9:00 – 9:30 Deparaffination, antigen retrieval

9:30 – 11:30 Tissue preparation for frozen sections, cryosectioning

10:30 – 13:00 Tissue permeabilization, blocking

13:00 – 14:00 Lunch break

14:00 – 14:30 Organ isolation from injected reporter mouse, tissue fixation

14:30 – 15:00 Primary antibody laying, incubation o/n

15:00 – 15:45 **Transgenesis in fish models**, *lecture (Iryna Kozmikova, PhD)*

15:45 – 16:00 LacZ staining of reporter mouse tissue o/n

16:00 – 16:45 **Trasngenesi*s* in mice**, *lecture (Bohumil Fafle*k*, PhD)*

16:30 – 17:00 Preparation of collected organs for tissue processor, tissue dehydration o/n

12.12.14

9:00 – 9:30 Primary antibody washing, incubation with secondary antibody

9:30 – 10:30 Tissue molding into paraffin blocks

10:30 – 12:00 Secondary antibody washing, signal detection, washing of LacZ stained tissue

12:00 – 13:00 Course sum-up, departure