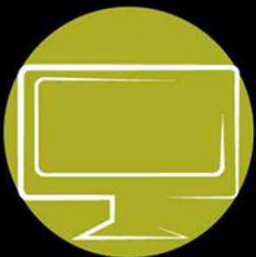


Morphological Mouse Phenotyping



**Embryology, Anatomy,
Histology and Imaging**



BARCELONA, July 4th – 12th 2022

In July 4th-12th, 2022, the fourth course on **Mouse Embryology, Anatomy, Histology, and Anatomical Basis of Imaging** will take place in a dual delivery mode: **face-to-face** in the Veterinary School at the Universitat Autònoma de Barcelona (www.uab.cat); and **on-line**. The aim is to provide graduate, master, PhD and postdoc students with basic and expert knowledge to phenotype morphologically mouse models of human diseases. At this course, expert mouse embryologists, anatomists, pathologists and researchers from Europe and the US will give lectures and discuss with the participants different aspects of mouse morphological phenotyping.

“Hands on” teaching is a very important phase for learning morphological sciences. Lectures will be followed by practical sessions in which participants will dissect specifically the different organs of the mouse body and will work with bone specimens, radiographs, and images from TEM, micro-CT and MRI. For histological teaching digital slides will be used.

On-line participants will follow the classroom lectures in streaming and will have access to recorded videos from the dissections.

There is a fee (150 €) for face-to-face students. For on-line students it is free. Participants have to organize travel and accommodation themselves and cover the corresponding expenses. Interested participants should apply with CV and letter of motivation to victor.nacher@uab.es. Deadline for applications is June 31st, 2022.

Monday, July 4th

- 9-10 Welcome address and introductory remarks
J. Ruberte and G. Gràcia
- 10-11 Overview of mouse genetic nomenclature
J. Sundberg
- 11-12 Mouse phenotyping and research reproducibility
C. Brayton
- 12-13 General concepts in morphological mouse phenotyping.
Directional terms and planes of the mouse body
J. Ruberte

Lunch break

- 14-15 Development of extraembryonic lineages. The placenta
O. Wendling
- 15-16 Collection and fixation of mouse embryos and placentas
O. Wendling
- 16-17 Determining the window of lethality of mutant mice
in utero
O. Wendling

Tuesday, July 5th

- 9-10 Introduction to mouse development: segmentation,
gastrulation, the embryonic period, and the foetal period
H. Jacobs
- 10-11 Bone Ontogeny. Skeletal Nomenclature. Bone histology,
immunohistochemistry and ultrastructure. Strain,
gender and age differences
J. Ruberte

- 11-13** Skeleton of thoracic limb: scapula, clavicle, humerus, ulna, carpal, metacarpal, and digital bones. Identification of main anatomical features in isolated bones, X-ray and microCT images
L. Mendes-Jorge

Lunch break

- 14-16** Skeleton of pelvic limb: coxal, femur, tibia, fibula, tarsal, and metatarsal bones. Identification of main anatomical features in isolated bones, X-ray and microCT images
M. Navarro

- 16-18** Skeleton of the trunk: vertebral column, ribs and sternum. Identification of main anatomical features in isolated bones, X-ray and microCT images
V. Nacher

Wednesday, July 6th

- 9-11** Skeleton of the head: skull and mandible. Identification of main anatomical features in isolated bones, X-ray and microCT images
J. Ruberte

- 11-12** Arthrology: shoulder, elbow, hip, and stifle joints. Myology: types of muscles, histology, histochemistry, immunohistochemistry and ultrastructure
M. Navarro

- 12-13** Anatomy and histology of limb nerves
H. Jacobs

Lunch break

- 14-15** Myology of limbs
H. Jacobs

15-17 Dissection of main muscular groups and peripheral nerves
H. Jacobs

Thursday, July 7th

9-10 Anatomical basis of cardiovascular development
J. Ruberte

10-11 Heart: topography, structure and vascularization
J. Ruberte

11-12 Blood: cellular morphology and clinical analysis
E. José-Cunilleras

12-13 Localization, disposition and topography of main vessel trunks. Identification by X-ray angiography, CT and MRI
M. Navarro

Lunch break

14-15 Structure of blood and lymphatic vessels. Components of the vascular wall
J. Ruberte

15-17 Topography and histology of lymphatic nodes. On-line demonstration of lymphatic nodes and thoracic duct by Evan's blue injection and lipid ingesta
J. Ruberte and J. Pampalona

17-18 Histology of thymus and spleen: pathological findings of the lymphoid and hematopoietic system
J. Calzada-Wack

Friday, July 8th

9-10 Anatomical basis of gastropulmonar development
J. Ruberte

- 10-11** Respiratory apparatus: nasal cavities, larynx, trachea and lungs. Anatomy and Imaging
M. Navarro
- 11-12** Dissection of the thorax
M. Navarro
- 12-13** Oral cavity, pharynx, esophagus, and stomach. Anatomy and Imaging
V. Nacher

Lunch break

- 14-15** Imaging teeth. Mouse models to study tooth diseases
J. Prochazka
- 15-16** Intestine and liver. Anatomy and Imaging
L. d'Angelo
- 16-17** Anatomical basis of urogenital development
M. Mark
- 17-18** Urinary organs. Anatomy, histology, and imaging
L. d'Angelo

Monday, July 11th

- 9-10** Male and female genital organs. Anatomy, histology, and imaging
A. Carretero
- 10-12** Dissection of male and female abdominal and pelvic cavities
Carretero and L. Mendes-Jorge
- 12-13** The fat organ. Morphology, physiology and imaging
J. Rozman

Lunch break

- 14-15** Pancreas. Anatomy, histology and imaging
V. Nacher
- 15-16** Thyroid, parathyroid and adrenal glands
V. Nacher
- 16-17** Eye and related structures: Anatomy and imaging
J. Ruberte
- 17-18** Vestibulocochlear organ. Anatomy and imaging
M. Navarro
- 18-19** Ear phenotyping
S. Murillo

Tuesday, July 12th

- 9-10** Basic developmental concepts and general morphology of the central nervous system
L. Puellas
- 10-11** Spinal cord and rhombencephalon. Anatomy and imaging
Cerebellum and mesencephalon. Anatomy and imaging
J. Ruberte
- 11-13** Diencephalon, hypothalamus, and telencephalon
L. Puellas

Lunch break








- 14-15** Hypophysis and pineal gland. Encephalic ventricles and brain vascularization
J. Ruberte
- 15-16** Histology of skin, hair and nail
J. Sundberg











16-17 Mouse models to study skin diseases

J. Sundberg

17-17:30 Course Evaluation and Concluding Remarks

List of speakers

SPEAKER	INSTITUTION
Brayton, Cory	
Calzada-Wack, Julia	
Carretero, Ana	
d'Angelo, Livia	
Gràcia, Guillem	
Jacobs, Hugues	
José Cunilleras, Eduard	
Mark, Manuel	
Mendes-Jorge, Luísa	
Murillo, Silvia	

Nacher, Víctor	 UAB Universitat Autònoma de Barcelona
Navarro, Marc	 UAB Universitat Autònoma de Barcelona
Pampalona, Judit	 UAB Universitat Autònoma de Barcelona
Prochazka, Jan	 Czech Centre for Phenogenomics <small>hosted by the Institute of Molecular Genetics of the ASCR, v.v.i.</small>
Puelles, Luis	
Rozman, Jan	 Czech Centre for Phenogenomics <small>hosted by the Institute of Molecular Genetics of the ASCR, v.v.i.</small>
Ruberte, Jesús	 UAB Universitat Autònoma de Barcelona
Sundberg, John	 The Jackson Laboratory  VANDERBILT UNIVERSITY
Wendling, Olivia	

This course is sponsored by:

