Master Course 2017-2018 - UAM
BMM11 module: Genetically Modified Animals: Strategies and applications
Masters UAM of Molecular Biomedicine
9-30 October 2017 15:00-18:00 h
School of Medicine, UAM, Campus “La Paz”, Seminar-room 12

Coordinators:

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Invited faculties:

Juan Bernal
CNIC

Juan Ramón Martínez Morales
CABD, Sevilla

Marcos Malumbres
CNIO

Francisco J. Martínez Mojica
Universidad de Alicante

Latifa Bakiri
CNIO, Genes, development and disease group

All lectures will be delivered in English
FIRST WEEK

Monday, 9 October
Introduction to BMM11 module: evaluation criteria (30 min) – coordinators
Laura Formentini, Miguel Manzanares, Lluís Montoliu, Sagrario Ortega

Use of mice in biomedicine: history, genetics (60 min)
Miguel Manzanares, CNIC

Mouse biology and developmental biology: highlights and main topics (90 min)
Miguel Manzanares, CNIC

Tuesday, 10 October
Transgenic animals: highlights and main topics (90 min)
Lluís Montoliu, CNB-CSIC

Embryonic stem cells and other pluripotent cells: highlights and main topics (90 min)
Sagrario Ortega, CNIO

Wednesday, 11 October
Examples of transgenic animals I (90 min)
Lluís Montoliu, CNB-CSIC

Examples of transgenic animals II (90 min)
Lluís Montoliu, CNB-CSIC

Thursday, 12 October
National Fest

Friday, 13 October
Submission of abstracts for student's research projects (moodle) and brief presentation (180 min) – max. 10 min / group, including discussion
Laura Formentini, Miguel Manzanares, Lluís Montoliu, Sagrario Ortega
SECOND WEEK

Monday, 16 October
Examples of ES and other pluripotent cells I (90 min)
Sagrario Ortega, CNIO
Invited seminar: Mouse models in cell cycle research (90 min)
Marcos Malumbres, CNIO

Tuesday, 17 October
Examples of ES and other pluripotent cells III (90 min)
Sagrario Ortega, CNIO
Examples of gene regulatory analysis in the mouse I (90 min)
Miguel Manzanares, CNIC

Wednesday, 18 October
Examples of gene regulatory analysis in the mouse II (90 min)
Miguel Manzanares, CNIC
Examples of gene regulatory analysis in the mouse III (90 min)
Miguel Manzanares, CNIC

Thursday, 19 October  Aula/Room 0
Host: Lluís Montoliu
Invited seminar: The origin of the CRISPR-Cas systems (90 min)
Francisco J. Martinez Mojica, Universidad de Alicante
Examples of genome editing (90 min)
Lluís Montoliu, CNB-CSIC

Friday, 20 October
UAM School of Medicine’s Annual Fest
THIRD WEEK

**Monday, 23 October**
Examples of functional genomics of the mitochondria I (90 min)
Laura Formentini, UAM-CBMSO
Examples of functional genomics of the mitochondria II (90 min)
Laura Formentini, UAM-CBMSO

**Tuesday, 24 October**
Host: Laura Formentini
*Invited seminar: Using zebrafish and medaka as animal models* (90 min)
Juan Ramón Martínez Morales, CABD, Sevilla
*Invited seminar: Advances in animal transgenesis: new tools for a new era* (90 min)
Juan Bernal, CNIC

**Wednesday, 25 October**
Host: Laura Formentini, Sagrario Ortega
*Invited seminar: In vivo models to study glioblastoma* (90 min)
Massimo Squatrito, CNIO
*Invited seminar: Mouse models to study liver cancer* (90 min)
Latifa Bakiri, Genes, development and disease group (CNIO)

**Thursday, 26 October**
Student’s presentation of their research projects I (180 min)
(max. 20 min/group: 15 min presentation and 5 min discussion)
Laura Formentini, Sagrario Ortega

**Friday, 27 October**
Student’s presentation of their research projects II (180 min)
(max. 20 min/group: 15 min presentation and 5 min discussion)
Laura Formentini, Lluís Montoliu, Sagrario Ortega

FOURTH WEEK

**Monday, 30 October**
Final Exam with correction and discussion afterwards (90 min)
Submission of research project (moodle)
Laura Formentini, Miguel Manzanares, Lluís Montoliu, Sagrario Ortega
Participation (4 points, 40%): Students, in groups of three (3) persons max., will gather and select a relevant biomedical question of their choice to be addressed through a scientific research project requiring the use of genetically modified animal and/or cellular models. Students will submit a brief summary (abstract, 1 page max) of their selected research project by the end of the first week, to be uploaded through the moodle application. They will also introduce the chosen approach and a brief outline of their research project (max. 10 min, including discussion, Powerpoint presentation optional) at the end of the first week. Finally, they will present and develop their research project on the third week (max. 20 min/group: 15 min presentation and 5 min discussion).

Written report (3 points, 30%): Students, distributed according to the same groups of 3 persons max., as indicated before, will gather and cooperatively write the scientific research project of their choice, requiring the use of genetically modified animal and/or cellular models (4 pages max, in English). This written report will have to be ready and uploaded at the “UAM Biociencias-Master” web server through the moodle application, by 10 November.

Exam (3 points, 30%): The exam (60 min) will be prepared as a test of 30 questions with 5 possible answers (only 1 will be correct). Wrong answers will not decrease the final mark. The correct answer for each and every question will be provided and discussed at the end of the exam (30 min).