

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:

Laura Formentini (UAM-CBMSO)

Tel. 911964648

lformentini@cbm.csic.es

Miguel Manzanares (CNIC-ISCIII)

Tel. 914531200

mmanzanares@cnic.es

Lluís Montoliu (CNB-CSIC)

Tel. 915854844

montoliu@cnb.csic.es

Sagrario Ortega (CNIO-ISCIII)

Tel. 917328000

sortega@cnio.es

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

BMM11 PROGRAM – MASTER UAM COURSE 2017/2018

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

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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. Martínez Mojica, Universidad de Alicante

Examples of genome editing (90 min)

Lluís Montoliu, CNB-CSIC

Friday, 20 October

UAM School of Medicine's Annual Fest

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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**

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BMM11 Module, Evaluation Criteria

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).