

Master Course 2012-2013 - UAM
BM5 module: GENOMICS, PROTEOMICS AND GENETIC MODIFICATION
Masters of Molecular Biomedicine, Biothechnology,
and Molecular and Cellular Biology
24 September-2 November 2012 (Monday to Friday) 15:00-16:30 h
Aula I: School of Medicine, UAM

Teachers:

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All lectures will be delivered in English

BM5 PROGRAM – UAM COURSE 2012/2013

Monday, 24 September 2012

Introduction to BM5 module: evaluation criteria (15 min)

Coordinators: M^a Jesús Bullido, CBMSO-UAM/CSIC; **Lluís Montoliu**, CNB-CSIC

Use of mice in biomedicine: history, genetics (1h:15 min)

Miguel Manzanares, CNIC

Tuesday, 25 September 2012

Mouse biology and developmental biology

Miguel Manzanares, CNIC

Wednesday, 26 September 2012

Transgenic animals I: standard, genomic, inducible, applications and limitations

Lluís Montoliu, CNB-CSIC

Thursday, 27 September 2012

Transgenic animals II: lentivirus, transposons, nuclear transfer, Zn-finger nucleases

Lluís Montoliu, CNB-CSIC

Friday, 28 September 2012

Student's presentation/discussion of selected papers (SEMINAR)

Monday, 1 October 2012

ES cells and knockout mice I: standard

Sagrario Ortega, CNIO

Tuesday, 2 October 2012

Knockout mice II: inducible, tissue-specific, knockins

Sagrario Ortega, CNIO

Wednesday, 3 October 2012

iPS cells et al.

Sagrario Ortega, CNIO

Thursday, 4 October 2012

Videos on transgenic mice, ES cells and knockout mice

Lluís Montoliu, CNB-CSIC; **Sagrario Ortega**, CNIO

Friday, 5 October 2012

Student's presentation/discussion of selected papers (SEMINAR)

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Monday, 8 October 2012

Mouse functional genomic analysis. Bioinformatic Tools, examples
Lluís Montoliu, CNB-CSIC

Tuesday, 9 October 2012

Fundamentals and applications of transgenesis in zebrafish to study mammalian gene function
José Luis Gómez Skarmeta, CABD-UPO/JA/CSIC, Sevilla

Wednesday, 10 October 2012

Student's presentation/discussion of selected papers (SEMINAR)

Thursday, 11 October 2012

Human Genome and Disease Gene identification
Lourdes Ruiz, CBMSO-UAM/CSIC

Friday, 12 October 2012

Holiday – National Day

Monday, 15 October 2012

School of Medicine Fest

Tuesday, 16 October 2012

Epigenetics
José Fernández Piqueras / Pilar López Nieva, CBMSO-UAM/CSIC

Wednesday, 17 October 2012

Monogenic hereditary diseases. Pathological mutations.
Belén Pérez, CBMSO-UAM/CSIC

Thursday, 18 October 2012

Complex diseases. Genetic association. Gene-gene and gene-environment interactions.
M^a Jesús Bullido, CBMSO-UAM/CSIC

Friday, 19 October 2012

Student's presentation/discussion of selected papers (SEMINAR)

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Monday, 22 October 2012

Genomics: Microarray tools to study human pathology
M^a Jesús Bullido, CBMSO-UAM/CSIC

Tuesday, 23 October 2012

Next Generation Sequencing: Basic issues and Applications
Ricardo Ramos Ruiz. PCM

Wednesday, 24 October 2012

Proteomics: basic issues and applications
Ana Isabel Marina, ProteoRed (CBM-CSIC)

Thursday, 25 October 2012

Experimental therapies. Gene and mutation specific therapies
Lourdes Ruiz, CBMSO-UAM/CSIC

Friday, 26 October 2012

Proteomic techniques for the study of inherited metabolic diseases
Eva Richard. CBMSO

Monday, 29 October 2012

Student's presentation/discussion of selected papers (SEMINAR)

Tuesday, 30 October 2012

Pharmacogenetics/Pharmacogenomics
Carmen Ayuso, Instituto de Investigación Sanitaria-Fundación Jiménez Díaz

Wednesday, 31 October 2012

Clinical realities of cell therapies. Applications and translational research
Damián García Olmo, Hospital La Paz-IdiPaz

Thursday, 1 November 2012

Holiday – National Day

Friday, 2 November 2012

Final Exam (60 min), Correction and discussion afterwards (30 min)

BM5 Module, Evaluation Criteria Course 2012-2013

Attendance (1 point, 10%): Attendance is mandatory. All students will receive 1 point unless they miss classes without providing a written justification.

Participation (3 points, 30%): Students, in groups of 2-4 persons, will present and discuss a selected scientific article, in English, to the rest of the classroom (25 min). Three papers will be presented each seminar day. Presenting students should engage the rest of students in the class to actively participate in the discussions. Their contribution to the discussions will also be accounted for the evaluation of the group presenting each article.

Written report (3 points, 30%): Each student will receive a gene and will have to prepare a written short report (**4 pages max**, in English) summarising what is known about this gene in different species, notably Human and mouse, its information about genomics and proteomics, published key references, its relationship with known human pathologies, the existence of animal models, etc... according to the topics covered throughout the course. This written report will have to be ready and uploaded at the "UAM Biociencias-Master" web server through the moodle application, **by November 30, 2012**.

Exam (3 points, 30%): The exam (60 min) will be prepared as a test of **25 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).