

Master Course 2010-2011 - UAM
BM5 module: GENOMICS, PROTEOMICS AND GENETIC MODIFICATION
Masters of Molecular Biomedicine, Biothechnology,
and Molecular and Cellular Biology
20 September-29 October 2010 (Monday to Friday) 15:00-16:30 h
Aula I: School of Medicine, UAM

Teachers:

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Janet Hoenicka (Hospital 12 de Octubre)
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All lectures will be delivered in English

BM5 PROGRAM

Monday, 20 September 2010

Introduction to BM5 module: evaluation criteria (30 min)

Coordinators

M^a Jesús Bullido, CBMSO-UAM/CSIC

Lluís Montoliu, CNB-CSIC

Organization of the Human Genome (60 min)

José Fernández Piqueras, CBMSO-UAM/CSIC

Tuesday, 21 September 2010

Physical and genetic maps of the Human Genome. Analysis of genetic linkage

Lourdes Ruiz, CBMSO-UAM/CSIC

Wednesday, 22 September 2010

Monogenic hereditary diseases. Pathological mutations.

Belén Pérez, CBMSO-UAM/CSIC

Thursday, 23 September 2010

Complex diseases. Genetic association and pathogenesis. Interactions.

M^a Jesús Bullido, CBMSO-UAM/CSIC

Friday, 24 September 2010

Student's presentation/discussion of selected papers

Lourdes Ruiz, CBMSO-UAM/CSIC

Belén Pérez, CBMSO-UAM/CSIC

M^a Jesús Bullido, CBMSO-UAM/CSIC

Monday, 27 September 2010

Genomic Tools to study human pathology

M^a Jesús Bullido, CBMSO-UAM/CSIC

Tuesday, 28 September 2010

Epigenetics

José Fernández Piqueras, CBMSO-UAM/CSIC

Wednesday, 29 September 2010

Experimental therapies

Lourdes Ruiz, CBMSO-UAM/CSIC

Thursday, 30 September 2010

Proteomics: basic issues and applications to study human physiopathology

Juan Antonio López, CNIC

Friday, 1 October 2010

Student's presentation/discussion of selected papers

M^a Jesús Bullido, CBMSO-UAM/CSIC

Lourdes Ruiz, CBMSO-UAM/CSIC

Belén Pérez, CBMSO-UAM/CSIC

Monday, 4 October 2010

Clinical realities of cell therapies. Applications and translational research

Damián García Olmo, Hospital La Paz

Tuesday, 5 October 2010

Pharmacogenetics and Pharmacogenomics

Janet Hoenicka, Hospital 12 de octubre

Wednesday, 6 October 2010

Use of mice in biomedicine: history, genetics

Miguel Manzanares, CNIC

Thursday, 7 October 2010

Mouse biology and developmental biology

Miguel Manzanares, CNIC

Friday, 8 October 2010

Student's presentation/discussion of selected papers

Miguel Manzanares, CNIC

Lluís Montoliu, CNB-CSIC

Monday, 11 October 2010

Transgenic animals I: standard, genomic, applications and limitations

Lluís Montoliu, CNB-CSIC

Tuesday, 12 October 2010

Holiday – National Day

Wednesday, 13 October 2010

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

Lluís Montoliu, CNB-CSIC

Thursday, 14 October 2010

ES cells and knockout mice I: standard

Sagrario Ortega, CNIO

Friday, 15 October 2010

Student's presentation/discussion of selected papers

Sagrario Ortega, CNIO

Lluís Montoliu, CNB-CSIC

Monday, 18 October 2010

Holiday – School of Medicine Feast

Tuesday, 19 October 2010

Knockout mice II: inducible, tissue-specific, knockins
Sagrario Ortega, CNIO

Wednesday, 20 October 2010

Videos on transgenic mice, ES cells and knockout mice
Lluís Montoliu, CNB-CSIC; **Sagrario Ortega**, CNIO

Thursday, 21 October 2010

RNAi: fundamentals and applications in animal transgenesis
Susana González, CNIC

Friday, 22 October 2010

Student's presentation/discussion of selected papers
Susana González, CNIC
Sagrario Ortega, CNIO

Monday, 25 October 2010

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

Tuesday, 26 October 2010

Stem Cells, Aging and Regeneration
Susana González, CNIC

Wednesday, 27 October 2010

iPS cells et al.
Sagrario Ortega, CNIO

Thursday, 28 October 2010

Student's presentation/discussion of selected papers
Miguel Manzanares, CNIC
Lluís Montoliu, CNB-CSIC
Susana González, CNIC
Sagrario Ortega, CNIO

Friday, 29 October 2010

Final Exam (60 min), Correction and discussion afterwards (30 min)
Miguel Manzanares, CNIC
Lluís Montoliu, CNB-CSIC
Susana González, CNIC
Sagrario Ortega, CNIO
M^a Jesús Bullido, CBMSO-UAM/CSIC
Lourdes Ruiz, CBMSO-UAM/CSIC
Belén Pérez, CBMSO-UAM/CSIC

BM5 Module, Evaluation Criteria Course 2010-2011

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, **by November 30, 2010**.

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).