Cardiovascular Diseases (BMM9) and Getting to Know CNIC course
Course 2011-2012

A. Lectures: 16 January- 1 February (09:00-11:30 h)

I. Form and function of the cardiovascular system
(16-18 January)

16 January (09.00 to 11.30 h)

Anatomy and Physiology of the Heart (I): Basic concepts of heart anatomy (i.e. pig heart dissection).
Teacher: José María Pérez-Pomares (Univ. Málaga)

Anatomy and Physiology of the Heart (II): Basic concepts in cardiac electrophysiology (in situ ECG, interpretation of normal ECG and basic anomalies) and basic concepts of heart mechanics (ejection fraction, ‘cardiac output’).
Teacher: Borja Ruiz Mateos (Hosp. Clínico San Carlos)

17 January (09.00 to 11.30 h)

Developmental Biology of the heart.
Teacher: José María Pérez-Pomares (Univ. Málaga)

Congenital diseases of the heart.
Teacher: José Luis de la Pompa (CNIC)

18 January (09.00 to 11.30 h)

Anatomy and Physiology of the vasculature: types of vessels, constitution of vessels. Physiology of vasculature: resistance, blood pressure, etc.
Teacher: Leticia Fernández Friera (CNIC)

Development of the vasculature: Vasculogenesis, angiogenesis and lymphangiogenesis.
Teacher: Miguel Torres (CNIC)
II. Pathology of the cardiovascular system
(19-25 January)

19 January (09.00 to 11.30 h)

Ischemic cardiovascular disease (I): pathophysiology of myocardial infarction (differential diagnosis versus heart arrest and heart failure).

Ischemic cardiovascular disease (II): experimental approaches to myocardial infarction (imaging and pig as experimental animal model).

Teacher: Borja Ibáñez (CNIC)

20 January (09.15 to 11.00 h)

Atherosclerosis (II): Clinical manifestations of atherosclerosis.

Atherosclerosis (III): experimental approaches to atherosclerosis (imaging and pig as experimental animal model).

Teacher: Valentín Fuster (CNIC)

23 January (09.00 to 11.30 h)

Inflammation and cardiovascular disease.

Teacher: David Sancho (CNIC)

Metabolic disorders: Basic and molecular concepts in obesity and diabetes.

Teacher: Guadalupe Sabio (CNIC)

24 January (09.00 to 11.30 h)

Cellular and molecular basis of the immune response.

Teacher: Francisco Sánchez-Madrid (UAM-CNIC)

Atherosclerosis (I): Molecular mechanisms of atherosclerosis.

Teacher: Vicente Andrés (CNIC)
25 January (09.00 to 12.00 h)

Experimental models in cardiovascular research:

- Myocarditis, heart transplant
  Teacher: Pilar Martin (CNIC)

- Cardiac ischemia
  Teacher: Enrique Lara-Pezzi (CNIC)

- Vascular injury, hypertrophy and aneurysm
  Teacher: Juan Miguel Redondo (CNIC)

III. Repair mechanisms in the cardiovascular system
(26 January)

26 January (09.00 to 12.00 h)

General concepts about stem cells.
Teacher: Antonio Bernad (CNIC)

Cardiac stem cells.
Teacher: Beatriz G. Gálvez (CNIC)

Regeneration of the heart.
Teacher: Nadia Mercader (CNIC)

IV. Population studies: genomics, epidemiology and clinical trials
(27 and 30-31 January)

27 January (09.00 to 11.30 h)

Genomics approaches to cardiovascular disease: epigenetics and GWA.
Teacher: José M. Ordovás (CNIC)

30 January (09.00 to 11.30 h)

Design and interpretation of epidemiological studies: Framingham.
Teacher: Manuel Franco (CNIC)

PESA study: a case example at CNIC.
Teacher: José Luis Peñalvo (CNIC)
31 January (09.00 to 11.30 h)

Design and interpretation of clinical trials.
Teacher: Luz Alvarez (CNIC)

METOCARD
Teacher: Borja Ibañez (CNIC)

V. Frontiers in Cardiovascular Research
(1 February)

1 February (09.00 to 11.15 h)

09.00 to 09.30 h
Mesenchymal and haematopoietic stem cells from a unique bone marrow niche
Teacher: Simón Méndez Ferrer (CNIC)

09.35 to 10.00 h
Regulator of calcineurin 1 mediates pathological vascular wall remodeling
Teacher: Juan Miguel Redondo (CNIC)

10.15 to 10.45 h
Evolution meets disease: penetrance and functional epistasis of mitochondrial tRNA mutations
Teacher: Jose Antonio Enríquez (CNIC)

10.45 to 11.15 h
Biochemical remodeling of the microenvironment by stromal caveolin-1 favors tumor invasion and metastasis
Teacher: Miguel Ángel del Pozo (CNIC)

B. Student presentations: 2- 6 February (09:00- 12:30 h)
4 presentations per day

C. Practical Workshops: 7- 20 February (09:00-12:00 h)

7 February (09.00 to 12.00 h)
Model systems (I): zebrafish and chick
Teachers: Nadia Mercader, Eduardo Díaz (CNIC)

8 February (09.00 to 12.00 h)
Model systems (II): mouse-transgenesis
Teacher: Luis Miguel Criado (CNIC)

9 February (09.00 to 12.00 h)
Model systems (III): mouse-intravital imaging and mouse-ultrasound recording
Teachers: Andrés Hidalgo, Carlos Zaragoza (CNIC)
10 February (09.00 to 12.00 h)
ES cell culture and differentiation
Teacher: Giovanna Giovinazzo (CNIC)

13 February (09.00 to 12.00 h)
Genomics
Teacher: Ana Dopazo (CNIC)

14 February (09.00 to 12.00 h)
Proteomics
Teacher: Juan Antonio López (CNIC)

15 February (09.00 to 12.00 h)
Advanced Confocal and live Cell Microscopy
Teachers: Moreno Zamai, Olga Barreiro

16 February (09.00 to 12.00 h)
Cytometry
Teacher: José Manuel Ligos (CNIC)

17 February (09.00 to 12.00 h)
High Content Analysis
Teachers: María Montoya, Hind Azegrouz (CNIC)

20 February (09.00 to 12.00 h)
Bioinformatics and Biostatistics
Teachers: Fátima S. Cabo, Carlos Torroja, Pedro López (CNIC)

Extra Workshops (for Course “Getting to Know CNIC”)

21 February (09.00 to 12.00 h)
How to look for bibliographic references and citations
Teacher: Alicia Fátima Gómez (CNIC)

22 February (09.00 to 12.00 h)
Communicating Science
Teacher: Simon Bartlett (CNIC)

23 February (09.00 to 12.00 h)
09.00 to 09.20 h
CNIC Predoctoral Programme
Teacher: Susana Negrete (CNIC)

09.25 to 09.45 h
Finance Department
Teacher: Jose Alberto Alonso (CNIC)

09.50 to 10.10 h
Human Resources Department
Teacher: Antonio Ureña (CNIC)
10.15 to 12.00 h
“The importance of the projects-&-results management in biosciences: CNIC Projects & TT Office”
Teachers: Luzma García, Cristina Giménez, Noelia López (CNIC),