

Insight into cardiovascular pathology research: a comprehensive molecular, physiological, clinical and practical approach (BMM9) Course 2014-2015

A. Lectures: 13 - 29 January (09:30- 12:15 h)

I. Form and function of the cardiovascular system (13- 15 January)

13 January (09.30 to 12.15 h)

Dr. Jose M^a Pérez Pomares: Third Floor Seminar Room (Group 1&2)
Dr. Borja Ruiz Mateos: Second Floor Seminar Room (Group 1&2)

José María Pérez-Pomares (Univ. Málaga). Third Floor Seminar Room

Group 1

09.30-10.45: Anatomy and Physiology of the Heart (I): Basic concepts of heart anatomy (i.e. pig heart dissection).

Group 2

11.00- 12.15: Anatomy and Physiology of the Heart (I): Basic concepts of heart anatomy (i.e. pig heart dissection).

Borja Ruiz Mateos (Hosp. Clínico San Carlos). Second Floor Seminar Room

Group 2

09.30-10.45: 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').

Group 1

11.00- 12.15: 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').

14 January (09.30 to 12.15 h)

Ground Floor "Auditorium"

09.30-10.45: Developmental Biology of the heart I

Teacher: **Antoon Moorman** (Univ. Amsterdam)

11.00- 12.15: Developmental Biology of the heart II

Teacher: **José Luís de la Pompa** (CNIC)

15 January (09.30 to 12.15 h)

Ground Floor “Auditorium”

09.30-10.45: Anatomy and Physiology of the vasculature: types of vessels, constitution of vessels. Physiology of vasculature: resistance, blood pressure, etc

Teacher: **Rodrigo Fernández Jiménez (CNIC)**

11.00- 12.15: Development of the vasculature: Vasculogenesis, angiogenesis and lymphangiogenesis.

Teacher: **Rui Benedito (CNIC)**

II. Pathology of the cardiovascular system (16- 22 January)

16 January (09.30 to 12.30 h)

Ground Floor “Auditorium”

09.30-11:00: Cardiovascular disease: present and future

Teacher: **Valentín Fuster (CNIC)**

11:15-12:30: Clinical Utility of Advanced Imaging and Mathematical Analysis of Complex Cardiac Arrhythmias

Teacher: **David Filgueiras (CNIC)**

19 January (09.30 to 12.15 h)

Third Floor Seminar Room

09.30-10.45: Ischemic cardiovascular disease (I): pathophysiology of myocardial infarction.(differential diagnosis versus heart arrest and heart failure).

11.00- 12.15: Ischemic cardiovascular disease (II): experimental approaches to myocardial infarction (imaging and pig as experimental animal model).

Teacher: **Borja Ibáñez (CNIC)**

20 January (09.30 to 12.15 h)

Ground Floor “Auditorium”

09.30-10.45: Inflammation and cardiovascular disease.

Teacher: **David Sancho (CNIC)**

11.00- 12.15: Metabolic disorders: Basic and molecular concepts in obesity and diabetes.

Teacher: **Guadalupe Sabio (CNIC)**

21 January (09.30 to 12.15 h)

Ground Floor “Auditorium”

09.30-10.45: New intercellular communication mechanisms in the immune response

Teacher: **Carolina Villarroya (CNIC)**

11.00- 12.15: Aging and cardiovascular disease: From the rarest to the most common

Teacher: **Vicente Andrés (CNIC)**

22 January (09.30 to 12.15 h)

Third Floor Seminar Room

09.30-10.15: Experimental models in cardiovascular research: Cardiac ischemia.

Teacher: **Enrique Lara-Pezzi (CNIC)**

10.30-11.15: Experimental models in cardiovascular research: Vascular injury, hypertrophy and aneurysm.

Teacher: **Juan Miguel Redondo (CNIC)**

11.30-12.15: Novel diagnosis and therapy for Myocarditis

Teacher: **Pilar Martín (CNIC)**

III. Repair mechanisms in the cardiovascular system (23 January)

23 January (09.30 to 12.15 h)

Ground Floor “Auditorium”

09.30-10.45: Neuroimmune mechanisms

Teacher: **Simón Méndez (CNIC)**

11.00- 12.15: Regeneration of the heart.

Teacher: **Nadia Mercader (CNIC)**

IV. Population studies: genomics, epidemiology and clinical trials (26 -28 January)

26 January (09.30 to 11.00 h)

Third Floor Seminar Room

Genomic approaches to cardiovascular disease: epigenetics and GWA.

Teacher: **José M. Ordovás (CNIC)**

27 January (09.30 to 12.15 h)

Third Floor Seminar Room

09.30-10.45: Oral antiplatelet treatment in ACS: from bench to bedside

Teacher: **Antonio Fernández-Ortiz (CNIC)**

11.00- 12.15: Research and Development in Medicine: The industry's vision

Teacher: **Savion Gropper** (Boehringer Ingelheim
Pharma GmbH & Co. KG)

28 January (09.30 to 12.15 h)

Third Floor Seminar Room

09.30-10.45: Design and interpretation of epidemiological studies: Framingham.

Teacher: **Manuel Franco** (Universidad de Alcalá de
Henares)

10:30 – 11:15: PESA study: a case example at CNIC.

Teacher: **José Luis Peñalvo (CNIC/Tufts University)**

11:30-12:15: Clinical and Basic research meet in Epidemiology: Practical Examples

Teacher: **Martín Laclaustra (CNIC)**

V. Frontiers in Cardiovascular Research (29 January)

29 January (09.30 to 12.15 h)

First Floor Seminar Room

09.30-10.15: “Neuropathy of haematopoietic stem cell niche is essential for myeloproliferative neoplasms.”

Teacher: **Simón Méndez (CNIC)**

10.30-11.15: “Neutrophils scan for activated platelets to initiate inflammation”

Teacher: **Andrés Hidalgo (CNIC)**

11.30-12.15: “Long term benefit of early pre-reperfusion metoprolol administration in patients with acute myocardial infarction: results from the METOCARD-CNIC trial.”

Teacher: **Borja Ibáñez (CNIC)**

B. Student presentations: 02- 04 February (09:30- 12:30 h)

Third Floor Seminar Room

Moderators: **Jesús Ruiz-Cabello, Enrique Lara and Martín Laclaustra** (CNIC)

C. Practical Workshops: 05- 18 February (09:30-12:30 h)

05 February (09.30 to 12.30 h)
(two groups)

Third Floor Seminar Room

Group 1

Bioinformatics and Biostatistics

Teachers: **Fátima S. Cabo, Carlos Torroja** (CNIC)

Group 2

Bioinformatics and Biostatistics

Teachers: **Fátima S. Cabo, Carlos Torroja** (CNIC)

06 February (09.30 to 12.30 h)
(one group)

Third Floor Seminar Room

Communicating Science

Teacher: **Simon Bartlett** (CNIC)

09 February (09.30 to 12.30 h)

Third Floor Seminar Room

9.30-10.30h (group 1 and 2) **Jesús Ruiz Cabello** (CNIC) "MRI"

10.30 – 11:30 h (two groups)

Group 1

Cardiovascular Image: RM

Teacher: **Marina Benito** (CNIC)

Group 2

Cardiovascular Image: PET

Teacher: **Coral Velasco** (CNIC)

11:45-12:30 h (two groups)

Group 2

Cardiovascular Image: RM

Teacher: **Marina Benito** (CNIC)

Group 1

Cardiovascular Image: PET

Teacher: **Coral Velasco** (CNIC)

10 February (09.00 to 9.30 h) Groups 1,2 and 3

Third Floor Seminar Room

Introduction Seminar Microscopy Unit

Teacher **Valeria Caiolfa** (CNIC)

(9.30 to 12:30 h) (three groups)

Group 1

ES cell culture and differentiation

Teacher: **Giovanna Giovinazzo** (CNIC) 1st Floor Seminar Room

Group 2

Advanced Confocal and live Cell Microscopy

Teachers: **Moreno Zamai, Veronica Labrador** (CNIC) 2nd Floor Seminar Room

Group 3

Model systems (II): mouse-transgenesis

Teacher: **Luis Miguel Criado** (CNIC) 3rd Floor Seminar Room

11 February (09.30 to 12.30 h)

Third Floor Seminar Room

9.30-10.30h (group 1 and 2) Samuel España (CNIC) "PET"

10.30 – 11:30 h (two groups)

Group 1

Cardiovascular Image: RM

Teacher: **Marina Benito** (CNIC)

Group 2

Cardiovascular Image: PET

Teacher: **Coral Velasco** (CNIC)

11:45-12:30 h (two groups)

Group 2

Cardiovascular Image: RM

Teacher: **Marina Benito** (CNIC)

Group 1

Cardiovascular Image: PET

Teacher: **Coral Velasco** (CNIC)

12 February (09.30 to 12.30 h) (three groups)

Group 1

Model systems (II): mouse-transgenesis

Teacher: **Jose M^a Fernández** (CNIC) 3rd Floor Seminar Room

Group 2

ES cell culture and differentiation

Teacher: **Giovanna Giovinazzo** (CNIC) 1st Floor Seminar Room

Group 3

Advanced Confocal and live Cell Microscopy

Teachers: **Elvira Arza, and Antonio Santos** (CNIC) 2nd Floor Seminar Room

13 February (09.30 to 12.30 h) (three groups)

Group 1

Advanced Confocal and live Cell Microscopy

Teachers: **Veronica Labrador and Antonio Santos** (CNIC) 2nd Floor Seminar Room

Group 2

Model systems (II): mouse-transgenesis

Teacher: **Juan de Dios Hourcade** (CNIC) 3rd Floor Seminar Room

Group 3

ES cell culture and differentiation

Teacher: **Giovanna Giovinazzo** (CNIC) 1st Floor Seminar Room

**16 February (09.30 to 12.30 h)
(one group)**

Third Floor Seminar Room

Proteomics

Teacher:

Juan Antonio López (CNIC)

Genomics

Teacher:

Ana Dopazo (CNIC)

**17 February (09.30 to 12.30 h)
(one group)**

Third Floor Seminar Room

Cell analysis techniques: Cytometry and High Content Screening

Teachers:

María Montoya (CNIC)

**18 February (09.30 to 12.30 h)
(two groups)**

Third Floor Seminar Room

Group 1

Model systems (I): Zebrafish

Teachers: **Nadia Mercader, Eduardo Díaz** (CNIC)

Group 2

Model systems (I): Zebrafish

Teachers: **Nadia Mercader, Eduardo Díaz** (CNIC)