

Insight into cardiovascular pathology research: a comprehensive molecular, physiological, clinical and practical approach (BMM9) Course 2015-2016

A. Lectures: 12 January – 01 February

I. Form and function of the cardiovascular system (12- 14 January)

12 January (09.30 to 12.15 h)

Dr. Jose M^a Pérez Pomares: Third Floor Seminar Room (Group 1&2)
Dr. José Manuel Rubio: 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).

José Manuel Rubio (Fundación Jiménez Díaz). 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').

13 January (09.30 to 13.30 h)

Ground Floor "Auditorium"

09.30 - 12.15 Developmental Biology of the heart I

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

12.30 - 13.30 Developmental Biology of the heart II

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

14 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 (15- 22 January)

15 January (09.30 to 14.30 h)

09.30 - 11:00 Cardiovascular disease: present and future

Ground Floor "Auditorium"

Teacher: **Valentín Fuster (CNIC)**

11:15 - 14:30 Communicating Science

Teacher: **Simon Barlett (CNIC)**

Third Floor Seminar Room

18 January (09.30 to 12.15 h)

Ground Floor "Auditorium"

09.30 - 10.45 Molecular basis of cardiac electrophysiology and arrhythmias

Teacher: **Teresa González (UAM)**

11:00 – 12:15 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 13:30 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)**

12.30- 13.30 Providing energy to the heart

Teacher: **Jose Antonio Enríquez (CNIC)**

21 January (09.30 to 12.15 h)

Ground Floor "Auditorium"

09.30-10.45 Pathophysiology of atherosclerosis: insight gained from experimental models.

Teacher: **Jacob Fog Bentzon (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. Cardiovascular Genetics (25 January)

25 January (09.30 to 13.30 h)

Ground Floor "Auditorium"

09.30-10.45 Introduction to Cardiovascular Genetics

Teacher: **Pablo García Pavía** (H. Puerta de Hierro)

11.00- 12.15 Inherited arrhythmias: from bench to bedside

Teacher: **Silvia Priori** (Università degli Studi di Pavia /IRCCS Fondazione Salvatore Maugeri)

12.30 – 13.30 From single molecules to heart disease

Teacher: **Jorge Alegre Cebollada (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

10.00-11.15 Research and Development in Medicine: The industry's vision

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

11.30- 12.45 The Fuster-CNIC-Ferrer Cardiovascular Polypill Project: a new paradigm in cardiovascular therapeutics innovation

Teacher: **Jose M^a Castellano (CNIC)**

28 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)**

10:45 – 12:00 Interpreting statistics in Clinical Trials

Teacher: **Stuart Pocock (CNIC/London School of Hygiene and Tropical Medicine)**

12:15 – 13:15 Cardiovascular epidemiology: descriptive, intervention and health promotion studies

Teacher: **Juan M. Fernández Alvira (CNIC)**

V. Frontiers in Cardiovascular Research (01 February)

01 February (09.30 to 12.15 h)

Ground Floor Auditorium

09.30 - 10.15 “Retinoid X receptors orchestrate osteoclast differentiation and postnatal bone remodeling”

Teacher: **Mercedes Ricote (CNIC)**

10.30-11.15 “Deficiency of MMP17/MT4-MMP Proteolytic Activity Predisposes to Aortic Aneurysm in Mice.”

Teacher: **Alicia García Arroyo (CNIC)**

11.30 - 12.15 Exercise Triggers ARVC Phenotype in Mice Expressing a Disease-Causing Mutated Version of Human Plakophilin-2.”

Teacher: **Juan A. Bernal (CNIC)**

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

Third Floor Seminar Room

Moderators: **Enrique Lara, Almudena Ramiro and Teresa González (CNIC/UAM)**

C. Practical Workshops: 05- 17 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)**

08 February (09.30 to 12.30 h)

Third Floor Seminar Room

9.30-10.30h (group 1 , 2, three and 4) **Jesús Ruiz Cabello (CNIC)** “MRI”

10.30 – 11:30 h (two groups 1 and 2)

Group 1

Cardiovascular Image: RM

Teacher: **Yeny Rojas/Izaskun Bilbao (CNIC)**

Group 2

Cardiovascular Image: PET

Teacher: **Coral Velasco (CNIC)**

11:45-12:30 h (two groups 1, and 2)

Group 2

Cardiovascular Image: RM

Teacher: **Yeny Rojas/Izaskun Bilbao (CNIC)**

Group 1

Cardiovascular Image: PET

Teacher: **Coral Velasco (CNIC)**

09 February (09.30 to 12.30 h)

9.30 - 10.30h (group 1, 2, 3 and 4) **Samuel España (CNIC)** “PET”

10.30 – 11:30 h (two groups 3 and 4)

Group 3

Cardiovascular Image: RM

Teacher: **Yeny Rojas/Izaskun Bilbao (CNIC)**

Group 4

Cardiovascular Image: PET

Teacher: **Coral Velasco (CNIC)**

11:45 - 12:30 h (two groups 3 and 4)

Group 4

Cardiovascular Image: RM

Teacher: **Yeny Rojas/Izaskun Bilbao (CNIC)**

Group 3

Cardiovascular Image: PET

Teacher: **Coral Velasco (CNIC)**

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

Introduction Seminar Microscopy Unit
Teacher: **Valeria Caiolfa (CNIC)**

Third Floor Seminar Room

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

Group 1 (3rd Floor Meeting Room)

ES cell culture and differentiation

Teacher: **Giovanna Giovinazzo, Francisco Gutiérrez, Elisa Santos (CNIC)**

Group 2 (3rd Floor Seminar Room)

Advanced Confocal and live Cell Microscopy

Teachers: **Moreno Zamai, Veronica Labrador (CNIC)**

Group 3 (2nd Floor Meeting Room)

Model systems (II): mouse-transgenesis

Teacher: **Luis Miguel Criado (CNIC)**

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

Group 1 (2nd Floor Meeting Room)

Model systems (II): mouse-transgenesis

Teacher: **Jose M^a Fernández (CNIC)**

Group 2 (3rd Floor Meeting Room)

ES cell culture and differentiation

Teacher: **Giovanna Giovinazzo, Francisco Gutiérrez, Elisa Santos (CNIC)**

Group 3 (3rd Floor Seminar Room)

Advanced Confocal and live Cell Microscopy

Teachers: **Elvira Arza, and Antonio Santos (CNIC)**

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

Group 1 (3rd Floor Seminar Room)

Advanced Confocal and live Cell Microscopy

Teachers: **Veronica Labrador and Antonio Santos (CNIC)**

Group 2 (2nd Floor Meeting Room)

Model systems (II): mouse-transgenesis

Teacher: **Juan de Dios Hourcade (CNIC)**

Group 3 (3rd Floor Meeting Room)

ES cell culture and differentiation

Teacher: **Giovanna Giovinazzo, Francisco Gutiérrez, Elisa Santos (CNIC)**

15 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)**

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)
(two groups)

Third Floor Seminar Room

Group 1

Model systems (I): Zebrafish

Teachers: **Nadia Mercader, María Galardi, Laura Andrés,
Héctor Sánchez, Eduardo Díaz (CNIC)**

Group 2

Model systems (I): Zebrafish

Teachers: **Nadia Mercader, María Galardi, Laura Andrés,
Héctor Sánchez, Eduardo Díaz (CNIC)**