

## BMM9/Res@CNIC/Curso de aproximación

# Insight into cardiovascular pathology research: a comprehensive molecular, physiological, clinical and practical approach (BMM9) Course 2016-2017

**10 January 08:45-9:00 h welcome by Dr. David Filgueiras.**

### Introductory Lectures RES@CNIC

Third Floor Meeting Room

**10 January (09.00 to 12.30 h)**

**(09.00 to 09.45 h) Genomics:** Basic concepts in genomics and in genetic engineering.  
Ana Dopazo (CNIC)

**(09.50 to 10.35 h) Proteomics:** Basic concepts in proteomics.  
Juan Antonio López (CNIC)

**(10.55 to 11.40 h) Knock-out mice:** Basic concepts.  
Sagrario Ortega (CNIO)

**(11.45 to 12.30 h) Microscopy:** Basic concepts in microscopy  
Valeria Caiolfa (CNIC)

**11 January 09:15-9:30 h welcome by BMM9 coordinators.**

### A. Lectures: 11 – 31 January

#### I. Form and function of the cardiovascular system (11- 16 January)

**11 January (09.30 to 12.15 h)**

Dr. Jose M<sup>a</sup> Pérez Pomares: Third Floor Seminar Room (Group 1&2)  
Dra. Gabriela Guzmán: 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).

**Gabriela Guzmán** (Hospital Universitario de La Paz).

**Second Floor Seminar Room**

## Group 2

**09.30-10.45: Anatomy and Physiology of the Heart (II):** Basic concepts in cardiac echocardiography: in situ echocardiogram; interpretation of normal heart and basic anomalies.

## Group 1

**11.00- 12.15: Anatomy and Physiology of the Heart (II):** Basic concepts in cardiac echocardiography: in situ echocardiogram; interpretation of normal heart and basic anomalies.

**12 January (09.30 to 12.50 h)**

**Ground Floor "Auditorium"**

**09.30 - 10.30: Molecular basis of cardiac electrophysiology and arrhythmias**

**Teresa González** (UAM)

**10.35 - 11.35: Mechanisms controlling cardiac and vascular myocytes function**

**Ángel Cogolludo** (UCM)

**11.50 - 12.50: Biomechanics of the cardiovascular system**

**Francisco Rojo** (UPM)

**13 January (09.30 to 13.30 h)**

**Ground Floor "Auditorium"**

**09.30 - 12.15 Developmental Biology of the heart I**

**Antoon Moorman** (Univ. Amsterdam)

**12.30 - 13.30 Developmental Biology of the heart II**

**José Luís de la Pompa** (CNIC)

**16 January (09.30 to 13.00 h)**

**Ground Floor "Auditorium"**

**09.00 - 10.15 Anatomy and Physiology of the vasculature:** types of vessels, constitution of vessels. Physiology of vasculature: resistance, blood pressure, etc

**Gonzalo Pizarro** (CNIC)

**10.30 - 11.45 Development of the vasculature:** Vasculogenesis, angiogenesis and lymphangiogenesis.

**Rui Benedito** (CNIC)

**12.00 - 13.00: Cardiac computational modelling on supercomputers**

**Mariano Vazquez (BSC)**

## **II. Pathology of the cardiovascular system (17- 24 January)**

**17 January (09.30 to 12.30 h)**

**Ground Floor “Auditorium”**

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

**Valentín Fuster (CNIC)**

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

**David Filgueiras (CNIC)**

**18 January (09.30 to 10.45 h)**

**Ground Floor “Auditorium”**

**09.30 - 10.45 Inherited arrhythmias: from bench to bedside**

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

**19 January (09.30 to 13.15 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).

**Borja Ibáñez (CNIC)**

**12.30-13.15 Experimental models in cardiovascular research:** Cardiac ischemia.

**Enrique Lara-Pezzi (CNIC)**

**20 January (09.30 to 13:30 h)**

**Ground Floor “Auditorium”**

**09.30-10.45 Inflammation and cardiovascular disease.**

**David Sancho (CNIC)**

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

**Guadalupe Sabio (CNIC)**

**12.30-13.30 Providing energy to the heart**

**Jose Antonio Enríquez (CNIC)**

**23 January (09.00 to 11.45 h)**

**Ground Floor "Auditorium"**

**09.00-10.15 Pathophysiology of atherosclerosis:** insight gained from experimental models.

**Jacob Fog Bentzon (CNIC)**

**10.30- 11.45 Aging and cardiovascular disease:** From the rarest to the most common

**Vicente Andrés (CNIC)**

**24 January (10.30 to 12.15 h)**

**Third Floor Seminar Room**

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

**Juan Miguel Redondo (CNIC)**

**11.30-12.15 Novel diagnosis and therapy for Myocarditis**

**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**

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

**11.00-12.15 From single molecules to heart disease**

**Jorge Alegre Cebollada (CNIC)**

**12.30-13.30 Genomic approaches to cardiovascular disease:** epigenetics and GWA.

**José M. Ordovás (CNIC)**

## IV. Translational cardiovascular research: epidemiology, population studies and clinical trials (26 -30 January)

**26 January (09.30 to 13.15 h)**

**Second Floor Seminar Room**

**09:30 - 10:45 Cardiovascular diseases:** Needs and opportunities for translational research

**Hector Bueno (CNIC)**

**10.45-12.00 Research and Development in Medicine:** The industry's vision

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

**12.15- 13.15 The Fuster-CNIC-Ferrer Cardiovascular Polypill Project:** a new paradigm in cardiovascular therapeutics innovation

**Jose M<sup>a</sup> Castellano (CNIC)**

**30 January (09.30 to 13.15 h)**

**First Floor Seminar Room**

**09.30 - 10.45 Interpreting statistics in Clinical Trials**

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

**10:45 – 12:00 Cardiovascular epidemiology: descriptive, intervention and health promotion studies**

: **Juan M. Fernández Alvira (CNIC)**

**12:15 – 13:15 Oral antiplatelet treatment in ACS: from bench to bedside**

**Antonio Fernández-Ortiz (CNIC)**

## V. Frontiers in Cardiovascular Research (31 January)

31 January (09.30 to 12.15 h)

Ground Floor Auditorium

09.30-10.15 The Chromatin Remodeling Complex Chd4/NuRD Controls Striated Muscle Identity and Metabolic Homeostasis.

Pablo Gómez del Arco (CNIC)

10.30 - 11.15 Autophagy maintains stemness by preventing senescence.

Pura Muñoz-Canoves (CNIC)

11.30 - 12.15 At the heart of Metabolism

: Jose Antonio Enríquez (CNIC)

## B. BMM9 Student presentations: 01 - 03 February (09:30- 12:30 h)

1<sup>st</sup> and 2<sup>nd</sup> February Second Floor Seminar Room

3<sup>rd</sup> February Third Floor Seminar Room

Moderators: Jorge Alegre-Cebollada, Almudena Ramiro and Teresa González (CNIC/UAM)

## C. BMM9 Practical Workshops: 06- 16 February (09:30-12:30 h)

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

First Floor Seminar Room

### Group 1

Bioinformatics and Biostatistics

Fátima S. Cabo, Carlos Torroja (CNIC)

### Group 2

Bioinformatics and Biostatistics

Fátima S. Cabo, Carlos Torroja (CNIC)

07 February (09.30 to 12.30 h)

First Floor Seminar Room

9.30-10.30h (group 1, 2, 3 and 4)

"MRI"

Jesús Ruíz Cabello (CNIC)

10.30 – 11:30 h (two groups 1 and 2)

### Group 1

Cardiovascular Image: RM

Izaskun Bilbao (CNIC)

### Group 2

Cardiovascular Image: PET

Juan Pellico (CNIC)

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

**Group 2**

Cardiovascular Image: RM

**Izaskun Bilbao (CNIC)**

**Group 1**

Cardiovascular Image: PET

**Juan Pellico (CNIC)**

**08 February (09.00 to 12.30 h)**

**Second Floor Seminar Room**

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

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

**(9.30 to 12:30 h)**

**Group 1** (3rd Floor Meeting Room)

ES cell culture and differentiation

**Giovanna Giovinazzo, Elisa Santos (CNIC)**

**Group 2** (3rd Floor Seminar Room)

Advanced Confocal and live Cell Microscopy

**Veronica Labrador, Elvira Arza (CNIC)**

**Group 3** (2nd Floor Seminar Room)

Model systems (II): mouse-transgenesis

**Luis Miguel Criado (CNIC)**

**09 February (09.30 to 12.30 h) (three groups)**

**Second Floor Seminar Room**

**Group 1** (1st Floor Seminar Room)

Model systems (II): mouse-transgenesis

**Jose M<sup>a</sup> Fernández (CNIC)**

**Group 2** (3rd Floor Meeting Room)

ES cell culture and differentiation

**Giovanna Giovinazzo, Elisa Santos (CNIC)**

**Group 3** (2<sup>nd</sup> Floor Meeting Room)

Advanced Confocal and live Cell Microscopy

**Elvira Arza, Moreno Zamai (CNIC)**

**10 February (09.30 to 12.30 h) (three groups)**

**First Floor Seminar Room**

**Group 1** (1<sup>st</sup> Floor Seminar Room)

Advanced Confocal and live Cell Microscopy

**Veronica Labrador, Elvira Arza (CNIC)**

**Group 2** (2nd Floor Meeting Room)

Model systems (II): mouse-transgenesis

**Juan de Dios Hourcade (CNIC)**

**Group 3** (3rd Floor Meeting Room)  
ES cell culture and differentiation  
**Giovanna Giovinazzo, Elisa Santos (CNIC)**

**13 February (09.30 to 12.30 h)**

**First Floor Seminar Room**

**9.30 - 10.30h (group 1, 2, 3 and 4)** **Izaskun Bilbao (CNIC) "PET"**

**10.30 – 11:30 h (two groups 3 and 4)**

**Group 3**

Cardiovascular Image: RM

**Izaskun Bilbao (CNIC)**

**Group 4**

Cardiovascular Image: PET

**Juan Pellico (CNIC)**

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

**Group 4**

Cardiovascular Image: RM

**Izaskun Bilbao (CNIC)**

**Group 3**

Cardiovascular Image: PET

**Juan Pellico (CNIC)**

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

**Second Floor Seminar Room**

Cell analysis techniques: Cytometry and High Content Screening

**María Montoya (CNIC)**

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

**Second Floor Seminar Room**

Proteomics

**Juan Antonio López (CNIC)**

Genomics

**Ana Dopazo (CNIC)**

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

**Second Floor Seminar Room**

**Group 1**

Model systems (I): Zebrafish

**María Galardi, Laura Andrés,  
Héctor Sánchez, Eduardo Díaz (CNIC)**

**Group 2**

Model systems (I): Zebrafish

**María Galardi, Laura Andrés,  
Héctor Sánchez, Eduardo Díaz (CNIC)**



## D. Extra Workshops (for Course “Getting to Know CNIC”& BMM9)

17 February (11.10 to 13.00 h)

Second Floor Seminar Room

11.10 to 11.20 h

**Finance Department**

Teacher:

**Jose Alberto Alonso (CNIC)**

11.20 to 11.30 h

**Human Resources Estrategy. The European Charter for Researchers and the CNIC Code of good scientific practices**

Teacher:

**Antonio Ureña (CNIC)**

11.30 to 11.50 h

**CNIC Predoctoral Programme**

Teacher:

**Susana Negrete (CNIC)**

12.10 to 12.40 h

**TT Office, Research Office & Projects**

Teachers

**Noelia Lopez (CNIC)**

**Cristina Giménez (CNIC)**

**Inga Dreville (CNIC)**

12.40 to 13.00 h

**“The CNIC Library and Information Service, how can we help you“**

Teacher:

**Irene Maseda Agüero (CNIC)**

## B. Res@CNIC Student presentations: 28 February - 2 March (16:00- 18:00 h)

Second Floor Seminar Room

4-5 presentations a day. Each presentation will last 15 min + 5 min discussion

Moderators: **Borja Ibáñez; Antonio Fernández Ortiz; Héctor Bueno; David Filgueiras y Enrique Lara-Pezzi.**