

**“SIXTH INTERNATIONAL SYMPOSIUM
ON STEM CELL THERAPY
AND CARDIOVASCULAR INNOVATIONS”**

Madrid (Spain), 23RD AND 24TH APRIL 2009

**Auditorio
Consejo Superior de Investigaciones Científicas (CSIC)
C/ Serrano 117
28006 Madrid**



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1. INTRODUCTION

2. ACCREDITATION

3. ORGANIZATION

- **Direction**
- **International Scientific Advisory Board**
- **Executive Local Committee**
- **Organization**

4. EDUCATIONAL OBJECTIVES

5. FACULTY

6. SCIENTIFIC AGENDA

7. GENERAL INFORMATION

- **Meeting Venue**
- **Date**
- **Official languages**
- **Technical Secretariat**

8. WEBSITE AND EDUCATIONAL PRODUCTS

9. COLLABORATION AND SPONSORS



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“Man, though acting on external characters alone and often capriciously, can produce within a short period a great result by adding up mere individual differences in his domestic productions.”

“[...]Why, if man can by patience select variations most useful to himself, should nature fail in selecting variations useful, under changing conditions of life, to her living products? What limit can be put to this power, acting during long ages and rigidly scrutinising the whole constitution, structure, and habits of each creature, — favouring the good and rejecting the bad? I can see no limit to this power, in slowly and beautifully adapting each form to the most complex relations of life. The theory of natural selection, even if we looked no further than this, seems to me to be in itself probable.”



On the Origin of Species by Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life
Charles Darwin (London, 1859)

Prolific Spanish writer, cartoonist and humorist with a career of more than 50 years in the field of graphic humour, Antonio Mingote has been able to reflect with subtlety, irony and great sensitivity the everyday life of his native country. All in Spain know and admire Mingote. We are the most grateful to him for dedicating this cartoon to our Symposium in the “Year of Darwin”

Two hundred years have passed since Charles Darwin’s birth and one hundred and fifty since the publication of his most famous work, *On the Origin of Species by Means of Natural Selection or the Preservation of Favoured Races in the Struggle for Life*. “The book that changed the world”, which sold out the very same day it was published, represents the main revolution of natural history, as it offered a radical new view of the living world and, most radical of all, of humanity’s origins. The underlying challenging theory was “evolution by natural selection”, in which the struggle for life induces variations in the organic beings which are inherited and determine the evolution of all species.

The contribution of Darwin’s theories to medicine is of a great importance, as they constitute the first scientific approximation to the Hippocratic intuition that attributed to the man (the physician) the ability to modify human life. Indeed, Darwin brilliantly explains in his work how



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evolution determines the acquisition of qualities that improve the adaptability of species to life, and the loss of those other qualities that result unnecessary. Interestingly, he admits possible “errors” of nature in this process, and states that human actions could counteract them with final beneficial results for humans.

Mammalians have lost the extraordinary capability of tissue regeneration that reptiles possess, but their hearts still hold small amounts of stem cells with regenerative capacity that, with help, could be able to face up aggressions nature had not foreseen, such as myocardial infarction or any other causes of cardiac failure. The Sixth International Symposium on Stem Cell Therapy and Cardiovascular Innovations has been organized one more year to stimulate translational research in the application of stem cells and other biotechnological innovations to cardiovascular diseases. With the aim of considering the findings of research in these areas, a comprehensive debate is envisaged in the presence of leading clinical and preclinical specialists both on the stage and in the audience. As on previous occasions, interaction between experts will lead to a realistic analysis from different points of view of both the progress made and the obstacles encountered in the application of biotechnological innovations during the last year.

This program has been made possible thanks to the effort and enthusiasm of many people whose contribution should be acknowledged¹. We sincerely hope to meet the expectations of all those who wish to spend their valuable time visiting Madrid and taking part in this Symposium with us. Thank you and welcome

Francisco Fernandez Aviles
(On behalf of the organising committee)

¹. A list of collaborators from the Department of Cardiology of the Hospital General Universitario Gregorio Marañón de Madrid is shown at the end of this program



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2. ACCREDITATION

- Spanish Society of Cardiology. Continuing Medical Education Accreditation Program.
11.4 credits
- EBAC (European Board for Accreditation in Cardiology)
11 credits
- Agencia Laín Entralgo (Consejería de Sanidad, Comunidad de Madrid)



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3. DIRECTION

DIRECTION

Francisco Fernández-Avilés

Servicio de Cardiología

Hospital General Universitario Gregorio Marañón (Madrid, Spain)

CO-DIRECTION

M^a Eugenia Fernández Santos

Unidad de Producción Celular

Hospital General Universitario Gregorio Marañón (Madrid, Spain)

Bernard Gersh

Mayo Clinic (Rochester, USA)

John F. Martin

Centre for Cardiovascular Biology & Medicine (London, United Kingdom)

José Alberto San Román

Instituto de Ciencias del Corazón (ICICOR)

Hospital Clínico-Universitario de Valladolid (Valladolid, Spain)

Ana Sánchez

Instituto de Biología y Genética Molecular IBGM

Facultad de Medicina. Universidad de Valladolid (Valladolid, Spain)

Pedro L. Sánchez

Servicio de Cardiología

Hospital General Universitario Gregorio Marañón (Madrid, Spain)

James T. Willerson

Texas Heart Institute (Houston, USA)

TECHNICAL DIRECTION

Ana Fernández - Baza

Servicio de Cardiología

Hospital General Universitario Gregorio Marañón (Madrid, Spain)



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INTERNATIONAL SCIENTIFIC ADVISORY BOARD

Jozef Bartunek	(Aalst, Belgium)
Nabil Dib	(San Diego, USA)
Stefanie Dimmeler	(Frankfurt, Germany)
Helmut Drexler	(Hannover, Germany)
Valentín Fuster	(New York, USA)
Manuel Galiñanes	(Leicester, United Kingdom)
Javier García-Sancho	(Valladolid, Spain)
Bernard Gersh	(Rochester, USA)
Juan Carlos Izpisúa	(La Jolla, USA)
Stefan Janssens	(Leuven, Belgium)
Anthony Mathur	(London, United Kingdom)
John Martin	(London,, United Kigdom)
Philippe Menasche	(Paris, France)
Bernardo Nadal-Ginard	(Boston, USA)
Emerson Perin	(Houston, USA)
Warren Sherman	(New York, USA)
Dorys Taylor	(Minneapolis,USA)
William Wijns	(Aalst, Belgium)
James T. Willerson	(Houston, USA)
Andreas Zeiher	(Frankfurt, Germany)

EXECUTIVE LOCAL COMMITTEE

Marta Alhama	(Hospital G. Univ Gregorio Marañón, Madrid)
Felipe Atienza	(Hospital G. Univ Gregorio Marañón, Madrid)
Javier Bermejo	(Hospital G. Univ Gregorio Marañón, Madrid)
Marta Dominguez	(Hospital G. Univ Gregorio Marañón, Madrid)
Lucia Fernandez Peña	(Hospital G. Univ Gregorio Marañón, Madrid)
Jaime Elizaga	(Hospital G. Univ Gregorio Marañón, Madrid)
Pilar Garabato	(Hospital G. Univ Gregorio Marañón, Madrid)
Enrique Gutierrez	(Hospital G. Univ Gregorio Marañón, Madrid)
Ricardo Sanz	(Hospital G. Univ Gregorio Marañón, Madrid)
Adolfo Villa	(Hospital G. Univ Gregorio Marañón, Madrid)

ORGANIZATION

- Servicio de Cardiología. Hospital General Universitario Gregorio Marañón
- Instituto de Ciencias del Corazón (ICICOR) del Hospital Clínico-Universitario de Valladolid
- Red Temática de Investigación Cardiovascular del Instituto de Salud Carlos III (RECAVA)
- Red Temática de Terapia Celular del Instituto de Salud Carlos III (TERCEL)
- Grupo de Terapia Celular Aplicada al Miocardio (TECAM, Hospital Clínico-Universitario de Valladolid, Hospital Universitario Río Hortega, Instituto de Biología y Genética Molecular)
- Task Force on Stem Cell Regeneration of the Heart (European Society of Cardiology)



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4. EDUCATIONAL OBJECTIVES

This symposium is aimed at both medical and non-medical scientists interested in the study and application of stem cell therapy and other biotechnological advances for the prevention and treatment of cardiovascular failure. For this reason the audience comprises:

- a) Preclinical researchers from all areas wishing to deepen their knowledge of cardiovascular biotechnological developments with therapeutic potential.
- b) Doctors specialising in the care of patients suffering from cardiovascular diseases, and who are interested in finding out about and discussing the current state of affairs and the future prospects for the application of these new therapeutic methods.
- c) Doctors involved in interventions dedicated to cardiovascular pathology and who are interested in the results and perspectives of gene vehiculization techniques, the stimulation of endogenous progenitors, cell transplant or electromechanical helps to fight cardiovascular disease.
- d) Medical or no medical professionals interested in the development of units and networks aimed at the translation of cardiovascular knowledge from bench to bedside and vice versa.
- e) Medical or no medical professionals interested in envisaging the opportunities for competition of biotechnology in the cardiovascular field

At the end of the conference those present will have acquired the following skills:

1. Knowledge and ability to discuss the latest advances in the role of progenitor cells in the integrity of the cardiovascular system of a healthy individual.
2. Knowledge and ability to discuss the latest experimental advances in the renewal and repair capacity of the damaged cardiovascular structure via the transplant of adult or embryonic stem cells or the stimulation of endogenous progenitors,.
3. Know about and be able to objectively debate the current state of feasibility, safety and efficacy with regards to the clinical application of cell therapy and other new biotechnological treatments.
4. Knowledge and ability to debate objectively on the efficiency of these types of treatment in patients with acute or chronic cardiovascular diseases.
5. Ability to predict the possibilities of scientific and professional attitude with regards to offering these therapeutic methods.
6. Ability to evaluate and decide one's own ability to participate in the application of these therapies for healthcare, clinical, and preclinical purposes.
7. Ability to identify those institutions and groups with the highest performance capabilities in these fields, and be able to establish contacts for educational, scientific, and healthcare purposes.



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5. FACULTY

Joseph Bartunek	(Aalst, Belgium)
Natividad Calvente	(Madrid, Spain)
Dominique Charron	(Paris, France)
Juan Carlos Chachques	(Paris, France)
Emanuelle Cozzi	(Padova, Italy)
Stefanie Dimmeler	(Frankfurt, Germany)
Arturo Fernandez-Cruz	(Madrid, Spain)
O. Howard Frazier	(Houston, USA)
Valentín Fuster	(New York, USA)
Manuel Galiñanes	(Leicester, UK)
David García-Dorado	(Barcelona, Spain)
Bernard Gersh	(Rochester, USA)
Angel González Pinto	(Madrid, Spain)
Enrique Gutierrez	(Madrid, Spain)
Jose Lasso	(Madrid, Spain)
Jonathan Hill	(London, United Kingdom)
Juan Carlos Izpisúa	(La Jolla, USA)
Stefan Janssens	(Leuven, Belgium)
Dara Kraitichman	(Baltimore, USA)
John Martin	(London, United Kingdom)
Rafael Matesanz	(Madrid, Spain)
Philippe Menasche	(Paris, France)
Bernardo Nadal-Ginard	(Boston, USA)
Mark S. Penn	(Cleveland, Ohio)
Rosa Perez-Cano	(Madrid, Spain)
Emerson Perin	(Houston, USA)
Felipe Prosper	(Pamplona, Spain)
Alberto San Román	(Valladolid, Spain)
Ana Sánchez	(Valladolid, Spain)
José Manuel Sánchez Ron	(Madrid, Spain)
Ricardo Sanz	(Madrid, Spain)
Augusto Silva	(Madrid, Spain)
Robert Simari	(Rochester, USA)
José Suárez de Lezo	(Cordoba, Spain)
Doris Taylor	(Minneapolis, USA)
André Terzic	(Rochester, USA)
William Wijns	(Aalst, Belgium)
Kai C. Wollert	(Hannover, Germany)
Magdi Yacoub	(Harefield, United Kingdom)
Andreas Zeiher	(Frankfurt, Germany)



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6 SCIENTIFIC AGENDA

THURSDAY, 23RD APRIL 2009

(7.45 – 8.30)

REGISTRATION

(8.30 – 9.00)

WELCOMING

(9.00 – 10.30)

OPENING SPECIAL LECTURES

Chairs: David García-Dorado (Barcelona, Spain)
Manuel Galiñanes (Leicester, UK)

(9.00 – 9.25) **Rebuilding the heart in Darwin's year**
Jose Manuel Sanchez Ron (Madrid, Spain)

(9.30 – 9.55) **Gene and stem cell therapy for cardiovascular diseases.
Historical perspective and challenges for the future**
Valentin Fuster (New York, USA)

(10.00 – 10.25) **New consensus on stem cell therapy for heart repair**
John Martin (London, UK)

10.30 - 11.00 Coffee break

(11.00 - 13.45)

WHAT'S NEW?

Chairs: José Suarez de Lezo (Cordoba, Spain)
Joseph Bartunek (Aalst, Belgium)

(11.00 – 11.20) **On embryonic and embryonic-like cells?**
André Terzic (Rochester, USA)

(11.20 – 11.40) **On classical and new adult cells?**
Mark S. Penn (Cleveland, USA)

(11.40 – 12.00) **On heart tissue reengineering?**
Juan Carlos Chachques (Paris, France)

(12.00 – 12.20) **On delivering and navigation?**
Emerson Perin (Houston, USA)



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- (12.20 – 12.40) **On clinical trials?**
Kai C. Wollert (Hannover, Germany)
- (12.40 – 13.00) **On imaging?**
Jonathan Hill (London, United Kingdom)
- (13.00 – 13.20) **On new organizational models for optimal cell processing
and application?**
Robert Simari (Rochester, USA)
- (13.20 – 13.40) **On regulatory?**
Natividad Calvente (Madrid, Spain)

13.45 – 15.30 Lunch and Poster Exhibition

SALON DE ACTOS. RESIDENCIA DE ESTUDIANTES CSIC

Chairs: Philippe Menasche (Paris, France)
Felipe Prosper (Pamplona, Spain)
Stefanie Dimmeler (Frankfurt, Spain)
Stefan Janssens (Leuven, Belgium)

In this “Poster Exhibition” research teams involved in the topic of the Symposium will have the opportunity of presenting selected parts of their work to the audience.

A Poster Review Committee will select which the best posters of the session are. At the end of the session, the verdict will be communicated. The winners of the Posters Awards will have to present their work (oral presentation) the following day in the morning, in the session named “Best Posters Presentation”, when they will receive their prize (2.000 € each)



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(15.30 – 17.30)

SPECIAL THEMED SESSION: “NEW HEARTS FOR OLD AND NEW NEEDS”

Chairs: Angel González-Pinto (Madrid, Spain)
Rafael Matesanz (Madrid, Spain)

(15.30-15.50) **Cardiac replacement for end-stage heart disease: need, demand, supply and dreams**
Magdi Yacoub (London, UK)

(15.50-16.10) **Bridge? Destination? Both? New paradigms in mechanical heart replacement**
O. Howard Frazier (Houston, USA)

(16.10 – 16.30) **Heart replacement in the age of stem cell therapy and biosensors technology. What we know and what we can expect**
Philippe Menasche (Paris, France)

(16.30 – 16.50) **Xenotransplant. Still a hope?**
Emanuele Cozzi (Padova, Italy)

(16.50 – 17.10) **Stem cell-based heart replacement: the Taylor Heart**
Doris Taylor (Minnesota, USA)



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FRIDAY, 24th APRIL 2009

AUDITORIUM

(9:00 - 10:00)

BEST POSTERS PRESENTATION

Chairs: Philippe Menasché (Paris, France)
Stefan Janssens (Leuven, Belgium)

(9:00-9:15) **Prizes-giving**

(9:15-9:30) **Winner work presentation and discussion**

(9:30-9:45) **Winner work presentation and discussion**

(9:45-10:00) **Winner work presentation and discussion**

(10:00 – 11:30)

CONTROVERSIES

Chairs: Bernardo Nadal-Ginard (Boston, USA)
Arturo Fernandez-Cruz (Madrid, Spain)

(10.00 – 10.45)

Stem cell therapy treatment in AMI after meta-analyses results?

10.00 Pro Andreas Zeiher (Frankfurt, Germany)
10.15 Contra Bernard Gersh (Rochester, USA)
Rebuttal
10.30 Pro Andreas Zeiher (Frankfurt, Germany)
10.35 Contra Bernard Gersh (Rochester, USA)
10.40 Conclusion

(10.45 – 11.30)

Is it time to use allogenic stem cells?

10.45 Pro Mark S. Penn (Cleveland, USA)
11.00 Contra Dominique Charron (Paris, France)
Rebuttal
11.15 Pro Mark S. Penn (Cleveland, USA)
11.20 Contra Dominique Charron (Paris France)
11.25 Conclusion



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11.30 – 12.00 Coffee Break

(12.00 – 13.30)

I HAVE A QUESTION FOR YOU, DR. EXPERT*

Chairs: Doris Taylor (Minneapolis, USA)
Augusto Silva (Madrid, Spain)

*During this special session six experts in the field will answer direct or video-submitted questions by scientists key opinion leaders, politicians, journalists, and patient. Questions will be organized in **three topic blocks: bench** (mechanism of action, type of cells, homing and tracking, etc); **bedside** (safety, efficacy, clinical scenarios, delivery), and **organization-regulatory-funding**.

EXPERTS AT THE STAGE PANEL

Bernardo Nadal-Ginard	(Boston, USA)
Stefanie Dimmeler	(Frankfurt, Germany)
Joseph Bartunek	(Aalst, Belgium)
Dara Kraitchman	(Baltimore, USA)
Philippe Menasché	(Paris, France)
Ana Sánchez	(Valladolid, Spain)

EXPERTS AT THE FRONT ROW PANEL

This session will be open to the entire audience present in the auditorium. In addition, there will be a front row panel formed by the faculty involved in the meeting and experts in different fields of biomedical research

(13.30 – 14.00)

CASE PRESENTATION

Chairs (Auditorium):

Andreas Zeiher	(Frankfurt, Germany)
José Lasso	(Madrid, Spain)

Operators (Cath-Lab, Hospital General Universitario Gregorio Marañón):

Emerson Perin	(Houston, USA)
Ricardo Sanz	(Madrid, Spain)
Enrique Gutierrez	(Madrid, Spain)
Rosa Perez Cano	(Madrid, Spain)



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(14.00 – 15.30)

CLOSING SESSION: “NEXT STEPS IN HEART REPLACEMENT”

Chairs:	Stefanie Dimmeler Alberto San Roman	(Frankfurt, Germany) (Valladolid, Spain)
(14.00 – 14.20)	My fundamental view Juan Carlos Izpisúa	(La Jolla, USA)
(14.20 – 14.40)	My preclinical view Doris Taylor	(Minneapolis, USA)
(14.40 – 15.00)	My translational view Philippe Menasché	(Paris, France)
(15:00 – 15.20)	My clinical view William Wijns	(Aalst, Belgium)
(15:20 – 15.40)	My global view Magdi Yacoub	(Harefield, UK)
(15.40)	ADJOURN Francisco Fernandez-Aviles	(Madrid, Spain)



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7. GENERAL INFORMATION

Meeting Venue

Auditorium Consejo Superior de Investigaciones Científicas (CSIC)
C/ Serrano 117
28006 Madrid

Date

23rd and 24th April 2009

Official Languages

English and Spanish (simultaneous translation will be available)

Technical Secretariat

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8. WEB SITE AND EDUCATIONAL PRODUCTS

The website www.cardiovascularcelltherapy.com is a virtual place which contains all the information related to this Symposium and its previous editions

It is possible through this web-site to access the scientific program, to register and to reserve accommodation.

It is also a priority for this web site to offer updated information about Stem Cell Therapy for Cardiovascular Diseases, so that appropriate access to the related sites has been created. High quality educational material such as access to web casts, conferences, or updated bibliography is also accessible through this web site