Fifty Years of Spanish Physiology: Negrin's Legacy

XXXII Congress of The Spanish Society of Physiological Sciences

International Joint Meeting with The Physiological Society

FINAL PROGRAMME

Puerto de la Cruz • Tenerife • Spain

13 - 17 february 2003

Organising Institutions:
Departments of Physiology & Animal Biology,
Institute of Biomedical Technologies,
University of La Laguna
Cabildo Insular de Tenerife

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- Salvador González-Barón, President Elect
- Bernat Soria, Past President
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- Manuel Mas (La Laguna), SECF President
- Juan V. Sánchez-Andrés (La Laguna)
- Bernat Soria (Alicante), SECF Past President
- Miguel A. Valverde (Barcelona)

GREETINGS...

From the SECF President

On behalf of the Executive Council of the Spanish Society of Physiological Sciences (SECF) I take great pride in inviting you to attend our XXXII Congress to be held as a joint meeting with the Physiological Society. Tenerife has a reputation for excellence in national and international meetings. The combination of an expected pleasant weather, unique landscape, and the exciting programme set up by the local Organising Committee will offer you a rewarding experience.

This meeting will commemorate Juan Negrin, a Canary Islands-born physiologist who worked in the first third of the XX century and became a milestone in the Spanish physiological tradition. The Scientific Programme, consisting of several plenary lectures, symposia, meet the expert sessions, and satellite courses covers a wide range of topics, from genomics and molecular biology to cell and systems physiology. Substantial time has been allocated for free communications and poster presentations. We do hope that this meeting will attract many young researchers and students. In addition to lower registration fees, they will be entitled to stipends provided by the SECF.

We look forward to greeting you in Puerto de la Cruz in 2003.

Manuel Mas
President of the Spanish Society of Physiological Sciences

From the Chairman of The Physiological Society

The members of the Physiological Society are delighted to have been invited to Spain by the Spanish Society of Physiological Sciences (SECF). Although there have been meetings held in conjunction between our two Societies previously - Salamanca in 1996 and in Liverpool in 1998 – this meeting is historical for it is the first one which is truly a joint meeting. It is recorded that the one requirement of this meeting was that it should be "in sunny place" and there is no doubt that Tenerife fits that description perfectly. The attraction of a warm sunny climate in the middle of a cold British Winter would by itself guarantee an excellent attendance by the British. The added opportunity to talk physiology with our Spanish friends, colleagues and collaborators in such an environment is not to be missed.

We look forward with great anticipation to what we know will be an enjoyable time during which we will learn a lot, develop new ideas, make new friends and, I am sure, learn to relax in the Spanish style. We will be honoured also to share in the commemoration of the contribution of Juan Negrin to our discipline.

Dafydd Walters
Chairman
The Physiological Society

WELCOME INVITATION...

From the Local Organising Committee to the XXXII Congress of The Spanish Society of Physiological Sciences 2003, Puerto de la Cruz, Tenerife

It is our pleasure to invite you and your colleagues to this scientific event. It should prove to be a memorable meeting in which the PHYSOC and the SECF will bring together their highest quality science and their latest developments in physiology.

The scientific sessions will be held in the luxury Taoro Congress Centre in the town of Puerto de la Cruz, which is surrounded by the Taoro Park and the Botanical Garden where you will enjoy the superb vegetation of tropical plants. From the meeting venue you will be within walking distance of Puerto de la Cruz downtown, a cosmopolitan place with excellent hotels and a variety of fine restaurants that coexist with the traditional parts of the old port, representing the favourite meeting-point for shopping and amusement.

Puerto de la Cruz has a pleasant climate, which rarely drops below 20° C, and is idyllically situated at the foot of the Teide Volcano (about 3,800m of altitude) and bathed in the Atlantic Ocean. It is easily accessible for international and national travellers via the two Tenerife International Airports (Los Rodeos and Reina Sofía, respectively located in the Northern and Southern parts of the Island), catering for direct flights from most European capitals. In addition, the main British cities have direct flight connections with the Island.

While you are in Tenerife we have arranged a social programme for accompanying persons, including a welcome reception at the Taoro Congress Centre and music evening dinner at the Taoro Casino. In addition, a variety of tours will be offered by the Congress Secretariat, which will give you the opportunity to visit some of the idyllic places of Tenerife and the other Canary Islands.

We look forward to sharing with you great moments of both science and leisure during this meeting in this paradise setting.

Rafael Alonso
Chairman, XXXII SECF 2003

Raquel Marin
Secretary, XXXII SECF 2003

SCIENTIFIC COMMITTEE

Cell Physiology & Biophysics
- Constancio González (Valladolid)
- Julián González (La Laguna)
- Ana Ilundain (Sevilla)
- Lucía Tabares (Sevilla)

Biochemistry, Molecular Biology& Immunology
- Mónica de La Fuente (Madrid)
- Luisa Fernanda Fanjul (Las Palmas GC)
- Pablo Martín-Vasallo (La Laguna)
- Eduardo Salido (La Laguna)

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- Ricardo Borges (La Laguna)
- Manuel Feria (La Laguna)
- José A. Pariente (Cáceres)

Neurophysiology
- Javier Cudeiro (La Coruña)
- Francisco Mora (Madrid)
- Manuel Rodríguez (La Laguna)
- Javier Yajeya (Salamanca)

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- Bonifacio Díaz-Chico (Las Palmas GC)
- Carlos Diéguez (Santiago de Compostela)
- José Sánchez-Criado (Córdoba)
- Santiago Santidrián (Pamplona)

Systemic Physiology
- Salvador González-Barón (Málaga)
- Manuel Mas (La Laguna)
- Javier Salazar (Murcia)

Comparative Physiology
- Antonio Lorenzo (La Laguna)
- Ana B. Rodríguez-Moratinos (Badajoz)
- Luis de Vera (La Laguna)

Teaching & Simulations
- Guillermo Alvarez de Toledo (Sevilla)
- Mario Díaz (La Laguna)
- Jorge García-Seoane (Madrid)

INTRODUCTION TO JUAN NEGRIN

Juan Negrín and Experimental Physiology in Early 20th Century in Spain

Experimental science and research initiated a process of institutionalisation in Spain during the first decades of the 20th century, as a consequence of a political programme of social regeneration, which included scientific activity as a means of modernisation. Krausist ideology (education as a factor for social change), the international impact of Cajal work, the foundation of the Junta para Ampliación de Estudios e Investigaciones Científicas and the Institut d'Estudis Catalans (1907), were some of the players in this process which has been described by historians as the Silver Age of Spanish Science. On a political level, the Spanish government promoted the creation of research institutes in a wide range of scientific areas, such as microscopic anatomy, general chemistry, physiological chemistry, anatomy of the nervous system, physics and chemistry, normal and pathological histology, and on general physiology, the one leaded by Juan Negrín (1892-1956).

Negrín was a scholar and assistant of Theodor von Brücke in Leipzig (Germany), where he studied medicine and learned the experimental method in the well-known laboratory founded in 1865 by Carl Ludwig. Because of the effect of the First World War on German universities and research groups, Juan Negrín was forced to return to Spain in 1916. Although he had planned to join the laboratory of Walter Cannon, in USA, the creation of the Laboratory for General Physiology in Madrid compelled him to stay. He then began the second stage of his academic and social activity, as leader of a young research group with strong links with the main international research groups, and as member of the Socialist party, Member of Parliament, and finally head of the Spanish government during the Spanish Civil War. His research lines, first in Leipzig and then in Spain, focussed on the neural regulation on the vascular system, after an initial interest in the action of suprarrenal glands on the central nervous system. His Spanish Ph.D. was on El tono vascular y el mecanismo de la acción vasotónica del esplácnico.

The Laboratory for General Physiology was located in the Residencia de Estudiantes --the actual centre of intellectual activity in Spain at that time, not only in natural sciences, but also in social sciences, arts and humanities--, with Buñuel, Lorca, and Dalí as some of the residents. Nevertheless, the poor conditions of the laboratories were overcome with imagination and by the construction of research instruments and the development of an extensive programme of fellowships for young researchers, which helped to break down the barriers inhibiting Spanish science and innovation at the time. Among Negrín's disciples the following should be mentioned: José Domingo Hernández Guerra, Ramón Pérez-Cirera, Severo Ochoa, Francisco Grande Covián, Blas Cabrera Sánchez, Rafael Méndez, José Puche and José García Valdecasas. A young group of researchers linked to European and American laboratories whose tragical destiny was exile and disintegration as result of the end of the Spanish Civil War.

Josep Luis Barona
Proffessor of Science History
University of Valencia

XXXII CONGRESS OF THE SPANISH SOCIETY OF PHYSIOLOGICAL SCIENCES

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SCIENTIFIC PROGRAMME

OVERVIEW

THURSDAY, FEBRUARY 13, 2003

	13:00 - 18:00	18:00 - 19:30	19:30 - 21:00
REGISTRATION DESK	Registration		
POSTER AREA	Poster Setting		
ROOM A (THEATER)		Opening Address Introductory Lecture Juan Negrín Prize	
OUTSIDE TERRACE			Welcome Reception

FRIDAY, FEBRUARY 14, 2003

	09:00 11:40	11:40 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 17:20	17:20 17:35	17:35 18:35	18:35 19:35
ROOM A	S1-S5	COFFEE BREAK	PL1	LUNCH BREAK		T1-T6	TEA BREAK	PL2	
ROOM B	S6-S9					O20-O26			P1-P31
ROOM C	O1-O9B					O27-O34			P32-P54
ROOM D	O10-O19					O35-O42B			P55-P71
POSTER AREA	POSTER VIEW				Authors: P1-P71	POSTER VIEW			
EXHIBITION AREA	COMMERCIAL EXHIBITION								

SATURDAY, FEBRUARY 15, 2003

	09:00 11:40	11:40 12:00	12:00 13:00	13:00 14:00	14:00 15:00	15:00 17:20	17:20 17:35	17:35 18:35	18:35 19:35
ROOM A	S10-S15	COFFEE BREAK	PL3	LUNCH BREAK		DF1	TEA BREAK	PL4	
ROOM B	S16-S21					DF2			P73-P90
ROOM C	O43-O52					O63-O70			P91-P114
ROOM D	O53-O62								P115-P136
POSTER AREA	POSTER VIEW				Authors: P73-P136	POSTER VIEW			
EXHIBITION AREA	COMMERCIAL EXHIBITION								

SCIENTIFIC PROGRAMME

SUNDAY, FEBRUARY 16, 2003

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<tr><td>ROOM A</td><td>S22-S26</td><td rowspan="4">COFFEE BREAK</td><td>ME1</td><td colspan="2" rowspan="4">LUNCH BREAK</td><td>S33-S36</td><td rowspan="4">TEA BREAK</td><td></td><td>SECF Assembly</td><td rowspan="4"></td></tr>
<tr><td>ROOM B</td><td>S27-S32</td><td>ME1</td><td>DF3</td><td>P137-P158</td><td rowspan="3"></td></tr>
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<tr><td>ROOM D</td><td>O81-O90</td><td></td><td></td><td>P182-P202</td></tr>
<tr><td>POSTER AREA</td><td colspan="4">POSTER VIEW</td><td>Authors: P137-P202</td><td colspan="4" rowspan="2"></td><td rowspan="2">CLOSING DINNER</td></tr>
<tr><td>EXHIBITION AREA</td><td colspan="4">COMMERCIAL EXHIBITION</td><td></td></tr>
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MONDAY, FEBRUARY 17, 2003

	10:30 - 12:30
ROOM A	SATELLITE DEBATE

DF: Discussion Forum
ME: Meeting the Expert
O: Oral Communications
P: Poster Approval
PL: Plenary Lectures
S: Symposia
T: Teaching Workshop

DAILY SCHEDULE

Thursday, February 13, 2003

MAIN DESK

13:00 - 19:30 **REGISTRATION**

POSTER AREA

13:00 - 21:00 **POSTER SETTING**

ROOM A

18:00 - 18:30 **OPENING ADDRESS**

• First Juan Negrín Prize to Erwin Neher

Supported by the Foundation Juan Negrín

18:30 - 19:30 **• Juan Negrin and experimental physiology in early 20th century in Spain**

José L. Barona (University of Valencia, Valencia, Spain)

Introduced by Manuel Mas (University of La Laguna, Tenerife, Spain)

OUTSIDE TERRACE

19:30 - 21:00 Welcome reception

Friday, February 14, 2003

ROOM A

SYMPOSIUM I

• Novel Mechanisms of Estrogen Signalling

Supported by Lilly España S.A.

Organiser: *Luis M. García-Segura*

Chairs: *L.M. García-Segura/A.E. Herbison*

09:00 - 09:05 **• Introduction**

Luis M. García Segura (Institute "Ramón y Cajal", Madrid)

09:05 - 09:35 **• Estrogen-related activities in neuronal systems: a challenge for old friends (S1)**

Raquel Marín (University of La Laguna, Tenerife, Spain)

09:35 - 10:05 **• Rapid actions of estrogen in the anterior pituitary (S2)**

Helen Christian (University of Oxford, Oxford, UK)

10:05 - 10:35 **• Rapid estrogen signalling in gonadotrophin-releasing hormone neurons (S3)**

Allan E. Herbison (University of Otago, Dunedin, New Zealand)

10:35 - 11:05 **• Control of vascular smooth muscle electrical activity by estrogens (S4)**

Miguel A. Valverde (University Pompeu Fabra, Barcelona, Spain)

11:05 - 11:35 **• Regulation of mouse β-cell signalling system by estrogens (S5)**

Angel Nadal (University Miguel Hernández, Alicante, Spain)

11:35 - 11:40 **• Concluding remarks**

Allan E. Herbison

ROOM B	**SYMPOSIUM 2** **• Regulation of Body Mass** ***Organiser:*** *Carlos Diéguez* ***Chairs:*** *C. Diéguez/S. O'Rahilly*
09:00 - 09-10	**• Introduction** *Carlos Diéguez (University of Santiago, Santiago de Compostela, Spain)*
09:10 - 09:45	**• Molecular genetics of body weight homeostasis (S6)** *Stephen O´Rahilly (Addenbrooke's Hospital, Cambridge, UK)*
09:45 - 10:20	**• Hypothalamic regulation of food intake (S7)** *Lynda Williams (Rowet Research Institute, Aberdeen, UK)*
10:20 - 10:55	**• Body weight homeostasis during pregnancy and lactation (S8)** *Rosa Señaris (University of Santiago, Santiago de Compostela, Spain)*
10:55 - 11:30	**• Oleoylestrone and body weight homeostasis (S9)** *Xavier Remesar (University of Barcelona, Barcelona, Spain)*
11:30 - 11:40	**• Concluding remarks** *Stephen O´Rahilly*
ROOM C	**ORAL COMMUNICATIONS**
09:00 - 11:45	**• Cardiovascular/Respiratory Control (O1-O9b)**
ROOM D	**ORAL COMMUNICATIONS**
09:00 - 11:30	**• Smooth Muscle (O10-O19)**
11:40 - 12:00	**COFFEE BREAK**
ROOM A	**PLENARY LECTURE 1**
12:00 - 13:00	**• Dual action of a second messenger cascade on neurotransmitter release** *Erwin Neher (Max-Planck Institute, Goettingen, Germany)* *Introduced by José López-Barneo (University of Sevilla, Sevilla, Spain)* *Supported by the Foundation Juan Negrín*
13:00 - 15:00	**LUNCH BREAK**
POSTER AREA	
14:00 - 15:00	**Authors on Posters (P1- P71)**
ROOM A	**TEACHING WORKSHOP** **• Teaching Physiology to Medical Students** *Supported by The Spanish Society of Medical Education* ***Organiser:*** *Arcadi Gual (University of Barcelona, Barcelona, Spain)* ***Chairs:*** *A. Gual/D. Byrne*

15:00 - 15:25	• **The state of the art (T1)** *Ron Harden (Centre for Medical Education, Dundee, UK)*
15:25 - 15:50	• **Teaching of physiology in Spanish medical shools (T2)** *Jorge L. Palés (University of Barcelona, Barcelona, Spain)*
15:50 - 16:15	• **The use of computers, the Web and information technology in the teaching of phsyiology (T3)** *David Byrne (King's College London, London, Spain)*
16:15 - 16:40	• **New technologies and integration of medical knowledge (T4)** *Alejandro Esteller (University of Salamanca, Salamanca, Spain)*
16:40 - 16-55	• **The replacement of animals In university teaching: the activities of the European Resources Centre for Alternatives (EURCA) (T5)** *Pilar Vinardell (University of Barcelona, Barcelona, Spain)*
16:55 - 17:10	• **Reusable learning objects (RLOS) –a lego approach to teaching medicine? (T6)** *David G. Dewhurst (University of Edinburgh, Edinburgh, UK)*
17:10 - 17-20	• **Discussion**
ROOM B	**ORAL COMMUNICATIONS**
15:00 - 17:20	• **Ion Channels (O20-O26)**
ROOM C	**ORAL COMMUNICATIONS**
15:00 - 17:20	• **Neuroendocrinology (O27-O34)**
ROOM D	**ORAL COMMUNICATIONS**
15:00 - 17:20	• **Microvascular & Endothelial Physiology (O35-O42B)**
17:20 - 17:35	**TEA BREAK**
ROOM A	**PLENARY LECTURE 2**
17:35 - 18:35	• **Calcium in the heart: in and out of control** *David A. Eisner (The University of Manchester, Manchester, UK)* *Introduced by Bridget M. Lumb (University of Bristol, Bristol, UK)* *Supported by The Physiological Society*
ROOM B	**ABSTRACTS APPROVAL**
18:35 - 19:35	• **Ion Channels (P1-P14)** • **Cellular Signalling (P15-P31)**
ROOM C	**ABSTRACTS APPROVAL**
18:35 - 19:35	• **Epithelia & Membrane Transport (P32-P54)**
ROOM D	**ABSTRACTS APPROVAL**
18:35 - 19:35	• **Blood Brain Barrier (P55-P57)** • **Smooth Muscle (P58-P71)**

Saturday, February 15, 2003

ROOM A

SYMPOSIUM 3

• Oxygen Sensing: from Molecules to Man

Supported by Neuropharma and Novartis

Organiser: *José López-Barneo*

Chairs: *J. López-Barneo/C. Peers*

09:00 - 09:30	**• Cellular mechanisms of oxygen sensing: ion channels and neurosecretory responses to hypoxia (S10)** *José López-Barneo (University of Sevilla, Sevilla, Spain)*
09:30 - 10:00	**• Oxygen regulation of ion channels (S11)** *Chris Peers (University of Leeds, Leeds, UK)*
10:00 -10:30	**• Mechanisms underlying oxygen regulation of gene expression (S12)** *Jonathan Gleadle (University of Oxford, Oxford, UK)*
10:30 - 11:00	**• Physiological hypoxia (S13)** *Constancio González (University of Valladolid, Valladolid, Spain)*
11:00 - 11:15	**• The erythrocyte and the regulation of human skeletal muscle blood flow and oxygen delivery: role of circulating ATP (S14)** *José González-Alonso (University of Copenhagen, Copenhagen, Denmark)*
11:15 - 11:30	**• Hypoxia inhibits the ligand-gated rat P2X2 receptor cation channel (S15)** *Helen S. Mason (University of Leeds, Leeds, UK)*
11:30 - 11:40	**• Concluding remarks** *José López-Barneo/Chris Peers*

ROOM B

SYMPOSIUM 4

• Renal Sodium Handling and Blood Pressure Regulation

Organisers: *Francisco J. Salazar/ Edward J. Johns* ***Chairs:*** *E.J. Johns/F.J. Salazar*

09:00 - 09:05	**• Introduction** *Francisco J. Salazar (University of Murcia, Murcia, Spain)*
09:05 - 09:35	**• Purinergic control of renal tubular function (S16)** *David G. Shirley (Middlesex Hospital, London, UK)*
09:35 - 10:05	**• Role of endothelium in blood pressure regulation (S17)** *Victoria Cachofeiro (University Complutense, Madrid, Spain)*
10:05 - 10:35	**• Neural control of renal tubular function (S18)** *Edward J. Johns (University College Cork, Birmingham, UK)*
10:35 - 11:05	**• Interactions between different mechanisms in the regulation of renal function (S19)** *Francisco J. Salazar*
11:05 - 11:20	**• Posttranscriptional control of renin synthesis: identification of proteins interacting with renin mRNA 3'-unstranslated region (S20)** *P.B. Persson (Humboldt University, Berlin, Germany)*

11:20 - 11:35	• **Role of superoxide and nitric oxide in modulating the renal actions of angiotensin II (S21)** *Bernardo López (University of Murcia, Murcia, Spain)*
11:35 - 11:45	• **Concluding remarks** *Edward J. Johns*

ROOM C — **ORAL COMMUNICATIONS**

09:00-11:30	Cellular Neurophysiology I (O43-O52)

ROOM D — **ORAL COMMUNICATIONS**

09:00-11:30	Cellular Signalling (O53-O62)
11:40-12:00	**COFFEE BREAK**

ROOM A — **PLENARY LECTURE 3**

12:00-13:00	• **Engineering pancreatic islets: how far we are?** *Bernat Soria (Miguel Hernández University, Alicante, Spain)* *Introduced by Lem Best (University of Manchester, Manchester, UK)* *Supported by The Spanish Society of Physiological Sciences)*
13:00-15:00	**LUNCH BREAK**

POSTER AREA

14:00-15:00	**Authors on Posters (P73 – P136)**

ROOM A — **DISCUSSION FORUM 1**

15:00-17:20	• **Deciphering the Genome?** ***Organiser:*** *Miguel Beato (Center for Genomic Regulation, Barcelona, Spain)* ***Participants:*** *M. Beato, J.Gleadle, S.G. Grant, J. López-Barneo, B. Soria*

ROOM B — **DISCUSSION FORUM 2**

15:00-17:20	• **Beyond Electrophysiology** ***Organisers:*** *Marianne Fillenz (University of Oxford, Oxford, UK), Manuel Mas (University of La Laguna, Tenerife, Spain)* ***Chairs:*** *M. Fillenz/M. Mas* *Participants: F. Artigas, T. Obrenovitch, M. Fillenz, J.L. González-Mora, G. Alvarez de Toledo, R.M. Wadsworth*

ROOM C — **ORAL COMMUNICATIONS**

15:00-17:20 — **• Cellular Neurophysiology 2 (O63-O70)**

17:20-17:35 — **TEA BREAK**

ROOM A — **PLENARY LECTURE 4**

17:35-18:35 — **• Electrical synapses among GABAergic neurons in the neocortex**
Mario Galarreta (Stanford University, Stanford, USA)
Introduced by Carlos Belmonte (Miguel Hernández University, Alicante, Spain)
Supported by the Foundation Institute of Biomedical Technologies

ROOM B — **ABSTRACTS APPROVAL**

18:35 - 19:35
• Heart & Cardiac Muscle (P73-P78)
• Cardiovascular & Respiratory Control (P79-P90)

ROOM C — **ABSTRACTS APPROVAL**

18:35 - 19:35
• Renal/Respiratory Physiology (P91-P98)
• Cellular Neurophysiology (P99-P114)

ROOM D — **ABSTRACTS APPROVAL**

18:35 - 19:35
• Sensory Functions/Somatosensory Physiology (P115-P121)
• Integrative Neurophysiology (P122-P130)
• Muscle Contraction (P131-P136)

Sunday, February 16, 2003

ROOM A — **SYMPOSIUM 5**

• Mechanisms of Synaptic Plasticity and Integration
Supported by Pfizer
Organiser: *Juan Lerma*
Chairs: *J. Lerma/G. Collingridge*

09:00 - 09:05 — **• Introduction**
Juan Lerma (Institute "Ramón y Cajal", Madrid, Spain)

09:05 - 09:35 — **• Astrocitic responses to synaptically-released neurotransmitters in hippocampal slices (S22)**
Alfonso Araque (Institute "Ramón y Cajal", Madrid, Spain)

09:35 - 10:05 — **• Kainate receptors and synaptic plasticity in the hippocampus (S23)**
Graham L. Collingridge (University of Bristol, Bristol, UK)

10:05 - 10:35 — **• Group III mGluRs signalling in glutamate release modulation (S24)**
José Sánchez-Prieto (University Complutense, Madrid, Spain)

10:35 - 11:05
• **Genetic and proteomic studies of learning (S25)**
Seth G.Grant (University of Edinburgh, Edinburgh, UK)

11:05-11:35
• **Non-canonical signalling by ionotropic kainate receptors (S26)**
Juan Lerma

11:35-11:40
• **Concluding remarks**
Graham L. Collingridge

ROOM B

SYMPOSIUM 6
• New Insights on Cell Signalling
Organisers: *Peter Lipp/Miguel A.Valverde* ***Chairs:*** *P. Lipp/M.A.Valverde*

09:00 - 09:05
• **Introduction**
Miguel A.Valverde (University Pompeu Fabra, Barcelona, Spain)

09:05 - 09:35
• **Regulation of cell growth and cell death by MAP kinase signalling pathways (S27)**
Simon Cook (The Babraham Institute, Cambridge, UK)

09:35 - 10:05
• **The role of Insp3 signalling cascade in the generation of cardiac arrhythmia (S28)**
Peter Lipp (The Babraham Institute, Cambridge, UK)

10:05 - 10:35
• **Insulin-like factors and signalling pathways during inner ear development (S29)**
Isabel Varela-Nieto (Institute "Alberto Sols", Madrid, Spain)

10:35 - 11:05
• **Aequorin imaging of subcellular calcium dynamics in excitable cells (S30)**
Carlos Villalobos (University of Valladolid, Valladolid, Spain)

11:05 - 11:20
• **Voltage control of P2Y receptor-evoked Ca2+ release in the rat mega-caryocyte: sensitivity limits and activation by action potentials (S31)**
Juan Martínez-Pinna (University of Cambridge, Cambridge, UK)

11:20 - 11:35
• **Pharmacological regulation of the late steps in exocytosis (S32)**
Ricardo Borges (University of La Laguna, Tenerife, Spain)

11:35 - 1140
• **Concluding remarks**
Peter Lipp

ROOM C

ORAL COMMUNICATIONS
09:00 - 11:30
• **Sensory Functions/Sensorimotor Control (O71-O80)**

ROOM D

ORAL COMMUNICATIONS
09:00 - 11:30
• **Epithelial & Membrane Transport (O81-O90)**

11:40 - 12:00
COFFEE BREAK

ROOM A

MEET THE EXPERT 1 (ME1)
12:00 - 13:00
• Real-Time Monitoring of Gene Expression in Single Cells
Lucía Núñez (University of Valladolid, Valladolid, Spain)

ROOM B

12:00 - 13:00

MEET THE EXPERT 2 (ME2)

• Mouse Genetics: Understanding Molecular Function in a Living Organism

Rafael Fernández-Chacón (University of Sevilla, Sevilla, Spain)

ROOM C

12:00 - 13:00

MEET THE EXPERT 3 (ME3)

• How to Avoid Frequent Mistakes when Inferring in Physiological Research

Diógenes Laercio (University Complutense, Madrid, Spain)

13:00 - 15:00 **LUNCH BREAK**

POSTER AREA

14:00 - 15:00 **Authors on posters (P137-P202)**

ROOM A

SYMPOSIUM 7

• Understanding Spinal Mechanisms of Propionociception and Antinociception

Organisers: *Anne E. King/ José A. López-García*

Chairs: *A.E. King/J.A. López-García*

15:00 - 15:10

• Introduction

Anne E. King (University of Leeds, Leeds, UK)

15:10 - 15:40

• Spinal memory of peripheral inflammation (S33)

José A. López-García (University of Alcalá, Alcalá de Henares, Spain)

15:40 - 16:10

• Cellular and molecular mechanisms of $GABA_B$ modulation in the spinal cord dorsal horn (S34)

Frédéric Nagy (Institute "Francois Magendie", Bordeaux, France)

16:10 - 16:40

• Nucleoside transporters and adenosine: regulation of glutamatergic nociceptive transmission (S35)

Anne E. King (University of Leeds, Leeds, UK)

16:40 - 17:10

• Neuronal cyclooxygenase and pain (S36)

Blair D. Grubb (University of Leicester, Leicester, UK)

17:10 - 17:20

• Concluding remarks

José A. López-García

ROOM B

15:00 - 17:20

DISCUSSION FORUM 3

• The Role of Emergence of Collective Behaviours in Physiology

Organiser: *J.V. Sánchez-Andrés (University of La Laguna. Tenerife, Spain)*

Participants: *J.M. Delgado-García, G. Leng, A.V. Holden, R. Moreno-Díaz, J.V. Sánchez-Andrés*

ROOM C

15:00 - 17:20

ORAL COMMUNICATIONS

• Muscle Contraction (O91-O98)

17:20 - 17:35 **TEA BREAK**

ROOM B

17:35 - 18:35

ABSTRACTS APPROVAL

- **Autonomic Function (P137-P140)**
- **Development & Plasticity (P141-P144)**
- **Neuroendocrinology (P145-P158)**

ROOM C

17:35 - 18:35

ABSTRACTS APPROVAL

- **Placental/Perinatal/Reproductive Physiology (P159-P165)**
- **Comparative Physiology (P166-P182)**

ROOM D

17:35 - 18:35

ABSTRACTS APPROVAL

- **Gastrointestinal Physiology (P183-P195)**
- **Teaching (P196-P202)**

ROOM A

18:35 - 20:00

SECF General Assembly

POSTER AREA

20:00

Closing Dinner
Poster Prizes

Monday, February 17, 2003

ROOM A

SATELLITE DEBATE

10:30 - 12:30

- **Frontiers between Neurology and Basic Neuroscience in Spain**

Organisers: *L.M. García-Segura/J.V. Sánchez-Andrés*

Participants: *R. Alberca, L.M. García-Segura, J. Matías-Guiu, A. Robles, M. Rodríguez, J.V. Sánchez-Andrés*

INVITED SPEAKERS AND MODERATORS

(without oral communications and poster approval sessions)

Alberca, Román *(Sevilla, Spain)*

Alvarez de Toledo, Guillermo *(Sevilla, Spain)*

Araque, Alfonso *(Madrid, Spain)*

Artigas, Francesc *(Barcelona, Spain)*

Barona, José Luis *(Valencia, Spain)*

Beato, Miguel *(Barcelona, Spain)*

Belmonte, Carlos *(Alicante, Spain)*

Best, Lem *(Manchester, UK)*

Byrne, David *(London, UK)*

Cachofeiro, Victoria *(Madrid, Spain)*

Christian, Helen *(Oxford, UK)*

Collingridge, Graham L. *(Bristol, UK)*

Cook, Simon *(Cambridge, UK)*

Delgado-García José María *(Sevilla, Spain)*

Dewhurst, David G. *(Edinburgh, UK)*

Diéguez, Carlos *(Santiago de Compostela, Spain)*

Eisner, David A. *(Manchester, UK)*

Esteller, Alejandro *(Salamanca, Spain)*

Fernández-Chacón, Rafael *(Sevilla, Spain)*

Fillenz, Marianne *(Oxford, UK)*

Galarreta, Mario *(Stanford, USA)*

García-Segura, Luis Miguel *(Madrid, Spain)*

Gleadle, Jonathan *(Oxford, UK)*

González, Constancio *(Valladolid, Spain)*

González-Mora, José Luis *(Tenerife, Spain)*

Grant, Seth G. *(Edinburgh, UK)*

Grubb, Blair D. *(Leicester, UK)*

Gual, Arcadi *(Barcelona, Spain)*

Harden, Ron *(Dundee, UK)*

Herbison, Allan E. *(Dunedin, New Zeland)*

Holden, Arun V. *(Leeds, UK)*

Johns, Edward J. *(Birmingham, UK)*

King, Anne E. *(Leeds, UK)*

Laercio, Diógenes *(Madrid, Spain)*

Leng, Gareth *(Edinburgh, UK)*

Lerma, Juan *(Madrid, Spain)*

Lipp, Peter *(Cambridge, UK)*

López-Barneo, José *(Sevilla, Spain)*

López-García, José A. *(Alcalá de Henares, Spain)*

Lumb, Bridget M. *(Bristol, UK)*

Marin, Raquel *(Tenerife, Spain)*

Mas, Manuel *(Tenerife, Spain)*

Matías-Guiu, Jordi *(Alicante, Spain)*

Moreno-Díaz, Roberto *(Gran Canaria, Spain)*

Nadal, Angel *(Alicante, Spain)*

Nagy, Frédéric *(Bordeaux, France)*

Neher, Erwin *(Goettingen, Germany)*

Núñez, Lucía *(Valladolid, Spain)*

Obrenovitch, Tiho *(Bradford, UK)*

O'Rahilly, Stephen *(Cambridge, UK)*

Palés, Jorge L. *(Barcelona, Spain)*

Peers, Chris *(Leeds, UK)*

Remesar, Xavier *(Barcelona, Spain)*

Robles, Alfredo *(A Coruña, Spain)*

Rodríguez, Manuel *(Tenerife, Spain)*

Salazar, Francisco Javier *(Murcia, Spain)*

Sánchez-Andrés, Juan Vicente *(Tenerife, Spain)*

Sánchez-Prieto, José *(Madrid, Spain)*

Señaris, Rosa *(Santiago de Compostela, Spain)*

Shirley, David G. *(London, UK)*

Soria, Bernat *(Alicante, Spain)*

Valverde, Miguel Angel *(Barcelona, Spain)*

Varela, Isabel *(Madrid, Spain)*

Wadsworth, Roger M. *(Glasgow, UK)*

Villalobos, Carlos *(Valladolid, Spain)*

Vinardell, Pilar *(Barcelona, Spain)*

Williams, Lynda *(Aberdeen, UK)*

▼ ORAL COMMUNICATIONS

• CARDIOVASCULAR/RESPIRATORY CONTROL (O1-O9B)

Friday 14, ROOM C, 09:00-11:30; Chair: S. González-Barón

• *SP Gaytán, G Hilaire, R Pasaro.* **Altered pattern of connectivity of the ventral respiratory group in adult monoamine oxidase-deficient mice (O1)**

• *SP Gaytán, JC Viemari, R Pasaro, G Hilaire.* **Neonatal expression of 5-HT1B receptors is altered by serotonin excess (O2)**

• *EJ Marco, MC Fernández-Criado, AL López de Pablo.* **Serotonergic activity in rat main cerebral arteries does not seem to be under gabaergic tone in dorsal raphe nucleus (O3)**

• *MS Dawid-Milner, A Díaz-Casares, MV López-González, JP Lara, S González-Barón.* **The parabrachial complex in the response to hypothalamic defence area stimulation in the rat: role of glutamate (O4)**

• *A Gómez-Niño, A Obeso, JR López-López, C González.* **Conflicting findings on the significance of voltage-dependent potassium channels in the transduction of hypoxia in the chemoreceptor cells of the carotid body (O5)**

• *L Such, A Alberola, A Rodríguez, D Sanmiguel, L López, P Palau, B Vilarino, J Benavent, J Ramírez, R Pons, C García, FJ Chorro.* **Intrinsic modifications on ventricular refractoriness by chronic exercise: a study in isolated rabbit heart (O6)**

• *M Jaffar, O Sofola, D Myers, M Drinkhill, R Hainsworth.* **The effects of leptin on pressurised mesenteric artery and vein of the dog (O7)**

• *JP Moore, R Hainsworth, MJ Drinkhill.* **Simulated ventilation enhances systemic vascular responses to distension of the main pulmonary artery in anaesthetised dogs (O8)**

• *T Reybrouck, J Vinckx, M Gewillig.* **Assesment of cardiorespiratory exercise function in obese children by body mass independent parameters (O9)**

• *S Saha, EKA Corbett, MJ Drinkhill, TFC Batten.* **Organisation of projections from the central nucleus of amygdala to autonomic neurones in the medulla: a light and electron microscope study (O9B)**

• SMOOTH MUSCLE (O10-O19)

Friday 14, ROOM D, 09:00-11:30; Chair: J.A. Pariente

• *K Noble, S Wray.* **Capacitative calcium entry in neonatal rat myometrium (O10)**

• *A del Valle, J López-Barneo, J Ureña.* **Voltage-gated $InsP_3$-dependent Ca^{2+} release from internal stores in rat vascular smooth muscle cells (O11)**

• *K Jones, T Shmygol, S Kupittayanant, S Wray.* **Characterization of calcium-activated chloride currents in rat and human uterine smooth muscle (O12)**

• *S Shabir, T Burdyga.* **Role of PKC in control of force-Ca^{2+} relationship in phasic ureteric smooth muscle (O13)**

• *C Ramírez, T Gómez, B García, R Alonso, M Díaz.* **Rapid spasmolytic effect of oestrogens on mouse duodenal muscle (O14)**

• *M Shafei, KD Thornbury, NG McHale, MA Hollywood.* **Relative contributions of calcium influx and calcium stores to myogenic tone in the rat urethra (O15)**

• *MA Hollywood, L Johnston, NG McHale, KD Thornbury.* **Spontaneous calcium transients in isolated intersticial cells from the rabbit urethra (O16)**

• *M Craven, MA Hollywood, NG McHale, KD Thornbury.* **Evidence for a calcium-activated chloride current in freshly dispersed cells from rabbit corpus cavernosum (O17)**

• *IL Serban, DN Serban, SM Slatineanu, G Petrescu.* **Activation of adenosine receptors reduces the contractile response of isolated rat aorta in calcium free-medium (O18)**

• *SJ Pierce, E Monir-Bisthy, S Wray.* **Comparison of the effects of hypoxia and acidification on human myometrium; a common mechanism of action (O19)**

• ION CHANNELS (O20-O26)

Friday 14, ROOM B, 15:00-17:20; Chair: M. Díaz

• *R Vicente, A Escalada, M Coma, M Grande, G Fuster, C López-Iglesias, C Solsona, A Felipe.* **Voltage-gated potassium channels in macrophages. A journey from proliferation to activation (O20)**

• *JM Fernández-Fernández, M Nobles, E Vázquez, MA Valverde.* **Maxi K^+ channel activation by cell swelling in the human bronchial epithelial cell line 16HBE14o-: a role in the regulatory volume decrease (O21)**

• *L Best.* **Glucose activates the volume-sensitive anion channel in rat pancreatic beta-cells (O22)**

• *SYM Yeung, B Robertson.* **Inhibition of Kv3 channels by peptidic toxins (BDS) from sea anemone (O23)**

• *E Dubuis, P Kumar, M Gautier, C Girardin, P Bonnet, C Vandier.* **External acidosis abolishes the difference in response to ATP between large and small rat pulmonary artery smooth muscle cells (O24)**

• *MJ Pozo, GM Herrera, P Zvara, JP Adelman, MT Nelson.* **Small-conductance calcium-activated potassium channels (SK_3) play an inhibitory role in urinary bladder contractility (O25)**

• *MJ Dunne, KE Cosgrove, RM Shepherd, AT Lee, A Natarajan, EM Fernández, A-M González, C Sempoux, Y Guiot, J Rahier.* **A novel form of hyperinsulinism in infancy unrelated to K^+-ATP channel defects in beta-cells (O26)**

• NEUROENDOCRINOLOGY (O27-O34)

Friday 14, ROOM C, 15:00-17:20; Chair: G. Hernández

• *P Cano, F Chacón, V Jiménez, MP Alvarez, DP Cardinalli, AI Esquifino.* **Age-dependent effects on the interrelationships between dopamine and GABA, norepinephrine, serotonin or taurine (O27)**

• *F Chacón, V Jiménez, M Perelló, P Alvarez, A Marcos, E Spinedi, AI Esquifino.* **Effects of caloric restriction in growing male rats on the 24-h variations of pituitary, adrenal hormones and leptin (O28)**

• *C Castillo, E Vara, V Salazar, A Martínez, MA Ramírez, A Holguín, C Ariznavarreta, JAF Tresguerres.* **Effects of melatonin on age-induced liver injury (O29)**

• *C Caquineau, N Sabatier, P Bull, A Douglas, G Leng.* **Alpha-MSH induces Fos expression in oxytocin neurones but decreases systemic oxytocin secretion in the rat (O30)**

• *N Sabatier, C Caquineau, G Dayanithi, G Leng.* **Alpha-MSH mobilises Ca^{2+} from intracellular stores in rat supraoptic oxytocin neurones and induces dendritic release of oxytocin (O31)**

• *PJ Brunton, SL Meddle, S Krömer, ID Neumann, JA Russell.* **Hypothalamo-pituitary-adrenal (HPA) responses to social defeat are reduced in pregnant rats (O32)**

• *J Ward, N Boyce, M Rosser, ML Forsling.* **Renal responsiveness to the vasopressin analogue DDAVP during the suppressed menstrual cycle (O33)**

• *AM Diego-Acosta, JC García-Romero, VJ Fernández-Pastor, S Perán, JR Alvero, M Ruíz-Galdón.* **Incremental graded exercise test to exhaustion in trained and sedentary men: integrated neuroendocrine and metabolic response (O34)**

• MICROVASCULAR & ENDOTHELIAL PHYSIOLOGY (O35-O42)

Friday 14, ROOM D, 15:00-17:20; Chair: V. Cachofeiro

• *C Hermenegildo, P Oviedo, MC García-Martínez, A Cano.* **$F_{2\alpha}$ isoprostane production is reduced by physiological concentrations of estradiol in cultured endothelial cells (O35)**

MV Machargo, J Avila, E Gallego, JJ García-Pérez, MF Arteaga, P Martín-Vasallo. **Searching new autoantigens in renal vasculitis (O36)**

• *DN Serban, IL Serban, SM Slatineanu, G Petrescu.* **The relaxing effect of hydrogen peroxide in de-endothelised small mesenteric arteries of the rat involves activation of potassium channels and of guanylate cyclase (O37)**

• *FM Lynch, AS Izzard, C Austin, AM Heagerty.* **Adenosine-induced dilation of pressurized rat coronary resistance arteries with myogenic tone: role of nitric oxide (O38)**

• *L Shaw, C Austin, MJ Taggart.* **Effect of acute severe hypoxia on vascular tone of isolated pressurised rat mesenteric small arteries (O39)**

• *G Christos, M Rubina.* **Hypoxia-induced production of oxygen free radicals in anaesthetised rats (O40)**

• *EK Naderali, G Williams.* **High-energy diet induces obesity and markedly alters metabolic and vascular function in the rat (O41)**

• *A Briones, JM González, B Somoza, J Giraldo, C Daly, I McGrath, E Vila, C González, SM Arribas.* **Relationship between elastin organisation and structural and mechanical abnormalities in resistance arteries from spontaneously hypertensive rats (O42)**

• *TA Lovick, LA Brown, BJ Key.* **Tonic release of epoxyeicosatrienoic acids (EETS) modulates activity of intraparenchymal arterioles in brain slices (O42B)**

• CELLULAR NEUROPHYSIOLOGY (1) (O43-O52)

Saturday 15, ROOM C, 09:00-11:30; Chair: J. Yajeya

• *SA Fedulova, A Verkhratsky, NS Veselovsky.* **Presynaptic calcium dynamics and synaptic strength: correlation between intra-terminal Ca^{2+} transients and postsynaptic current responses in rat hippocampal neurones (O43)**

• *P Pakhotin, A Verkhratsky.* **Electrical synapses between Bergman glial cells and Purkinje neurones in rat cerebellar slices (O44)**

• *DM Cummings, AJ Milner, MG Stewart, KPSJ Murphy.* **Synaptic plasticity at superficial synapses in mouse perirhinal cortex *in vitro* (O45)**

• *MO Cunningham, EH Bull, MA Whittington.* **Characterisation of high frequency activity in the medial entorhinal cortex *in vitro* (O46)**

• *AW Schmid, DB Freir, A Minogue, M Lynch, CE Herron.* **Involvement of JNK in beta amyloid peptide mediated depression of LTP in the CA1 *in vivo* (O47)**

• *FA Court, PJ Brophy, RR Ribchester.* **Junctional fibroblasts restricted to neuromuscular synapses and their responses to nerve injury (O48)**

• *H Gillingwater, MP Coleman, RR Ribchester.* **Asynchronous synapse withdrawal induced by axotomy in Wld mutant mice expressing fluorescent protein in single motor units (O49)**

• *R Thomas, S Wilke, R Fern.* **The role of astrocytes in early ischemic injury of developing white matter oligodendrocytes (O50)**

• *RA Singh, P Kumar, EC Toescu.* **Effects of oxygenation levels on neuronal cell development and survival (O51)**

• *E Avignone, Akoulakoff, M Segal, C Giaume, N Rouach.* **Carbonoxolone decreases spontaneous and epileptic form activity in cultured neurons via non-gap junctional effects (O52)**

• CELL SIGNALLING (O53-O62)

Saturday 15, ROOM D, 09:00-11:30; Chair: A. Nadal

• *A Morales, M Díaz, R Alonso.* **Rapid effects of 17ß-estradiol on ACh-induced Ca^{2+} signals might be mediated by cGMP in GT1-7 cells (O53)**

• *E Fuentes, I Quesada, MC Viso-León, B Soria, C Ripoll, A Nadal.* **The endocrine disruptor bisphenol-A and the native hormone 17β-estradiol rapidly activate transcription factor CREB in mouse pancreatic ß-cell (O54)**

• *R Pomares, E Andreu, S Soriano, JV Sánchez-Andrés.* **Dependence of *de novo* protein synthesis in temporal potentiation of sensitivity in pancreatic beta-cells (O55)**

• *C Camello-Almaraz, MJ Pozo, PJ Camello.* **Involvement of endogenous reactive oxygen species in Ca^{2+} oscillations in pancreatic acinar cells (O56)**

• *C Solsona, D Reigada, I Díez-Pérez, P Gorostiza, A Verdaguer, I Gómez de Aranda, O Pineda, J Vilarrasa, J Marsal, J Blasi, J Aleu.* **Ionic exchange properties of the intravesicular matrix of cholinergic synaptic vesicles from *Torpedo* electric organ (O57)**

• *A González, GM Salido, JA Pariente.* **Effect of cholecystokinin on mitochondrial activity in isolated mouse pancreatic acinar cells (O58)**

• *JV Gerasimenko, Y Maruyama, AV, Tepikin, OH Petersen, OV Gerasimenko.* **Possible functional interaction of NAADP with the ryanodine receptors in the nuclear envelop of pancreatic acinar cells (O59)**

• *O Mignen, A Enfissi, S Prigent, T Shuttleworth, T Capiod.* **Relation between cell proliferation and capacitative calcium entry amplitude in Hep G2 and HEK 293 cells (O60)**

• *MP Mahaut-Smith, D Thomas, J Martínez-Pinna, MJ Mason.* **Quantification of the platelet-generating demarcation membrane system in rat megakaryocytes using whole-cell capacitance (O61)**

• *GS Posterino, GD Lamb.* **Effect of sarcoplasmic reticulum Ca^{2+} content on action potential release of Ca^{2+} in rat skinned muscle fibers (O62)**

• CELLULAR NEUROPHYSIOLOGY (2) (O63-O70)

Saturday 15, ROOM C, 15:00-17:20; Chair: J. Cudeiro

• *JL Griffiths, IL Martin, TA Lovick.* **Increased numbers of neurones express α4β1δ $GABA_A$-receptor subunits in the**

periaqueductal grey matter during late dioestrous in the rat: relationship to panic behaviour (O63)

• *SMJ Dunn, B Tancowny, IL Martin.* **Characterisation of $GABA_A$ receptors containing rat $\alpha 4\beta 1\delta$ subunits (O64)**

• *AE Stacey, GL Woodhall, RSG Jones.* **The role of $GABA_B$ autoreceptors in control of neurokinin induced GABA release in the rat entorhinal cortex (O65)**

• *TFC Batten, CJ Milligan, J Deuchars, R Russnak.* **The glutamine transporter SAT1 is localized to a subpopulation of GABAergic, as well as glutamatergic neurones in the rat brain (O66)**

• *HL Garner, MA Whittington, EH Buhl, Z Henderson.* **Evidence that parvalbumin GABAergic neurons play a role in pacing kainate-induced θ frequency activity in the rat medial septum/diagonal band of Brocca *in vitro* (O67)**

• *MG Rae, AJ Irving.* **Pharmacology of the group I metabotropic glutamate receptor-mediated responses in rat CA1 hippocampal neurones (O68)**

• *A-M White, MG Rae, AJ Irving, B Platt.* **Group I MGLuR induced-calcium signalling and electrophysiological responses in the rat superficial superior colliculus (O69)**

• *GL Woodhall, DI Evans, RSG Jones.* **Presynaptic metabotropic glutamate receptors have dual effects on glutamate release at terminals in the rat enthorinal cortex (O70)**

• SENSORY FUNCTIONS/SENSORIMOTOR CONTROL (O71-O80)

Sunday 16, ROOM C, 09:00-11:30; Chair: J.M. Criado

• *HR Mathews, MC Cornwall, RK Crouch.* **Enhancement of changes in dim flash response kinetics during light adaptation by 9-demethylretinal in isolated salamander rods (O71)**

• *AM Derrington, A Parker, BS Webb, CJ Tinsley, IS Pedraza.* **Broadly-oriented motion detectors in marmoset V1 respond to local features in 2-D patterns (O72)**

• *BS Webb, AM Derrington.* **Input from beyond the classical receptive field modulates response gain in marmoset primary visual cortex (O73)**

• *L Santoro, P Hansen, C Blakemore.* **Object motion, with or without retinal motion, activates human cortical MT+ (O74)**

• *DJ Tolhurst, CA Parraga.* **Visual discrimination of natural-scene stimuli by amblyopic people (O75)**

• *AF Rodríguez-Hernández, JL González-Mora, J Pujol, JA López-García, JR Muñiz-Montes, LF Rodríguez-Ramos, HM Chulani, E Burunat.* **Functional magnetic resonance imaging of spatial auditory perception in blind and sighted human subjects (O76)**

• *AF Rodríguez-Hernández, E Burunat, M Crespillo, JC Albaladejo, M Alonso-Calvo, I Lojo, LF Rodríguez-Ramos, JL González-Mora, HM Chulani.* **Comparative study of acoustic response of human ears, head, and torso, and its sculptural reproduction in silicone, oriented to the development of a sensory substitution device (O77)**

• *J Cudeiro, M Fernández del Olmo, P Arias, MJ Blanco.* **A simple procedure for auditory stimuli to ameliorate Parkinsonian deficits of movement (O78)**

• *NM Benwell, P Sacco, G Hammond, ML Byrnes, FL Mastaglia, GW Thickbroom.* **Fatigue-related changes in intracortical inhibition associated with exercise of the hand (O79)**

• *PH Ellaway, A Prochazka, M Chan, MJ Gauthier.* **The sense of the movement elicited by transcranial magnetic stimulation is due to sensory input, not efference copy (O80)**

• EPITHELIA/MEMBRANE TRANSPORT (O81-O90)

Sunday 16, ROOM D, 09:00-11:30; Chair: A. Ilundáin

• *MF Arteaga, R Gutiérrez, J Avila, L Díaz-Flores, P Martín-Vasallo.* **Na^+,K^+-ATPase subunits isoforms in rat dorsal ganglion (DRG) of the regenerating sciatic nerve (O81)**

• *RJ Naftalin, I Afzal, C Amat, A Pérez-Bosque, M Moretó.* **Changes in Na^+ distribution across the crypt wall in isolated rat distal colon during transition from high to low NaCl diets (O82)**

• *G Carr, JA Sayer, NL Simmons.* **Cellular localisation of natural CBS (Cystathionine Beta Synthase) domain mutants of CLC-5 investigated using N-terminal GFP-mCLC-5 fusion proteins (O83)**

• *V Urbach, C Bonnans.* **Lipoxin A4 stimulates a cytosolic calcium increase in human bronchial epithelium (O84)**

• *V Ganapathy, S Kiyauchi, DT Thwaites.* **The proton-coupled amino acid transporter PAT1 is not identical to amino acid transport system IMINO (O85)**

• *S Jalickee, JW Widdicombe, SS Miller, S Tripathi.* **Bidirectional solute and fluid flows and driving forces unraveled in**

cultured bovine tracheal epithelium (O86)

• *SJ Ramminger, K Richard, RE Olver, SM Wilson.* **A Na^+ selective, apical conductance in dexamethasone-treated H441 human bronchial epithelial cells (O87)**

• *MT Clunes, RE Olver, SM Wilson.* **Pharmacologically distinct, basolateral P2Y receptors for ADP and UTP in Calu-3 human airway epithelial cells (O88)**

• *I Evans, RV Floyd, R Fox, CS Foster, P Martín-Vasallo, A Mobasheri.* **Na^+,K^+-ATPase is down-regulated in canine prostate cancer (O89)**

• *M García-Delgado, JM Durán, MJ Peral, ML Calonge, A Ilundáin.* **Developmental changes in L-carnitine and creatine transport in rat kidney (O90)**

MUSCLE CONTRACTION (O91-O98)

Sunday 16, ROOM C, 15:00-17:20; Chair: J. González-Alonso

• *G Ellison, L-B Tan, NT Cable, DF Goldspin.* **Skeletal muscle regeneration following catecholamine-induced injury (O91)**

• *JG Burniston, L-B Tan, WA Clark, NT Cable, DF Goldspin.* **Apoptotic and necrotic myocyte death in heart and soleous muscle of the rat *in vivo:* evidence of secondary necrosis (O92)**

• *G Mutungi, KAP Edman.* **Stretch-induced contractile activation in resting intact neonatal rat muscle fibres requires a functionally excitable membrane (O93)**

• *PA Roberts, J Fox, SW Jones, N Peirce, A Cassey, PL Greenhaff.* **The time-course of creatine mediated augmentation of skeletal muscle glycogen storage following exhaustive exercise in man (O94)**

• *MJ Rennie, M Louis, J Poortmans, M Francaux, J Berré, D Cuthbetson, J Babraj, K Smith.* **Creatine supplementation for 5 days has no further effect in stimulating human muscle protein synthesis after resistance exercise (O95)**

• *GI Lancaster, SL Halson, Q Khan, P Drysdale, AE Jeukendrup, MT Drayson, M Gleeson.* **Effect of exhaustive exercise and a 6-day period of intensified training on immune function in cyclists (O96)**

• *GI Lancaster, SL Halson, Q Khan, P Drysdale, AE Jeukendrup, MT Drayson, M Gleeson.* **Effect of exhaustive exercise and intensified training on human T-lymphocyte CD45RO expression (O97)**

• *GI Lancaster, Q Khan, P Drysdale, AE Jeukendrup, MT Drayson, M Gleeson.* **Effect of feeding different amounts of carbohydrate during prolonged exercise on human T-lymphocyte intracellular cytokine production (O98)**

▼ POSTER SESSIONS

• ION CHANNELS (P1-P14)

Authors on posters: Friday 14, 14:00-15 :00; Posters approval: Friday 14, Room B, 18:35-19:35

• *T Giráldez, DL Sheridan, TE Hughes, FJ Sigworth.* **Random insertions of gfp analogs into the hslo channel (P1)**

• *P Lax, V Fernández, E de Juan, RA Jiménez-Moreno, I Ivorra, A Morales.* **Oocytes and eggs of *xenopus laevis* differ in the properties of calcium–dependent chloride channels (P2)**

• *RA Jiménez-Moreno, E de Juan, P Lax, I Ivorra, A Morales.* **Changes in membrane conductance and capacitance induced by activation of *xenopus laevis* eggs (P3)**

• *VL Harvey, C Garner, RL McDonald.* **Outwardly rectifying Cl^- currents activated in CAD cells in response to hypotonic stress (P4)**

• *MI Bahamonde, JM Fernández-Fernández, E Vázquez, MA Valverde.* **Plasma membrane voltage-dependent anion channel (VDAC) mediates antioestrogen-activated maxi Cl^- current in mouse CI300 neuroblastoma cells (P5)**

• *AJ Davis, C Dart.* **Identification of a binding site for the kinase-anchoring protein, AKAAP79 on the murine inwardly rectifying potassium channel Kir2.1 (P7)**

• *M Arniges, JM Fernández-Fernández, A Currid, MA Valverde, E Vázquez.* **Functional and molecular characterization of TRPV4 cation channel in human bronchial epithelial 16HBE14o-cells (P8)**

• *H Hibino, K Higashi, A Fujita, Y Kurachi.* **The expression and specific localisation of an inwardly rectifying K^+ channel, Kir5.1, in the spiral ligament of rat cochlea (P9)**

• *D O'Malley, J Ashford, J Harvey.* **Insulin activates human large conductance Ca^{2+}-activated K^+ (BK) channels via a PI3-kinase independent pathway (P10)**

• *EM Fernández, KE Cosgrove, KL Lindley, MJ Dunne.* **Expression of delayed rectifier potassium channel mRNAs and their function in human insulin-secreting cells (P11)**

• *KE Cosgrove, A Natarajan, RM Shepherd, EM Fernández, AT Lee, A-M González, MJ Dunne.* **Stimulus-secretion coupling mechanisms in human insulinoma beta-cells (P12)**

• *M Ramírez-Ponce, JC Mateos, JA Bellido.* **Voltage-dependent potassium channels in human adipose cells (P13)**

• *MP Ramírez-Ponce, JC Mateos, JA Bellido.* **Voltage-dependent potassium channels may modulate adipogenesis in white adipocytes of the rat: insulin effects (P14)**

• CELLULAR SIGNALLING (P15-P31)

Authors on posters: Friday 14, 14:00-15:00; Posters approval: Friday 14, Room B, 18:35-19:35

• *A Guyot, A Evagelidis, C Gibson, G da Silva Xavier, GA Rutter, JW Hanrahan.* **ATP studies using capillary cell cultures and a luciferase mutant with reduced affinity for nucleotides (P15)**

• *G Alvarez de Toledo, S Navas, C Fernández-Peruchena, L Tabares.* **Slow and fast kiss-and-run modes of exocytosis are differentially controlled by extracellular and cytosolic calcium levels (P16)**

• *PC Redondo, A Asunción, GM Salido, JA Rosado, JA Pariente.* **Hydrogen peroxide induces release of calcium from agonist-sensitive and mitochondrial calcium stores in human platelets (P17)**

• *JA Rosado, PC Redondo, A González, GM Salido, JA Pariente.* **Evidence for the activation of store-mediated Ca^{2+} entry by a secretion-like coupling mechanism in mouse pancreatic acinar cells (P18)**

• *JA Pariente, PC Redondo, GM Salido, JA Rosado.* **Hydrogen peroxide reduces store-mediated Ca^{2+} entry and the plasma membrane calcium ATPase activity in human platelets (P19)**

• *M Camacho, JD Machado, G González, M Montesinos, MA Brioso, R Borges.* **Hydralazine reduces the quantal size of secretory events by displacement of catecolamines from adrenomedullary chromaffin secretory vesicles (P20)**

• *JJ Moreno.* **Cyclooxygenase and cytochrome P-450 pathways induced by foetal calf serum regulate wound closure in 376 fibroblast cultures. Role of calcium and cAMP (P21)**

• *JA Rosado, PC Redondo, AI Lajas, A González, GM Salido, JA Pariente.* **Involvement of $p60^{SRC}$ in the activation of store mediated Ca^{2+} entry in mouse pancreatic acinar cells (P22)**

• *A Alonso, R Fernández, F Díaz, AM Patterson, C González.* **Role of ovarian steroids on insulin receptors in food restricted (50 %) rats (P23)**

• *A González, MP Granados, GM Salido, JA Pariente.* **H2O2 induces changes in mitochondrial activity in isolated mouse pancreatic acinar cells (P24)**

• *PJ Gómez, AT Hernández, C Camello-Almaraz, MJ Pozo, PJ Camello.* **Ca^{2+} influx in cerebellar granule cells (P25)**

• *I González-Robayna, I Hernández, LF Fanjul, P Santana.* **Regulation of FSH induced PTTG and HIF-1α expression in the ovarian granulosa cells (P26)**

• *P Pérez-Matute, A Martí, JA Martínez, MJ Moreno-Aliaga.* **Effects of conjugated linoleic acid (CLA) on leptin gene expression and secretion in cultured rat adipocytes (P27)**

• *DL Villegas, E Castro.* **Role of ATP and adenosine in the modulation of NOS-2 expression in the ovarian granulosa cells (P28)**

• *F Pérez-Cano, A Franch, C Pelegri, C Castellote, M Castell.* **Influence on the *in vitro* assay conditions on the spermine and spermidine immunomodulatory effect (P29)**

• *G Silvan, L Peña, D Pérez-Alenza, A Nieto, JC Illera.* **The possible role of IGF-I and estrogens in the development of canine inflamatory mammary carcinoma (P30)**

• *F Alba, B Jiménez, M Arauzo, M Ramírez, I Prieto, F Vives.* **Inhibition of serum CD13/aminopeptidase activity by antimalarial drugs (P31)**

• EPITHELIA/MEMBRANE TRANSPORT (P32-P54, P-181)

Authors on posters: Friday 14, 14:00-15:00; Posters approval: Friday 14, Room C, 18:35-19:35

• *M García-Delgado, MJ Peral, O García-Benitez, O Carreras, AA Ilundáin.* **Ethanol increases renal AQP2 expression in adult rats and in their offspring (P32)**

• *JM Durán, M Cano, AA Ilundáin.* **D-mannose transport in isolated enterocytes: evidence for a Na^+-independent, D-mannose specific transporter (P33)**

• *A Romero, JE Mesonero.* **GLUT8 expression in mouse intestine: identification of several transcripts (P34)**

• *E Urdaneta, P Aranguren, S García, F Ibáñez, F Marzo.* **Effect of kefir milk on intestinal dissacharidasse activities in brush border membrane vesicles (P35)**

• *F Marzo, E Urdaneta, C Chocarro, F Ibáñez, S Santidrián.* **Nutritional response of laboratory animals to faba beans (*Vicia faba* L. var. Aguadulce) diets (P36)**

• *IM Larrayoz, MP Lostao.* **Characterisation of the rat Na^+/nucleoside cotransporter (rCNT2) using electrophysiological methods (P37)**

• *A Mate, L Gómez-Amores, CM Vázquez, J Bolufer.* ***In vivo* sugar diffusion in the ileal epithelium of spontaneously hypertensive rats (P38)**

• *B Burghardt, M-L Elkjaer, T-H Kwon, GZ Rácz, G Vargaa, MC Steward, S Nielsen.* **Expression and localization of aquaporin water channels in human exocrine pancreas (P39)**

• *SK Inglis, SH Ross.* **Acid secretion by intact distal airways (P40)**

• *SL Lindsay, R Holdsworth, DL Bovell.* **$P2Y_1$, $P2Y_2$ and $P2Y_4$ receptor localisation in human hyperhidrotic eccrine sweat glands (P41)**

• *E Roussa, PL Rouzic, SL Davies, S Alpert, PD Brown.* **The K^+-Cl^--contransporter (KCCl) is expressed in rat pancreatic alpha-cells (P42)**

• *L Finlay, SK Inglis, SM Wilson, RE Olver.* **Acetylcholine stimulates secretion of chloride and bicarbonate through Cystic Fibrosis Transmembrane Conductance Regulator in an airway epithelial cell line (P43)**

• *MC Constable, EM Husband, SK Inglis.* **Acetylcholine-evoked anion secretion across tracheal epithelium (P44)**

• *A Currid, B Ortega, MA Valverde.* **The morphollogically differentiated human colonic cell line LIM1863 shows CFTR-dependent Cl^- secretion across tracheal epithelium (P45)**

• *M Bellingham, D Bovell, AD Corbett.* **Effect of protein kinase A and protein kinase C inhibition on carbachol-induced short circuit current (I_{SC}) in rat distal colon (P46)**

• *J Linley, MA Gray, NL Simmons.* **Regulation of an outwardly rectifying Cl^- conductance in mouse inner medullary collecting duct cells (P47)**

• *I Ferraz, T Philips, S Bell, PD Clegg, SD Carter, A Mobasheri.* **Growth factor and cytokine regulation of glucose tranport in equine articular chondrocytes (P48)**

• *MB O'Shea, SJ Ramminger, SM Wilson, RE Olver.* **Ion transport in distal lung epithelial cells isolated from adult and fetal rats (P49)**

• *C Graham, A Werner.* **Molecular sorting of the type II Na^+/Pi cotransporter family expressed in MDCK cells (P50)**

• *N Smith, CS Foster, A Mobasheri.* **Expression of facilitative glucose transporters in benign and metastatic human prostate cancer cell lines (P51)**

• *A Mobasheri, SD Carter, JF Innes, S Richardson, JF Moley, KH Moley.* **Developmental expression of the GLUT9 facilitative glucose transporter in ovine articular cartilage (P52)**

• *NV Fedirko, JA Vats, MY Klevets, NV Voitenko.* **Kinetic and functional properties of the salivare secretory cells Ca^{2+}, Mg^{2+}-ATPases (P53)**

• *SJ Ramminger, MT Clunes, RE Olver, SM Wilson.* **Differential effects of nucleotides upon ion transport in H441 human bronchial epithelial cells (P54)**

• *B Morales-Aza, GL Woodhall, RSG Jones, LF Donaldson.* **Increased mRNA expression of a potassium-chloride cotransporter in chronically epileptic rats (P181)**

• BLOOD BRAIN BARRIER (P55-P57)

Authors on posters: Friday 14, 14:00-15:00; Posters approval: Friday 14, Room D, 18:35-19:35

• *T Speake, JD Kibble, PD Brown.* **Serotonin inhibits the delayed-rectifying K^+ (Kv) conductance in the epithelial cells of choroid plexus isolated from the rat (P55)**

• *Z Redzic,A Isakovic.* **Adenosine undergoes rapid metabolic degradation after intracerebral injection into the rat brain (P56)**

• *J Alder, JA Pickett, SE Stacey, I McGovern, H Bishop, M Ward, RRD Marks, MS Thorniley.* **The use of cerebral NIRS monitoring during hypoperfusion events in cardiopulmonary bypass (P57)**

• SMOOTH MUSCLE (P58-P70)

Authors on posters: Friday 14, 14:00-15:00; Posters approval: Friday 14, Room D, 18:35-19:35

• *P Medina, G Segarra, MD Mauricio, B Torondel, F Prieto, JM Vila.* **Relaxation induced by milrinone in coronary artery bypass conduits (P58)**

• *B Torondel, M Peiro, F Prieto, M Guaita, MD Mauricio, JM Vila.* **Effects of type 5 phosphodiesterase inhibitors on human penile dorsal and cavernous artery (P59)**

• *S Morales, PJ Camello, GM Mawe, MJ Pozo.* **Characterisation of intracellular Ca^{2+} stores in gallblader smooth muscle (P60)**

• *AM Gurney, ON Osioenkom KM McFarlane, FEJ Kempsill.* **TASK-1 like properties of the resting K^+ conductance in rabbit pulmonary artery myocytes (P61)**

• *ERM Hunter, D MacMillan, AM Gurney.* **Molecular and immunohistochemical identification of TASK-1 in rabbit and mouse pulmonary artery myocytes (P62)**

• *Y Li, S Wray.* **The role of A type K^+ channels in neonatal rat uterus (P63)**

• *A Matthew, S Wray.* **An investigation into the role of the sarcoplasmic reticulum and Ca^{2+}-activated ion channels in the mouse myometrium (P64)**

• *L Piao, W-Y Ho, YE Earm.* **Actin filaments regulate the stretch sensitivity of large conductance Ca^{2+}-activated K^+ channel in rabbit coronary arterial smooth muscle cells (P65)**

• *K-S Park, Y Kim, W-Y Ho, YE Earm.* **Characterization of a cation-selective mechanosensitive ion channel in pulmonary arteria smooth muscle cells (P66)**

• *CH Leem, HS Cho, JM Ha, HS Choe, YJ Jang, CS Park.* **The recovery mechanisms from alkalosis in mesenteric arteriole of the rat (P67)**

• *SF Cruickshank, RM Drummond.* **The effects of hypoxia on $[Ca^{2+}]i$ signalling in phenotypically distinct myocytes from the rat pulmonary vein (P68)**

• *UM Anderson, MA Hollywood, KD Thornbury, NG McHale.* **Intracellular recording of spontaneous electrical activity in the isolated rabbit urethra (P69)**

• *JE Bradley, UA Anderson, SM Woolsey, NG McHale, KD Thornbury, MA Hollywood.* **Characterisation of T type calcium current and its role in spontaneous activity rabbit urethral smooth muscle (P70)**

• *MV Conde, SM Arribas, MC González.* **Endogenous levels of ovarian hormones modulate the activity of β-adrenoceptors in isolated rat aorta and tail arteries (P71)**

• HEART/CARDIAC MUSCLE (P73-P78)

Authors on posters: Saturday 15, 14:00-15:00; Posters approval: Saturday 15, Room B, 18:35-19:35

• *RH Clayton, AV Holden.* **Electrotonic effects on transmural differences in action potential duration: A computational study (P73)**

• *ME Díaz, CP Smith, AC Elliot.* **Inhibition of Ca^{2+} current and twitch tension by divalent (ferrous) iron in isolated rat ventricular myocytes (P74)**

• *FC Howarth, MA Qureshi.* **Effects of pH on ventricular myocyte contraction and intracellular Ca^{2+} in streptozotozin-induced diabetic rats (P75)**

• *D Pau, AJ Workman, KA Kane, AC Rankin.* **Chronic beta-blockade enhanced 5-HT-effects on action potentials in human atrial cells (P76)**

• *HK Graham, AW Trafford.* **Collagen remodelling during the progresion of left ventricular hypertrophy and heart failure (P77)**

• *SR Buenafuente, M Rodríguez, C Militello, A Ayala, M Díaz.* **A 3D model of dolphin ECG biopotential distribution. The effect of seawater (P78)**

• CARDIOVASCULAR/RESPIRATORY CONTROL (P79-P90)

Authors on posters: Saturday 15, 14:00-15:00; Posters approval: Saturday 15, Room B, 18:35-19:35

• *C Vela, S Pérez, Z Díaz-Cabiale, R Garrido, R Coveñas, S González-Barón, JA Narvaez.* **Involvement of oxytocin on central cardiovascular regulation. Possible modulation of baroreceptor reflex (P79)**

• *MV López-González, MS Dawid-Milner, A Díaz-Casares, CA Peinado, JP Lara, S González-Barón.* **Interactions between the hypothalamic defense area and the a5 region: role of glutamate (P80)**

• *Z Yang, JH Coote.* **The influence of the PVN-spinal projection on renal sympathetic activity after blockade of the vasomotor area in the rostral ventrolateral medulla in Wistar rats (P81)**

• *E Cediel, D Sanz-Rosa, MP Oubiña, N de las Heras, A González, O Vegazo, J Jiménez, V Lahera, V Cachofeiro.* **Effect of at1 receptor blockade on hepatic redox status in shr: possible relevance for endothelial function (P82)**

• *Z Ali, JC McGrath, G Tsujimoto, CJ Daly.* **Inhibition of 5-hydroxytrptamine mediated contraction by $alpha_1$-adrenoceptor antagonist in mouse thoracic aorta (P83)**

• *M McBride, CJ Daly, G Tsujimoto, JC McGrath.* **Removal of the $alpha_{1B}$-adrenoceptors uncovers an $alpha_{1D}$ component in mesenteric resistance arteries (P84)**

• *S Volianitis, S Ogoh, W Wray, X Shi, PB Raven, NH Secher.* **Carotid baroreflex function during upper body exercise in humans (P85)**

• *S Mañas, JM Garrido, JJ González. L de Vera, E Pereda, S López.* **Evidence of interdependence between central nervous and respiratory activity in healthy term (P86)**

• *LM Such, A Blanco, FJ Chorro, L Such, R Salvador, JM Núñez, E San Valero, R Ferandis, A Alberola.* **Effects of the inhibition of Na^+/H^+ exchanger on ventricular fibrillation characteristics in normoxia conditions: an experimental study in isolated rabbit heart (P87)**

• *M Dunleavy, M Dooley, D Cox, A Bradford.* **Effect of chronic intermitent asphyxia on platelet function (P88)**

• *R Barret-Jolley, S Pyner.* **Inhibition of rat spinally projecting PVN neurones by the neurosteroid THDOC (P89)**

• *JAL Calbet.* **High norepinephrine spillover in healthy humans acclimatised to high altitude (P90)**

• RENAL/RESPIRATORY PHYSIOLOGY (P91-P98B)

Authors on posters: Saturday 15, 14:00-15:00; Posters approval: Saturday 15, Room C, 18:35-19:35

• *EJ Johns, S Knight, B Hassan, M Smith.* **Effect of cyclooxygenase inhibitors and nitric oxide on intrarenal haemodynamics in ischaemia-reperfusion injury in the anaesthesized rat (P91)**

• *A Izquierdo, P López-Luna, A Ortega, MA Gutiérrez-Tarrés, J Bover, F Algaba, P Esbrit, RJ Bosch.* **Role of renal parathyroid hormone-related protein in diabetic nephropathy: evidences from studies in cell culture, in mice and humans (P92)**

• *F Bronet, D Hormigo, D Marquina, I Corpas.* **Physiologic alterations in the kidney of rats in the intoxication with lead (P93)**

• *D Alvarez de la Rosa, D Shao, T Wang, CM Canessa.* **Distribution, expression, and subcellular localisation of the se-**

rum- and glucocorticoid-induced kinase in the rat kidney (P94)

• *KL Kristensen, K Lloyd, A Mobasheri, RV Floyd, D Alvarez de la Rosa, CM Canessa.* **Expression and subcellular localization of the serum-and-glucocorticoid-induced kinase (SGK) in the mammalian kidney: a comparative study (P95)**

• *M Akaârir, S esteban, L Gené, MC Nicolau, A Gamundi, RV Rial.* **Reptilian respiratory physiology and human pathology (P96)**

• *R Howden, SJ Brown, IL Swaine, JT Lightfoot.* **Hypercapnic acidosis increases to orthostatic stress in humans (P97)**

• *AB Segarra, I Prieto, I Banegas, F Alba, F Vives, M Ramírez.* **Renal angiotensinase activities in rats feed with different dietary fats (P98)**

• *F Roig, R López, MT Llinás, FJ Salazar.* **Role of cyclooxygenase-2 metabolites in regulating renal function (P98b)**

• CELLULAR NEUROPHYSIOLOGY (P99-P114)

Authors on posters: Saturday 15, 14:00-15:00; Posters approval: Saturday 15, Room C, 18:35-19:35

• *JT Santos, A de la Fuente, JM Criado, AS Riolobos, M Heredia, S Ashenafi, JD Navarro, J Yajeya.* **Glutamatergic transmission modulation in medial septal area (P99)**

• *MJ Gillies, MO Cunnigham, RD Traub, CH Davies, EH Buhl, MA Whittington.* **Two classes of CA1 pyramidal cell characterised by distinct after-hyperpolarisation properties (P100)**

• *JD Navarro, JC Alvarado, M Heredia, A Sánchez-Riolobos, JM Criado, A de la Fuente, S Ashenafi, J Santos, JM Delgado-García, J Yajeya.* **Muscarinic agonist carbachol has effects on the prepositus hypoglossi neurons (P101)**

• *IF Smith, S Rome. HA Pearson, C Peers.* **Acute hypoxia stimulates Ca^{2+} release from an intracellular, bradykinin-sensitive Ca^{2+} pool in cultured rat type I cortical astrocytes (P102)**

• *R Scott, DA Rusakov, DM Kullmann.* **Modulation of action potential-dependent Ca^{2+} transients in hippocampal mossy fibres by granule cell membrane potential and ionotropic receptors (P103)**

• *KL Grieve, C Rivadulla, L Martínez, J Cudeiro.* **Neuromodulation of thalamic response modes in the lateral geniculate nucleus (LGN) of the cat (P104)**

• *G Raffaelli, C Saviane, E Cherubini.* **BK channels modulate glutamate release at CA3-CA3 synapses in rat organotypic hippocampal slices (P105)**

• *JE Driver, RD Traub, EH Buhl, MA Whittington, FEN LeBeau.* **Pharmacological manipulation of the slow afterhyperpolarization (sI_{AHP}) modulates kainate evoked gamma frequency oscillations in the mouse hipocampus *in vitro* (P106)**

• *S Ashenafi, A de la Fuente, JM Criado, AS Riolobos, M Heredia, JD Navarro, J Santos, J Yajeya.* **Neurotransmission in the amygdala basolateral complex: effect of beta amyloid peptide (23-35) (P107)**

• *FJ Muñoz, M Coma, MA Valverde.* **17beta-estradiol and a hydrophilic derivative of vitamin E, but not vitamin C, attenuate the amyloid beta-peptide mediated toxicity in rat hippocampal neurons (P108)**

• *A Iannini, A Prado-Moreno, JM Delgado-García.* **The Buridan's test as an experimental tool for the study of stable and oscillatory magnetic field effects on the motor behaviour of *Drosophila melanogaster* (P109)**

• *D Pérez-Vences, R Durán, M Alfonso, F Campos, LRF Faro.* **Possible mechanism of action of HgC12 on *in vivo* striatal dopamine release (P110)**

• *F Campos, M Alfonso, R Durán, D Pérez-Vences, LRF Faro.* **Effect of anatoxin-α, a cianobacterial neurotoxin, on striatal dopamine release. An *in vivo* microdialyss study (P111)**

• *D Moranta, S Esteban, JA García-Sevilla.* **Acute effects of cannabinoids on noadrenaline synthesis in rat brain *in vivo* (P112)**

• *VJ Asensio, A Miralles, JA García-Sevilla.* **Region-specific regulation of the extracellular signal-regulated kinase signalling pathway after acute sufentanil administration in rat brain (P113)**

• *FA Martín, D Rojas-Díaz, MA Castellano, JL González-Mora.* **Freely moving rat spectroscopy: NO determination (P114)**

• SENSORY FUNCTIONS/SOMATOSENSORY PHYSIOLOGY (P115-P121)

Authors on posters: Saturday 15, 14:00-15:00; Posters approval: Saturday 15, Room D, 18:35-19:35

• *M Chirimuuta, PL Clatworthy, DJ Tolhurst.* **Computer simulation of the role of priors in the visual cortex (VI) contrast code (P115)**

• *BA Bannatyne, DJ Maxwell, SE Edgley, I Hammar, E Jankowska.* **Comisural interneurons in cat spinal motor pathways: identification of excitatory and inhibitory cells (P116)**

• *G Gaitán, JF Herrero.* **Enhancement of the potency and duration of fentanyl antinociception by subeffective doses of the NASID Nitroparacetamol (NCX-701) (P117)**

• *EA Romero-Sandoval, JF Herrero.* **The effects of sham and full spinalization on the systemic potency of the NO-releasing NSAID NCX-701 (Nitroparacetamol) in rat spinal nociceptive reflexes and wind-up (P118)**

• *I Rivera-Arconada, J Martínez-Gómez, JA López-García.* **Modulation of spinal reflexes by M-current modulators: an electrophysiological study *in vitro* (P119)**

• *MJ Olave, DJ Maxwell.* **Spinomedullary cells in the rat dorsal horn recive synaptic contacts from axons that possess alpha2c-adrenergic receptors (P120)**

• *WC Lo, RW Clarke.* **Involvement of $5HT_2$ and $5\text{-}HT_3$ receptors in descending inhibition evoked by intraventricular administration of fentanyl in the rabbit (P121)**

• INTEGRATIVE NEUROPHYSIOLOGY (P122-P130)

Authors on posters: Saturday 15, 14:00-15:00; Posters approval: Saturday 15, Room D, 18:35-19:35

• *JA Flores, E Fernández-Espejo, F El Banuoa, B Galán, I Caraballo.* **Dopamine neurons of the periaqueductal grey participates on nociceptive responses (P122)**

• *E Fernández-Espejo, JA Flores, F El Banoua, B Galán, I Caraballo.* **Dopamine neurons of the periaqueductal grey control heroin-induced reward (P123)**

• *H Fathi-Moghadam, M Kesmati, H Mohammed, W Winlow.* **Effect of nucleus paragigantocellularis lateralis lesion on the conditioned place preference in the presence and absence of clonidine (P124)**

• *MA Comas, A Gamundi, AML Coenen, G Van Luijtelaar, S Tejada, RV Rial.* **Paradoxical dose-dependent action of pilocarpine on sleep in rats (P125)**

• *M Puerto, N Guayerba, M de la Fuente.* **Effect of sympathetic neurotransmitter on cytokine (Il-2 and TNF_χ) release and lymphoproliferation of peritoneal leucocytes from adult, old and very old balb/c mice (P126)**

• *F Vives, I Rivas, I Prieto, M Ramírez, M Arauzo, B Morales, JMR Ferrer, F Alba.* **Antiinflamatory pretreatment protects against self-stimulation impairment by 6-hydroxydopamine lesions in the rat (P127)**

• *LI Gené, M Akaârir, S Aparicio, C Garau, C Roca, MC Nicolau.* **Variable motor asymmetry in rats (P128)**

• *EA Del Bel, FS Guimaraes, LP Nucci-da-Silva, M Lazzarini, V Tumas.* **Nitric oxide modulation of motor behaviour in swiss mice (P129)**

• *A Gamundi, MA Comas, S Tejada, C Roca, E Pereda, J González, CM Van Rijn, AML Coenen.* **Interhemispheric EEG dependences and propofol anaesthesia in human subjects (P130)**

• MUSCLE CONTRACTION (P131-P136)

Authors on posters: Saturday 15, 14:00-15:00; Posters approval: Saturday 15, Room D, 18:35-19:35

• *WH Joumaa, A Bouhlel, C Léoty.* **Effects of KB-R7943 on sodium-withdrawal contractures in rat slow-twitch skeletal muscle (P131)**

• *GJ Pinniger, ME Coupland, KW Ranatunga.* **Force enhancement during lengthening in mammalian (rat) muscle fibers: the effect of temperature (P132)**

• *ME Coupland, KW Ranatunga.* **Twitch tension potentiation induced by rapid laser temperature jumps in intact mammalian (rat) muscle (P133)**

• *MF Patterson, GMM Stephenson, DG Stephenson.* **Changes in contractile properties, sarcoplasmic reticulum loading and MHC isoform profile in single fibres from mammalian fast- and slow-type skeletal muscle following denervation (P134)**

• *AM Duke, PM Hopkins, DS Steele.* **Effects of Mg^{2+} on halothane induced Ca^{2+} release in skeletal muscle from humans susceptible to malignant hyperthermia (P135)**

• *P Tovar, B Escribano, R Santisteban, R Vivo, F Castejón.* **Does a metabolic trigger exists for a trot-gallop transition in a submaximal exercise? (P136)**

• AUTONOMIC FUNCTION (137-140)

Authors on posters: Sunday 16, 14:00-15:00; Posters approval: Sunday 16, Room B, 18:35-19:35

• *JA Aguirre, J Rioja, LJ Santín, A Doña, M García, L de Pablo, S González-Barón.* **$5\text{-}HT_{1A}$ receptor agonist 8-OH-DPAT**

attenuates passive avoidance in the elevated T-maze induced by acute stress (P137)

• *EJ Spary, A Maqbool, TFC Batten, S Saha.* **Subtypes and splice variants of $GABA_B$ receptors in the NTS of normotensive and spontaneous hypertensive rats (P138)**

• *Z Díaz-Cabiale, M García-Coronel, C Vela, R Garrido, M Ramírez de Esparza, R Coveñas, S González-Barón, JA Narvaez.* **Antagonistic Galanin/NPY interactions in food intake response. A functional and quantitative receptor autoradiography study (P139)**

• DEVELOPMENT/PLASTICITY (P141-P144)

Authors on posters: Sunday 16, 14:00-15:00; Posters approval: Sunday 16, Room B, 18:35-19:35

• *JJ O'Connor, B Curran.* **The inhibitory effects of pro-inflamatory cytokines on LTP are attenuated by nicotine (P141)**

• *M Heredia, AS Riolobos, JM Criado, JA de la Fuente, J Yajeya, M Santacana.* **Heterotopic fetal striatal transplants ameliorate motor impairments induced by frontal cortex lesion (P142)**

• *L Jiménez-Díaz, E Porras-García, E Domínguez del Toro, A Rodríguez-Moreno, JM Delgado-García.* **An *in vivo* study of motor learning and memory capabilitis of wild and transgenic mice with Alzheimer-like deficits (P143)**

• *I Bystron, C Blakemore, V Otellin, Z Molnar.* **Early development of the thalamic reticular and perireticular nuclei in the human brain (P144)**

• NEUROENDOCRINOLOGY (P145-P158)

Authors on posters: Sunday 16, 14:00-15:00; Posters approval: Sunday 16, Room B, 18:35-19:35

• *L Pinilla, ML Barreiro, M Tena-Sempere, E Aguilar.* **5-HT1A and 5-HT2 receptor activation reduces NMDA-stimulated LH secretion in prepubertal male and female rats (P145)**

• *MC Bellido, R Aguilar, JC Garrido, JE Sánchez-Criado.* **The antiprogestin RU486 reduces basal and LHRH-stimulated LH secretion and LHRH self-priming elicited by activation of PKC signalling pathway in an estrogen-dependent manner (P146)**

• *P Guelmes, P Abreu, JE Sánchez-Criado, L Prieto, R Alonso, G Hernández.* **Differential effects of selective estrogen receptor modulators (SERMs) on luteinizing hormone (LHRH)-induced luteinizing hormone (LH) secretion and inositol phosphates (IP) accumulation in female rat pituitary glands (P147)**

• *JG Hernández-Jiménez, R Hill, G Hernández, P Guelmes, JE Sánchez-Criado, R Alonso, FJ López.* **Estrogen-induced galanin gene expression in the female rat anterior pituitary gland is dependent on a hypothalamic mechanism (P148)**

• *B Guerra, R Marín, A Morales, M Díaz, R Alonso.* **An ICI 182,780-sensitive estrogen receptor, associated with the plasma membrane, participates in estradiol-related prevention of amyloid beta peptide$_{1-40}$-induced toxicity in a cholinergic cell line (P149)**

• *J Cabrera, J Quintana, JF Loro, F Cabrera, F Estévez.* **Melatonin decreases heat shock-induced apoptosis on HL-60 cells: possible involvement of MT2 receptor (P150)**

• *I Prieto, AB Segarra, I Banegas, F Alba, F Vives, M Ramírez.* **Influence of dietary fat composition on aminopeptidase activity in the frontal cortex and hypothalamus of rat brain (P151)**

• *MC González, P Abreu, P Barroso-Chinea, T González-Hernández.* **Effect of intracerebroventricular injection of LPS on activity and expression of tyrosine hydroxylase in the rat hypothalamus (P152)**

• *T Priego, M Granado, I Ibáñez, AI Martín, A López-Calderón, MA Villanúa.* **Effect of low doses of LPS on the somatotropic axis (P153)**

• *I Ibáñez, T Priego, M Granado, I AI Martín, MA Villanúa, A López-Calderón.* **NO mediates the inhibitory effect of chronic inflammation on pituitary GH gene expression (P154)**

• *LM Seoane, M López, S Tovar, FF Casanueva, R Señaris, C Diéguez.* **Agouti-related peptide, neuropeptide Y and somatostatine-producing neurones are targets for ghrelin actions in the rat hypothalamus (P155)**

• *S Tovar, LM Seoane, M López, R Señaris, FF Casanueva, C Diéguez.* **Orexin A supresses *in vivo* growth hormone secretion (P156)**

• *ML Barreiro, L Pinilla, E Aguilar, M Tena-Sempere.* **Expression and homologous regulation of GH-secretagogue receptor mRNA in rat adrenal gland (P157)**

• *S Esteban, S Aparicio, M Comas, C Garau, C Roca, S Tejeda, A Gamundi, MC Nicolau.* **A high tryptophan nocturnal meal increases activity in rats (P158)**

• PLACENTAL/PERINATAL/REPRODUCTIVE PHYSIOLOGY (P159-P165)

Authors on posters: Sunday 16, 14:00-15:00; Posters approval: Sunday 16, Room C, 18:35-19:35

• *F Valladares, I Frías, C Alonso, R Reyes, FJ López, L Díaz-Flores, AR Bello.* **Detection and distribution of estrogen receptors and progesterone receptors in leiomyomata cells (P159)**

• *PL Lorenzo, IKM Liu, JC Illera, G Silvan, GF Carneiro, MJ Illera, CJ Munro, M Illera.* **Influence of epidermal growth factor on cortical granule migration and steroid secretion during equine oocyte maturation (P160)**

• *F Pérez-Cano, A González-Castro, M Castell, C Castellote, C Pelegri, A Franch.* **Neonatal changes in the phenotype of lamina propia lymphocytes in the small intestine of Lewis rats (P161)**

• *S Marín, F Pérez-Cano, A González-Castro, A Franch, C Pelegri, M Castell, C Castellote.* **Evolution of spontaneous immunoglobulin-secreting cells in spleen and gut associated lymphoid tissue during the suckling period in rats (P162)**

• *SA Korobov.* **No difference between local skin heat loss of women who are in the second and the third trimesters of pregnancy (P163)**

• *P López-Luna, M García de Pablo, E Herrera Castillón.* **Long term consequences of diabetes during pregnancy and lactation (P164)**

• *B Jiménez-Gancedo, A Agis-Torres, ME López-Oliva, E Muñoz-Martínez.* **Relationship between maternal feed intake, ponderal and metabolic factors with birth weight and offspring number under different dietary protein concentrations (P165)**

• COMPARATIVE PHYSIOLOGY (P166-P182)

Authors on posters: Sunday 16, 14:00-15:00; Posters approval: Sunday 16, Room C, 18:35-19:35

• *L de Vera, E Pereda, JJ González.* **Interdependence between telencephalic nervous activity and respiratory activity in reptiles: a non-linear approach (P166)**

• *M Rodríguez, A Ayala, M Díaz, J García.* **A telemetry system for ECG acquisition from diving mammals (P167)**

• *ML Ojeda, R Maldonado, E Tavares, D Chbihi, A Fernández-Alonso, FJ Miñano.* **Kinetics of procalciotonin in neutropenic rats after bacterial and viral fevers (P168)**

• *R Maldonado, ML Ojeda, E Tavares, D Chbihi, A Fernández-Alonso, FJ Miñano.* **Role of macrophague inflammatory protein-2 in a rat model of febrile neutropenia (P169)**

• *I Montes, GW McLaren, D Macdonald, R Mian.* **The effects of acute stress on leukocyte activation (P170)**

• *SD Paredes, S Sánchez, AB Rodríguez, RV Rial, C Barriga.* **Exhaustion stress and the circadian rhythms of melatonin, corticosterone and phagocytic activity (P171)**

• *S Sánchez, SD Paredes, AB Rodríguez, MI Martin, C Barriga.* **Effect of tryptophan on circulating levels of melatonin and the innate immune response (P172)**

• *J Cubero, AB Rodríguez, JM Marchena, E Ortega, J Durán, C Barriga.* **Tryptophan and the innate immune response (P173)**

• *J Cubero, V Valero, C Barriga, R Rial, M Rivero, AB Rodríguez.* **Activity-inactivity cycles in *Sterptopelia roseogrisea:* effect of tryptophan (P174)**

• *MD Rubio, N Ildefonso, EI Agüera, RJ de Miguel, MI Adrian, BM Escribano.* **Intersexual haematological study in birds of rallidae family (P175)**

• *F Arroyo, BM Escribano, EI Agüera, S Agüera, MD Rubio.* **Comparative and hematological response in young and adult Andalusian horses performing on the treadmill (P176)**

• *EI Agüera, A Muñoz, MD Rubio, BM Escribano, R Vivo, C Riber, F Castejón.* **Locomotor characteristics related with fatigue in Andalusian and Arabian horses (P177)**

• *E Almansa, JJ Sánchez, S Cozzi, C Rodríguez, R Dopido, M Díaz.* **Modulation of intestinal Na^+-K^+-ATPase by polyunsaturated fatty acids (PUFA) in the fish *Sparus aurata*. Effects on temperature dependence (P178)**

• *R Dopido, C Rodríguez, T Gómez, M Díaz.* **Isolation and characterisation of enterocytes from the intestine of gilthead seabream (*Sparus aurata*). A comparative study of enzymatic activities (P179)**

• *C Rodríguez, R Dopido, E Almansa, T Gómez, M Díaz.* **A comparative study of lipid compositions from isolated enterocytes and subjacent tissues from the intestinal tract of gilthead seabream (*Sparus aurata*) (P180)**

• *I Kruglikov, N Fedirko, N Voitenko.* **Mechanisms of acteylcholine-induced Ca^{2+} signalling in rat salivary acinar cells (P182)**

• GI TRACT (P183-P195)

Authors on posters: Sunday 16, 14:00-15:00; Posters approval: Sunday 16, Room D, 18:35-19:35

• *E Martínez-Victoria, R Díaz, MD Yago, MA Martínez, JR Vilchez, J Singh, M Mañas.* **Modulation of amylase release and intracellular Ca^{2+} mobilisation by dietary fat in isolated rat pancreatic acinar cells (P183)**

• *L Piqueras, V Martínez.* **Role of somatostatin receptor subtypes on the control of gastric acid secretion in mice (P184)**

• *R Llopis, MJ Barrero, ML Murillo, O Carreras.* **Superoxide dismutase in offspring: effects of ethanol and folic acid supplementation (P185)**

• *R Patel, J Singh, M Mañas, E Martínez-Victoria, MD Yago.* **Effect of insulin on pancreatic juice secretion in normal and diabetic rats *in vivo* (P186)**

• *J García-Herrera, MA Navarro, MC Marca, MJ Rodríguez Yoldi.* **Effect of tumour necrosis factor-α on d-fructose intestinal transport in rabbit (P187)**

• *MA Martínez, MD Yago, AI Lajas, JA Pariente, E Martínez-Victoria, M Mañas.* **Dietary fatty acids modify pancreatic membrane lipid composition in rabbits with experimental atheroesclerosis. Is this fact involved involved in the enzymatic secretion pattern? (P188)**

• *J García-Herrera, MA Navarro, MC Marca, MJ Rodríguez-Yoldi.* **Lipolysaccharide (LPS) from E coli inhibits d-fructose uptake across rabbit jejunum (P189)**

• *I Fernández de Arcaya, A Martínez, A Berjón, A Barber.* **Modulatory effects of PAMP and AM on intestinal function (P190)**

• *JB Youm, I So, G Lee, K-W Kim.* **Driving potentials of interstitial cells of Cajal in a mathematical model (P191)**

• *E Rebollar, E Guerrero-Linder, JM Muñoz, MP Arruebo, MA Plaza, MD Murillo.* **Involvement of prostaglandins in the LPS effects on ACh-induced contractions in rabbit small intestine (P192)**

• *L Grasa, E Rebollar, MP Arruebo, MA Plaza, MD Murillo.* **Prostaglandin E_2 receptors in rabbit small intestine (P193)**

• *V Salazar, E Vara, C Castillo, A Martínez, MA Ramírez, A Holguin, C Ariznavarreta, JAF Tresguerres.* **Effect of ageing on proinflammatory molecules production and membrane lipids in rat hepatocytes (P194)**

• *BJ Harvey.* **Female gender-specific antisecretory effects of estrogen in isolated rat distal colon(P195)**

• TEACHING (P196-P202)

Authors on posters: Sunday 16, 14:00-15:00; Posters approval: Sunday 16, Room D, 18:35-19:35

• *DE Byrne, SM Cobb, RA Else, JE Heard, P Aaronson, JPT Ward.* **On-line support for a scenario-based medical curriculum at King's College London (P196)**

• *R Serra-Simal.* **A multimedia and web experience to teach human physiology (P197)**

• *C Castellote, M Castell, A Franch, M Miró-Queralt, M Moretó, C Pelegrí, JM Planas, C Amat.* **Self-regulated learning applied to practical activities in physiology (P198)**

• *M Mitjans, MP Vinardell.* **Evaluation of the abilities learnt on physiology laboratory classes (P199)**

• *B Martín, M Rodríguez, M Díaz.* **A Windows-based simulation of experiments illustrating intestinal muscle activity (P200)**

• *A Franch, M Miró-Queralt, M Castell, C Castellote, M Moretó, C Pelegrí, JM Planas, C Amat.* **Intestinal absorption: images for student practice (P201)**

• *L Prieto, D Prieto, I Herranz, G Hernández.* **Frequent and dramatic mistakes when inferring in physiological research (P202)**

DISCUSSION FORUMS

Deciphering the Genome?

Saturday, February 15, 2003. ROOM A, 15:00-17:20

Organiser: *Miguel Beato (Center for Genomic Regulation, Barcelona, Spain)*
Participants: *Jonathan Gleadel (Oxford University, Oxford, UK), Seth G.Grant (University of Edinburgh, Edingurgh, UK), Bernat Soria (University Miguel Hernández, Alicante, Spain), José López-Barneo (University of Sevilla, Sevilla, Spain)*

The great challenge of the next years is to understand all the genomic information, which means how it is stored in the DNA and how it is implemented. This understanding is an essential requisite for the full practical use of medical and social promises implicit in the genome project.

In my contribution I will explore various aspects of the structure and semantic content of genomic text, its functioning, the possibilities of its therapeutical manipulations, and a few more general questions. More specifically, I will deal with the following topics:

1. The nature of the various classes of information contained in the genomic text: the coding information, the regulatory information, the topological information, and the information defining genetic, developmental and metabolic networks.
2. The interactive nature of the implementation of the genomic message, which means the dynamic feedback interactions between proteins and DNA, with special emphasis in the epigenomic information encoded in the structure of chromatin and the methylation of DNA.
3. The genetic mechanisms explaining how the higher organisms are more complex than invertebrates, although they have a similar number of genes: multiple promoters, alternative splicing and post-translational modifications.
4. The change in approach of biological problems brought about by the completion of the genome sequence: the new synthetic and integrative biology, the cell as a robust informatics network.
5. The evolution of the human brain, which has allowed us to understand our own genomic identity and may lead to the conscious manipulation of our genomic instructions.
6. The concept of gene ontology: Is the human genome the biological equivalent to the human identity? When does a fertilized egg become a human being?

Beyond Electrophysiology

Saturday, February 15, 2003. ROOM B, 15:00-17:20

Organisers: *Marianne Fillenz (University of Oxford, Oxford, UK), Manuel Mas (University of La Laguna, Tenerife, Spain)*
Participants: *Frances Artigas (University of Barcelona, Barcelona, Spain), Tiho P. Obrenovitch (University of Bradford, Bradford, UK), Marianne Fillenz (University of Oxford, Oxford, UK), José L. González-Mora (University of La Laguna, Tenerife, Spain), Guillermo Alvarez de Toledo (University of Sevilla, Sevilla, Spain), Roger M. Wadsworth (University of Strathclyde, Glasgow, UK)*

Electrophysiological recordings have represented the traditional "core" of physiological research. For the last decades a number of methodologies aimed to monitoring chemical changes in living animals have been developed. They include microdialysis, voltammetry, and spectroscopy. This forum will discuss what they can add to physiological knowledge, especially when combined with electrophysiological procedures.

The Role of Emergence of Collective Behaviours in Physiology

Sunday, February 16, 2003. ROOM B, 15:00-17:20

Organiser: *Juan V. Sánchez-Andrés (University of La Laguna, Tenerife, Spain)*
Participants: *José M. Delgado-García (University "Pablo de Olavide", Sevilla, Spain), Gareth Leng (University of Edinburgh, Edimburgh, UK), Arun V. Holden (University of Leeds, Leeds, UK), Roberto Moreno-Díaz (University of Las Palmas de Gran Canaria, Gran Canaria, Spain), Juan V. Sánchez-Andrés*

Along the last century Physiology has behaved as a mother discipline that has branched into several higly succeful new fields of knowledge, like Biochemistry, Pharmacology, etc. However, which is the intrinsic actual domain of Physiology remains as an open matter of discussion. Even, there are opinions supporting the idea that the fade of Physiology will be rather historical, and that it may be just clustering marginal researchers difficult to accommodate in new branches. On the other hand, other opinions rather support that integration will develop and constitute an intrinsic domain aimed to provide meaning to the abundant but meaningless data obtained from reductionist studies. Therefore, it results worthwhile to maintain an open discussion on this matter. Under this scope, in this session we will cope with one of the more promising subjects in the field of integrative physiology: the role of emergent, collective behaviours. This field is not new as far as there is a long tradition coming from Physics and implies to consider the non linearities ocurring commonly in biology, that are infrequently considered as meaningful in the experimental laboratories. Contrarily, there are different lines of research showing that understanding and applying non-linear methods of analysis can be an extremely powerful approach to obtain a better knowledge of biological processes.

MEET THE EXPERT

Real-Time Monitoring of Gene Expression in Single Cells

Sunday, February 16, 2003. ROOM A, 12:00-13:00

Lucía Núñez (University of Valladolid, Valladolid, Spain)

It has been increasingly clear that traditional gene expression measurements are not suitable for dynamic quantification of promoter activity. Indeed, this constrain is especially relevant in the case of analysis at the single cell level. In the last decade, the emergence of new knowledge in molecular biology in combination with more advanced analytical systems has allowed dynamic monitoring and quantification of gene expression in single, living cells. This has been possible by using a simple variation of conventional luciferase reporter technology. But, how the dynamic, single cell system differs from the traditional one? Simply, instead of extracting luciferase from thousands of cells and detect reporter activity, in the new approach, the living, luciferase-containig cells are exposed to the substrate and photonic emissions are quantified over time with an extremely sensitive photon counting camera. Thus, it is possible to make truly dynamic profiles of transcriptional activity from a single cell. Specifically, we have been able to study the pulsatile expression pattern of a neuropeptide gene, how secretagogues exert effects on reporter activity, and even the relationship between Ca^{2+} signalling and gene expression. In summary, this new technology opens new avenues for dynamics studies of gene expression. Specifically those that involve temporal changes in promoter activity, as well as long-term regulation of hormone secretion, cellular differentiation, and even synaptic plasticity. Finally, this approach is discucussed and compared with other contemporary methodologies such as the GFP family of reporter genes, β-lactamase and beyond.

Mouse Genetics: Understanding Molecular Function in a Living Organism

Sunday, February 16, 2003. ROOM B, 12:00-13:00

Rafael Fernández-Chacón (University of Sevilla, Sevilla, Spain)

In the postgenomic age, physiologists are facing the challenge of understanding how individual gene products contribute and interact in vivo to shape function in a whole animal. Molecular manipulation of the mouse genome has opened multiple possibilities to alter genes expression, either by eliminating (knock-out mice), mutating (knock-in mice) or overexpressing them. Furthermore, nowadays it is possible to direct genetic manipulations to specific tissues or turn genes on and off. Multiple phenotypical analysis of single cell function, organs performance or mouse behavior will be required to accomplish a better understanding of gene function. In my talk I will describe different methodological approaches used to introduce mutations in mice and in particular will discuss how mouse genetics has been applied to study the molecular basis of the synaptic vesicle cycle.

Synaptic vesicle proteins play key roles executing and regulating neurotransmitter release. Synaptotagmin I is a synaptic vesicle protein which contains two C_2 domains (C_2A and C_2B-domains) which binds Ca^{2+} and phospholipids. Electrophysiological analysis of neurotransmitter release on hippocampal neuronal cultures from knock-in mice bearing mutations in the synaptotagmin I C_2A domain has shown that synaptotagmin I functions as a Ca^{2+} sensor for fast vesicle exocytosis at the nerve terminals1 and that the two C_2 domains cooperate and may be partially redundant in Ca^{2+}-dependent phospholipid binding[2]. Those studies will be discussed as examples of a genetic strategy to approach a key physiological phenomena as synaptic function.

1. Fernández-Chacón R., Königstorfer A., Gerber S.H., García J., Matos M.F., Stevens C.F., Brose N., Rizo J., Rosenmund C., Südhof T.C. ***"Synaptotagmin I functions as a calcium regulator of release probability"*** *Nature, 410:41-9 (2001).*

2. Fernández-Chacón R., Ok-Ho Shin, Königstorfer A., Matos M.F., Gerber S.H., García J., Stevens C.F., Brose N., Rizo J., Südhof T.C., Rosenmund C., ***"Structure/Function Analysis of Ca^{2+}-Binding to the C_2A-Domain of Synaptotagmin 1"*** *J Neurosci. 22:8438-46 (2002)*

How to Avoid Frequent Mistakes when Inferring in Physiological Research

Sunday, February 16, 2003. ROOM C, 12:00-13:00

Diógenes Laercio (University Complutense, Madrid, Spain)

When elaborating conclusions in physiological research, one frequent misunderstanding is to claim "statistical significance" if, and only if, the *P* value found is less than *0.05*[1]. This senseless procedure usually leads to two types of errors: A) To consider drastically different two results just because one of them gives a *P* value slightly under *0.05,* and the other gives a *P* value just over this artificial frontier. However, both results are actually telling us practically the same about the subject under study. B) To consider basically equivalent two results with quite different *P* values, as long as both lay under the artificial frontier of *0.05*. For example, most researchers could consider equivalent results those with *P = 0.04* and those with *P = 0.000002,* just because they are below *0.05*. In fact, however, *P = 0.04* only suggests that the type of effect found in the experimental sample might also be present beyond our particular data, while *P = 0.000002* constitutes an almost definitive indication of it.

Therefore, we must revise the kind of conclusions that might, and should be extracted from statistical analysis of biological data. After so many decades of misusing an arbitrary *P* value for decision purposes where there is nothing to decide, the time has come to give up confusing supertitions and return to clear thought and realistic approaches. The working plan of this session will include a previous short speech emphasising what really the *P* value tells us, followed by some examples on elaborating conclusions from a variety of results and different *P* values. To end up with a debate on these topics, with particular emphasis on the "non-deciding" but "add-information" approach.

1."…Proper reasoning requires more than just a classification of each study into *P < 0.05* or *P > 0.05*. This degradation of information about an effect into a simple dichotomy is counterproductive and can be misleading…" *(K. Rothman and W. Greenland. In Modern Epidemiology, Wiley & Sons, 1998)*

▼ DEBATE SATÉLITE

Fronteras entre la Neurología y la Neurociencia Básica en España

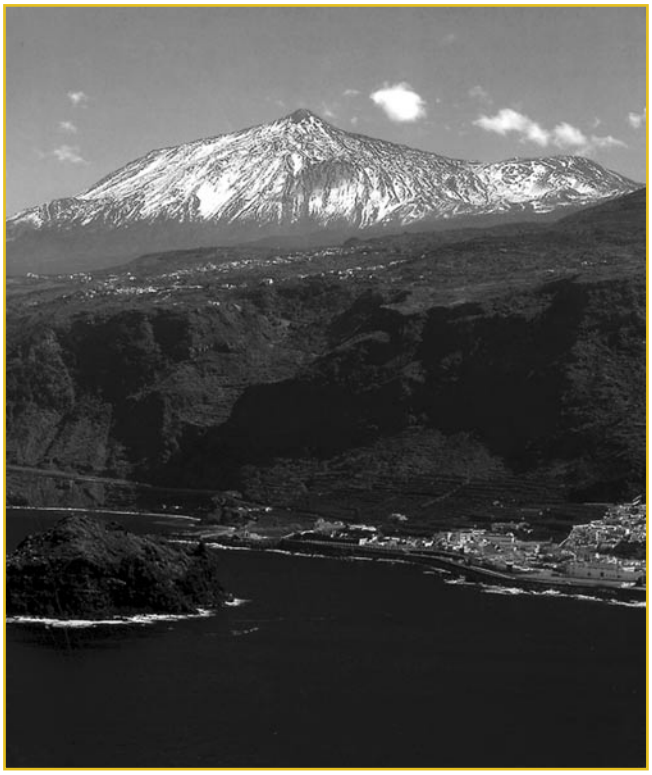
Monday, February 17, 2003. ROOM A, 10:30-12:30

Organizadores: *Luis Miguel García Segura/ Juan Vicente Sánchez Andrés*
Participantes: *Román Alberca Serrano (Neurólogo), Luis Miguel García Segura (Neurocientífico, Presidente de la Sociedad Española de Neurociencia), Jordi Matías Guiu (Neurólogo, Vicepresidente de la Sociedad Española de Neurología, Director de la Revista de Neurología), Alfredo Robles Bayón (Neurólogo), Manuel Rodríguez Díaz (Neurocientífico y Neurólogo), Juan Vicente Sánchez Andrés (Neurocientífico, Editor de Neurociencia de la Revista de Neurología).*

En el momento presente se da en España una realidad repetidamente confirmada: una Neurociencia básica excelente y una Neurología extraodinariamente cualificada. Por otro lado, se suele insistir en el interés de su interacción a efectos tanto de establecer sinergias, como de definir más eficientemente las preguntas relevantes a contestar experimentalmente, así como acceder y explorar mejor los recursos. Sin embargo, de forma predominante y a pesar de algunos esfuerzos ambas disciplinas parecen discurrir por caminos paralelos. En este debate se pretende discutir tanto de contenidos como de procedimientos. Por lo tanto, se trata de analizar cuáles son los temas en los que se pueden establecer singladuras comunes dada la disponibilidad de recursos humanos y materiales; pero, sobre todo, identificar las razones por las que, existiendo condiciones potencialmente idóneas en esos temas, sin embargo las interacciones sólo se dan escasamente y forma esencialmente voluntarista. Con este planteamiento se tratará de alcanzar conclusiones pragmáticas cuya aplicación permita intensificar a corto plazo las relaciones entre la Neurociencia básica y la clínica. Igualmente, se tratará de que esas conclusiones sen transmitidas a los órganos e instituciones responsables de incentivar la investigación para su posible articulación.

SATELLITE COURSES

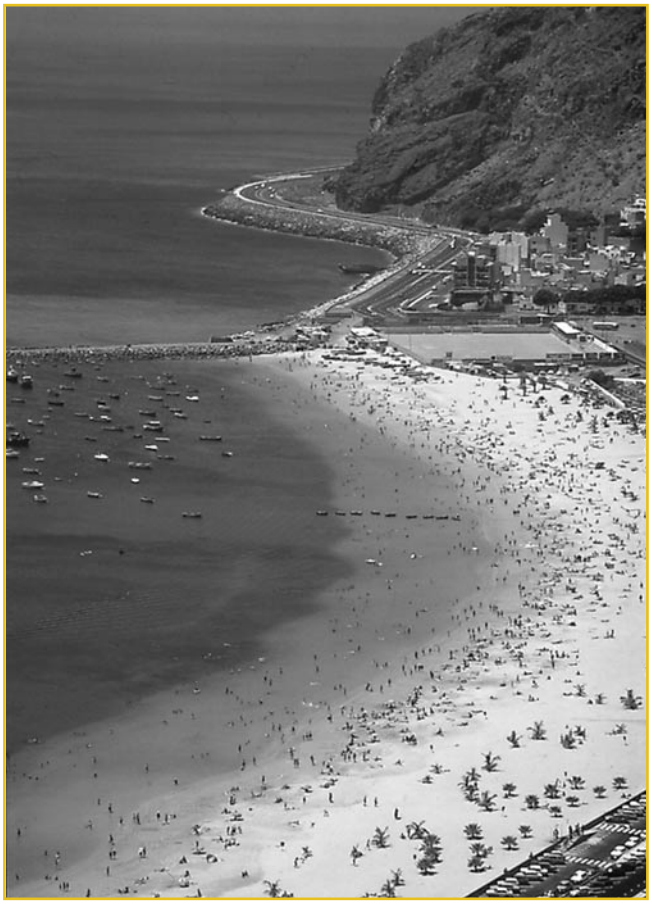
- Designed for pre-graduated biomedical students
- There will be a limited number of 35 participants
- Please, register promptly as the seats will be assigned on "first received – first served" basis.
- Both courses will be valid for two academic credits (pre-graduate and PhD programs of the Universities of La Laguna and Las Palmas de Gran Canaria)



Experimental Design and Data Analysis in Biomedicine

D. Laercio (Madrid, Spain)

This course will be held in the Faculty of Pharmacy in La Laguna University from February 11 to 13. It is addressed to current and future investigators wishing to understand the fundamental concepts related to the quantitative aspects of methodology in biomedical investigation: experimental designs and data analysis. An essential principle of this course is that clear concepts in these matters will help decisively to make a much more efficient and rigorous investigation. The speakers are professors in Biostatistics and expert scientists on the field from the Complutense and Alcalá de Henares Universities (Madrid).



Advances in Marine Sciences: Biomedical Implications

G. Hernández/C. Rodríguez (La Laguna, Spain)

The course is organized in 6 oral sessions, which will be held at Colegio Mayor San Agustín of La Laguna University from February 11 to 12. Guided visits to the Canary Islands Oceanographic Centre, a Fish Farm, and a cetacean colony in the South of Tenerife will be offered in February 12. The aim is to give an overview of different aspects of marine research and its possible implications in diverse disciplines, including medicine, human and animal nutrition, cosmetics, pharmacology, biotechnology, environmental health and tourism. This course is addressed to scientists and PhD students in Biology, Marine Sciences, Pharmacy, Food Science and Technology, Medicine, Technical Agricultural Engineering, Technical Environmental Health, and Technical Environmental Chemistry. The speakers are professors and/or scientists from several Spanish and other European Universities.

GENERAL INFORMATION

Travel

Puerto de la Cruz is easily accessible by taxi (about 15 min) from Los Rodeos Airport, situated in the North part of Tenerife, and from Reina Sofía Airport, in the Southern part of Tenerife, Puerto de la Cruz can be reached by either bus or taxi (about 50 min).

Congress Venue

The Congress will be held at the Taoro Congress Centre, which is situated in the city of Puerto de la Cruz. Access to lecture rooms for the physically disabled are available. Most of the hotels offered by the Congress Secretariat are within a short walking distance. Transportation will also be available for your convenience between the hotels and the Congress Centre.

Registration

The Registration Desk will be open on:
Thursday, **February 13,** 2003, *13:00 to 21:00*
Friday, **February 14,** 2003, *09:00 to 18:30*
Saturday, **February 15,** 2003, *09:00 to 18:30*
Sunday , **February 16,** 2003, *09:00 to 18:30*
In order to register, payment has to be confirmed at the registration desk.

Official Congress Language

The official language of the Congress is English. No simultaneous translation will be provided. Speakers are requested to strictly limit their talks to the stipulated time (see Scientific Programme).

Poster Instructions and Presentation

The poster boards measure a maximum of 1.40 m high x 0.90 m wide. The colour of the boards is navy blue. Poster setting will start on Thursday 13, 2003, at 13:00. All posters will be displayed in the Poster Area from Friday 14, 2003, at 09:00 to Sunday 16, 2003, at 15:00. During the poster viewing time, according to the corresponding schedule in the Scientific Programme, the authors must be available on posters for discussion. Authors must also attend Poster Approval sessions accordingly. Please, note that all posters must be removed on Sunday 16, 2003, at 15:00. Otherwise, these will be removed by the organisers with no responsibility for any damage that might occur.

Travel grants for Spanish students

Travel grants of 162,00 € offered by the SECF will be disbursed to successful applicants during the SECF General Assembly, on Sunday 16, 2003.

Certificate of Attendance

Certificate of attendance will be available at the Registration Desk. They will be distributed from Saturday 15, 2003, at 09:00 to Sunday 16, 2003, at 18:30.

Prizes

Five prizes of three different categories, supported by the two joint societies, for the best posters will be awarded. The selection of prize winners will be made by the designated Committee. Prizes will be given out during the Congress Dinner on Sunday 16, 2003.

Coffee/Tea breaks

There will be coffee and tea breaks available free of charge in the Hall.

Lunch

Lunches will take place from 13:00 to 15:00 hrs at Hotel Miramar (200 packs, red tickets) and Hotel Puerto Palace (300 packs, blue tickets). These restaurants are, respectively, 5 min and 10 min walking distance from the main Congress Centre door. In addition, a variety of different restaurants are also accessible in about 15 minutes walk from the Congress Venue.

Speakers' Preview Room

The speakers' preview room will be located besides Lecture Room A. For presentations, only data projection from a CD-ROM (Power Point up to version 2000) will be offered. No personal laptops are allowed. All speakers should take their CD-ROMs to the Preview Room and check them at least one hour before the session, and are requested to collect their CD-ROMS after the session finishes. Members of the staff will transport CD-ROMs to the lecture rooms and vice-versa; they will also assist speakers in case of technical problems. Speakers are kindly requested to collect their CD-ROMs after the session finishes. Please, follow the indications accordingly.

Disclaimer

Neither the organising societies nor Viajes El Corte Inglés accept liability for damages and/or losses of any kind which may be incurred by Congress participants or by any persons accompanying them. Participants are advised to take out insurance against loss, accidents or damage which could be incurred during the events. Information on this item may be obtained from the Congress Secretariat (***Ms. Mabel Jiménez,*** *Tel.: +34-922-574-467; Fax.: +34-922-281-916; E-mail: grupostfn@viajeseci.es*).

Industrial Exhibition

There will be an ongoing commercial exhibition, and a stand for local gourmet specialities and wines at the Exhibition Area. Since the Congress Dinner will take place in this room, all stands must be removed by 15:00 hrs on Sunday 16, 2003.

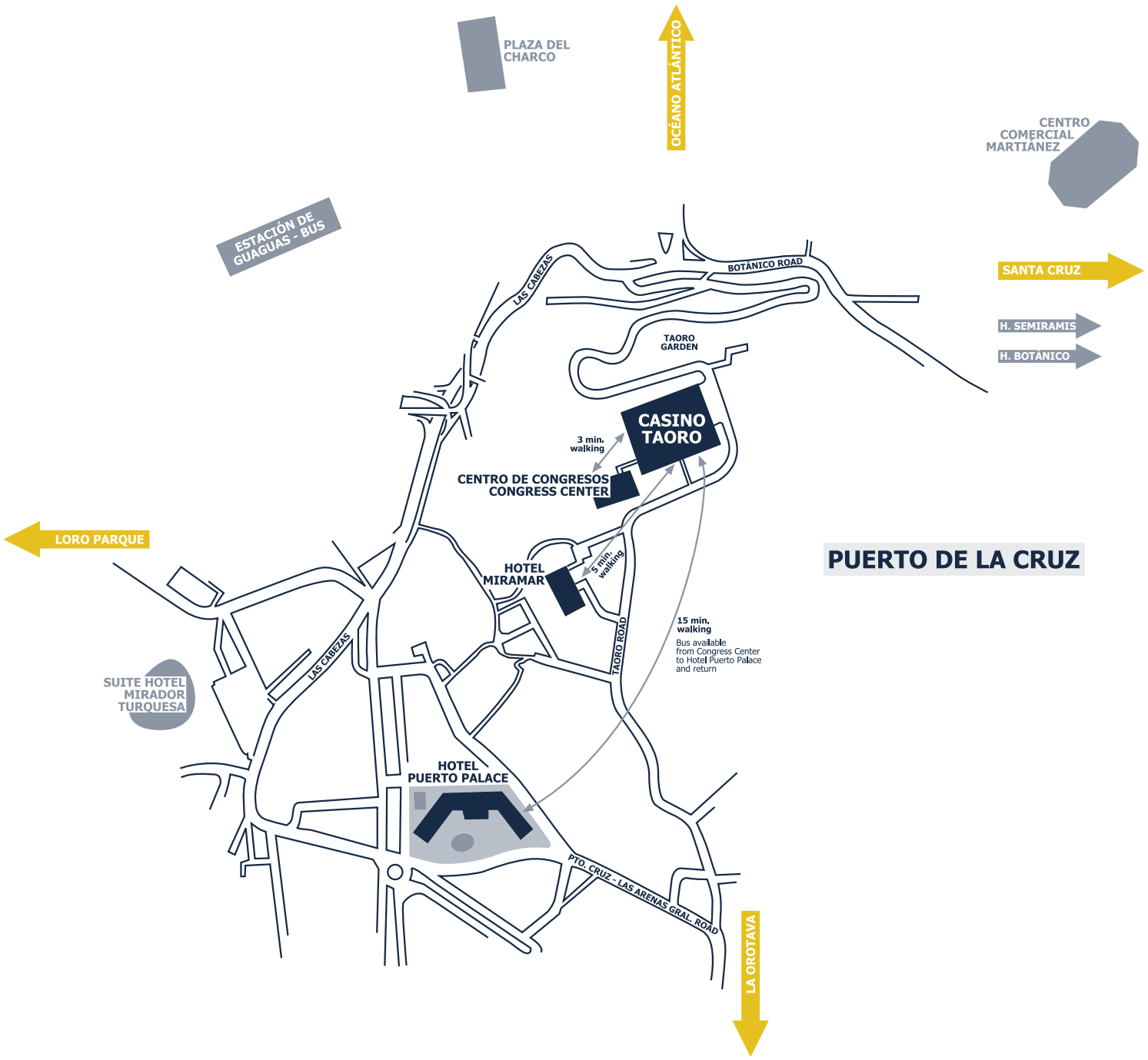
Message board

The message board will be located in the Registration Desk Area.

Name badges

All participants will receive a personalized badge upon registration at the Registration Desk. This badge will allow access to the scientific sessions and posters. Please, wear your name badge when attending any meeting.

TENERIFE AND PUERTO DE LA CRUZ



TENERIFE AND PUERTO DE LA CRUZ

Tenerife is the largest of the seven Canary Islands that originated from underwater volcano eruptions.
The population is about 700,000 of which about 210,000 live in the capital, Santa Cruz, situated on the North-East coast of the island. Tourism is the main source of revenue of this island and is visited by more than four million tourists every year. There is also substantial production of vegetables, fruits, flowers, and local wines.
Tenerife has two international airports, which have flights to and from most European capitals and main British cities. The international airport of Reina Sofia is in the southern part of the Tenerife, 100 km from Puerto de la Cruz. It takes approximately 90 min. by car or bus to reach the town. The other airport, Los Rodeos, is situated in the northern part, close to the Congress Venue.
Teide volcano (3.717 meters), Spain's highest mountain, dominates the island and is surrounded by vast areas of stunning beauty. Visiting this area is a must.
You can also relax at the numerous beaches where you can practice sailing, windsurfing or scuba diving. In addition, whoever visits Tenerife in February should not miss the vibrant and bustling Carnival celebration and, if possible, join the crowd in fancy dress.

Puerto de la Cruz was founded in the beginning of the 17th century. Originally it was conceived as a big harbour, and the city became an important centre of commerce and navigation. Nowadays the main source of livelihood of Puerto de la Cruz is tourism. However, Puerto de la Cruz preserves a good deal of Canary atmosphere, and has about 35.000 residents.
Puerto de la Cruz is well communicated with other villages by Titsa-buses that offer a regular service. Line 102 drives you to Santa Cruz via La Laguna and Los Rodeos airport. Line 340 goes to Reina Sofia airport and line 343 to Playa de las Americas, the best beaches of Tenerife, that are in the southern part. Line 350 drives you to La Orotava, considered as one of the most beautiful villages in Spain. Free timetables are available at the bus stations.
The nature of Puerto de la Cruz and the surrounding countryside is absolutely beautiful. Fences, walls and aisles of balconies are covered with colourful flowers.
The meeting place of Puerto de la Cruz is the Charco Square, where the crowd sits outside at the different bars, cafés and restaurants.
East from Charco Square you will find the finest and the most expensive shops and boutiques. The best restaurants, rich in atmosphere, are in the old town. There you will also find the coziest bars, which are frequented by the locals. Several friendly English pubs can also be found around this area.
In addition, some tours will be offered by the Congress Secretariat, that will give you the opportunity to visit and enjoy some of the idyllic places of Tenerife and the other Canary Islands.

You will find further information about El Puerto de la Cruz at: ***http://www.puertodelacruz.org/ing/ini.html***

USEFUL TELEPHONE NUMBERS:

Tourist Information
922 386 000

Canarian Health Service Center Emergencies
922 382 953

Bellevue Hospital
922 383 551

Local Police Station
922 378 448

SOCIAL PROGRAMME

Thursday 13 February. Welcome Reception.

Immediately after the Opening Ceremony, and to welcome you to this Congress, a Reception will be held at the Congress Centre around 19:30 hours.

Sunday 16 February. Congress Dinner.
20:00 hour. Tickets: 36.00 € (24.00 £).

The Congress Dinner will take place at the Poster/Exhibition Area, on Sunday, February 16, 2003, around 20:00. During this event, a Musical Show will entertain you while you dine to create a splendid evening. Round trip transport will be provided.

PROGRAMME FOR ACCOMPANYING PERSONS

Friday 14 February. A two-hour visit (from 5 to 7 p.m.) to **La Laguna,** one of the oldest cities of the Canary Islands, full of outstanding architectural monuments, palaces and traditional houses of the XVII and XVIII centuries, and was recently named by UNESCO as a Human Heritage site. A local guide will accompany the visit.

Sunday 16 February. Visit to the **Teide Observatory.** This observatory is located in the National Park of El Teide volcano, Spain's highest mountain, at roughly 2,500m above sea level. This visit will depend on the climatic conditions in the Park. A maximum of 60 persons will be allowed.

In addition, a number of tours around Tenerife or the other Canary Islands can be arranged. For reservations and additional information, please contact:

Ms. Mabel Jiménez de la Espada Hernández
Viajes El Corte Inglés - Tenerife
Dpto. Grupos, Congresos e Incentivos
C/ Jesús y María, 53 - Santa Cruz de Tenerife
38004 Tenerife – Canary Islands - Spain

Tel: 0034 922.57.44.67
Fax: 0034 922.28.19.16

E-mail: *grupostfn@viajeseci.es*

ACCOMMODATION AND TRAVEL INFORMATION

XXXII CONGRESS OF THE SPANISH SOCIETY OF PHYSIOLOGICAL SCIENCES - Puerto de la Cruz, Tenerife, 13-17 February 2003

FLIGHTS

We can make flight reservations for the assistants to this meeting from any country.
Flight reservations can be also made by telephone: 0034 922 57 44 67.

HOTELS IN PUERTO DE LA CRUZ (prices per person and night, breakfast included)	Single room	Double room
→ Hotel Botánico * * * * * Luxury	213 €	163 €
→ Hotel Semiramis * * * * *	75 €	54,50 €
→ Hotel Puerto Palace * * * *	51,50 €	41 €
→ Suite Hotel Mirador Turquesa * * * *	84 €	52,50 €
→ Aptos. Teide Mar 3LL	42,50 €	30,50 €

Hotels within walking distance. Prices include breakfast and dinner.

If you are interested in private accommodation, please visit the following web site:
http://www.puertodelacruz.org

TRANSPORTATION	Up to 4 persons	5 to 8 persons	9 to 20 persons
Los Rodeos Airport - Puerto de la Cruz	23,00 €	46,00 €	76,00 €
Reina Sofía Airport - Puerto de la Cruz	79,00 €	135,00 €	230,00 €

RENT A CAR (prices per car and day, insurances included)	Group A	Group B	Group C
Hertz	27,41 €	31,73 €	37,73 €
Europcar	31,28 €	33,83 €	37,52 €
Avis	37,66 €	41,39 €	46,10 €

EXCURSIONS	Schedule	Price/person
Cañadas del Teide	Tuesday, thursday & saturday	24,19 €
Vuelta a la isla	Monday & friday	30,80 €
La Gomera	Every day	53,50 €
Santa Cruz - Taganana	Wednesday & saturday	24,19 €
Jeep Safari	Tuesday & thursday	38,16 €
Masca	Thursday & sunday	30,80 €

NOTES:

- Prices are up-dated to July 1, 2002. Some slight modifications may be expected for 2003.
- Due to the limited number of available rooms, we strongly suggest you to make your hotel reservation as soon as possible.

Reservation Deadline: December 27, 2002.

SOLICITUD DE ADMISIÓN COMO MIEMBRO ORDINARIO

SOCIEDAD ESPAÑOLA DE CIENCIAS FISIOLÓGICAS S.E.C.F.
SOLICITUD DE ADMISION COMO MIEMBRO ORDINARIO

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Institución: .....

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Código Postal: ..... Ciudad: .....
Teléfono: ..... Fax: ..... Email: .....

Dirección Particular: .....
Código Postal: ..... Ciudad: .....
Teléfono: .....

Datos Bancarios:

Banco: .....
Plaza: .....
Cuenta (20 dígitos): _
Cód. Banco Sucursal D.C. Nº Cuenta

En ....., a ..... de ..... de 2003

Firma del solicitante:

Remitir correo electrónico o fax:

Ana Ilundáin Larrañeta
Secretaria de la SECF
Departamento de Fisiología y Biología Animal
Facultad de Farmacia. Universidad de Sevilla
C/ Tramontana s/n 41012 Sevilla, España
Fax: ***954 233 765***
Email: ***Ilundain@cica.es***

HOW TO JOIN THE PHYSIOLOGICAL SOCIETY

The Society has two levels of Membership available, depending on what stage of your career you are at. These are **Full Membership** and **Affiliate Membership** (for Postgraduates and young postdoctorates, etc.).

The main criteria, benefits and costs of **Full Membership,** as well as the application forms and guidelines can be found at the Society's Web page *(http://www.physoc.org/Membership/)*.

Contact details:

The Membership Administrator
The Physiological Society
PO Box 11319
London
WC1E 7JF

E-mail: *admin@physoc.org*

The Spanish Society
of Physiological Sciences

The
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Universidad de La Laguna

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Universidad de La Laguna

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