CÁTEDRA SANTIAGO GRISOLÍA

FUNDACIÓN Ciudad de las Artes y las Ciencias

GENERALITAT VALENCIANA

International symposium on

Nitric oxide-cyclic gmp Signal transduction in brain

October 22-24, 2006
Valencia, Spain

Prolongación Paseo de la Alameda, 42 - B. Piso 1º Puerta 1. 46023 Valencia. Spain. Tel. (34) 96 197 4670 Fax. (34) 96 197 4598
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Preliminary program

COMPONENTS OF THE NITRIC OXIDE-cGMP PATHWAY

Doris Koesling. Ruhr-Universitat Bochum; Germany.
Nitric oxide-sensitive guanylyl cyclase: an update on structure and regulation.

Michael A. Marletta. University of California; Berkeley, USA.
Modulation of soluble guanylate cyclase by ATP and GTP.

Sharron H. Francis. Vanderbilt University; Tennesse, USA.
cGMP-degrading phosphodiesterases: an update on structure and regulation.

John Garthwaite. University College London; UK.
Dynamics of cellular NO-cGMP signaling.

Jackie D. Corbin. Vanderbilt University; Tennesse, USA.
cGMP-dependent protein kinases: structure, regulation and cellular negative feedback.

Robert Feil. Universität Tübingen; Germany.
Function of cGMP-dependent protein kinases in the nervous system.

Franz Hofmann. Technische Universität München; Germany.
Insights into cGMP signaling derived from cGMP kinase knockout mice.

Ernesto Fedele. University of Genoa; Italy.
Extracellular cGMP in in vivo microdialysis as a close marker of the cerebral glutamate receptor/nitric oxide synthase/soluble guanylyl cyclase pathway.

Margery A. Barrand. University of Cambridge; UK.
cGMP transporters.

Claudio Grassi. Catholic University S. Cuore; Rome, Italy.
Role of cyclic nucleotide-gated channels in neuronal excitability.

Andrea J. Yool. University of Arizona; Tucson, USA.
Modulation of aquaporins by cGMP. Physiological implications.

Magdalena Torres. Universidad Complutense de Madrid; Spain.
Expression of soluble guanylyl cyclase during neuronal development.

cGMP IN SYNAPTIC PLASTICITY AND LEARNING

Pilar Monfort. Centro de Investigación Príncipe Felipe; Valencia, Spain.
cGMP in long-term potentiation. Alterations in pathological situations.

Jos Prickaerts. Maastricht University; The Netherlands.
Phosphodiesterase type 5 inhibition and object recognition memory: what we can learn about mechanisms involved.

Vicente Felipo. Centro de Investigación Príncipe Felipe; Valencia, Spain.
Restoration of learning ability in hyperammonemia and liver failure by pharmacological manipulation of extracellular cGMP.

cGMP IN CIRCADIAN RHYTHMS

Martha U. Gillette. University of Illinois; Urbana, USA.
Signaling in the mammalian circadian clock: the NO/cGMP pathway.

Urs Albrecht. University of Fribourg; Switzerland.
What roles do proteinkinases G I and II play in the circadian system?

Stuart E. Dryer. University of Houston; Texas, USA.
Circadian regulation of cGMP-gated channels of vertebrate cone photoreceptors.

Diego Golombek. Universidad de Quilmes; Buenos Aires, Argentine.
Cyrcadian rhythms: modulation by nerve growth factor and by the immune system.

Levente Kapás. Fordham University; New York, USA.
Regulation of sleep-wake activity by cGMP and nitric oxide.

PATHOLOGICAL SITUATIONS

Antonio López Farré. Instituto Cardiovascular del Hospital Clínico San Carlos; Madrid, Spain.
Soluble guanylate cyclase in hypertension.

Agustina García. Universidad Autónoma de Barcelona; Spain.
Regulation of glial reactivity by cyclic GMP-mediated pathways.

Regina Rodrigo. Centro de Investigación Príncipe Felipe; Valencia, Spain.
Nitric oxide-cGMP pathway in liver disease.

Harm Peters. Charite University Medicine; Berlin, Germany.
Antifibrotic effects of enhancing renal cGMP levels in experimental progressive renal fibrosis.

Andreas Knorr. Pharma Research Center; Wuppertal, Germany.
cGMP in experimental liver fibrosis.

About the symposium

The symposium is an initiative of the Fundación Premios Rey Jaime I and the **Alto Consejo Consultivo** en I+D de la Presidencia de la Generalitat Valenciana, in collaboration with the Cátedra Santiago Grisolía and the Fundación de la Comunidad Valenciana Ciudad de las Artes y las Ciencias.

The symposium will deal with nitric oxide-cyclic GMP signal transduction, with special reference to the brain. Nitric oxide has received a lot of attention during the last years as a signaling molecule involved in important physiological and pathological processes in different systems, including the brain. It has been proposed that nitric oxide may act as a neurotransmitter and it modulates important cerebral processes such as neurotransmission, synaptic plasticity, learning, etc. Nitric oxide has been also involved in the mediation of neuronal damage in brain ischemia and plays dual effects in apoptotic processes and in neurodegeneration.

There is therefore increasing evidence for the important roles of nitric oxide in brain both under physiological and pathological conditions. However, the mechanisms and pathways by which nitric oxide modulates signal transduction and cerebral function are not well known.

One of the main molecular targets of nitric oxide is soluble guanylate cyclase, which is activated by nitric oxide and produces cyclic GMP. This cGMP acts as a second messenger and can activate cGMP-dependent protein kinases, some channels and some phosphodiesterases. These phosphodiesterases may degrade cGMP and/or cAMP thus modulating the levels of these second messengers and the signal transduction pathways they modulate. The intracellular level of cGMP is also modulated by cGMP transporters that extrude it from the cells.

This nitric oxide-cGMP system is being characterized by different groups. Many of the more outstanding scientist working on this system will meet in this symposium to update and discuss the recent advances in the knowledge of the system, its role in brain function and its alterations in some pathological situations.

The following aspects will be covered in the symposium :

- Molecular components of the system:
  - soluble guanylate cyclase
  - phosphodiesterases
  - protein kinases G
  - cGMP-gated channels
  - cGMP transporters

  the structure, mechanisms, kinetics, regulation, differential expression and modulation of isoforms, cellular and subcellular localization, association to membranes, phosphorylation of these proteins will be discussed.

- Modulation of the system:
  - by glutamate and other neurotransmitter systems
  - during development

- Physiological roles of the system in:
  - synaptic plasticity, long-term potentiation
  - memory
  - learning

- Alterations of the system in pathological situations:
  - in liver disease and hyperammonemia
  - in glial reactivity
  - in hypertension
  - in liver and renal fibrosis

- Therapeutical implications:
  - use of inhibitors or activators of components of the system to treat pathological situations

The symposium will join most of the forefront researchers in the field who will provide an update of these different aspects. It will be therefore useful for researchers working in different fields: neuroscience, pharmacology, physiology, neurochemistry, neuropathology, biochemistry, molecular medicine and pathology, etc, as well as for clinicians and fellows and students of neuroscience, biology, medicine, pharmacy, biochemistry...

Meeting Venue

The International Symposium on Nitric Oxide-Cyclic GMP Signal Transduction in Brain will be held in the Dr Santiago Grisolía Auditorium in the Museu de les Ciències Príncipe Felipe of Valencia (Spain). The museum, designed by Valencian architect Santiago Calatrava, and with an auditorium of 2.800 square metres, provides the perfect venue for this symposium.

These emblematic projects have turned Valencia, with its heritage of over two thousand years of history, into a most modern city. The city is easily accessible by road, rail, sea and air. Its culture, cuisine and academic tradition along with its location on the Mediterranean coast and its pleasant climate, make the city the ideal setting for this symposium.

Museu de les Ciències Príncipe Felipe
Autovía del Saler, 7
46013 Valencia, Spain

Call for abstracts

Participants are invited to submit abstracts for oral or poster presentation, the majority being presented as poster. Acceptance will be based upon the quality and relevance of the submissions.

The abstract, not exceeding one page in length (width 12 cm; height 20 cm, font size 12), with single-spaced text, should preferably be sent by e-mail to catedrasg@cac.es, before the deadline expires on September 1st, 2006.

Each abstract must include: title (in CAPITAL LETTERS) and the names of the authors (the name of the presenting author should be underlined). After the name of the last author the address of the institution or organization should be stated.

The abstracts will be reproduced in the same condition in which they were received for inclusion in symposium documentation. They will not be subject to editing.

Authors of accepted abstracts will be notified from September 15th, 2006 onwards.

The poster exhibition will be situated in the hall of the auditorium. It will be open throughout the meeting.

Scientific committee

Santiago Grisolía
Executive vice-president of the Alto Consejo Consultivo en I+D de la Presidencia de la Generalitat; Valencia, Spain.

Vicente Felipo
Laboratory of Neurobiology, Centro de Investigación Príncipe Felipe; Valencia, Spain.

Organizing committee

President: Vicente Felipo
Director of Cátedra Santiago Grisolía and Laboratory of Neurobiology, Centro de Investigación Príncipe Felipe; Valencia, Spain

Members: Marta Llansola
Carmina Montoliu
Pilar Monfort
Regina Rodrigo
Omar Couli
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Symposium secretariat

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46023 Valencia, Spain.

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Travel and accommodation

The travel agency Viajes Iberia has booked rooms in several hotels within walking distance of the venue. Information can be obtained from:

Ms. Matilde García-Conde
Tel: 0034 96 353 61 65
Fax: 0034 96 394 06 06
E-mail: valencia.hernancortes23@viajesiberia.com

Registration fee

Up to September 30th: 60€
After September 30th: 120€
Students: 40€

Registration fee for participants includes scientific sessions, coffee breaks and the symposium material.

A certificate of attendance will be given to all registered participants.

Payment

Bank transfer to Fundación Ciudad de las Artes y las Ciencias at BANCAJA

- Swift code for international bank transfers:
  IBAN: ES48 2077 0737 74 3100345279
  BIC: CVALESVVXXX
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Please send a copy of the bank transfer by fax 0034 96 197 45 98

Language

The lectures will be given in English with simultaneous translation into Spanish.

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Please send the registration form to the symposium secretarian by mail, fax or e-mail. You can also register online on the website: *http://www.fundacioncac.es*
*Note: your registration will be only considered upon receiving the full payment.

In compliance with Act 34/2002, dated 11th July, on services for the Information Society and Electronic Trade and the Organic Act 15/1999, dated 13th December on Protection of Personal Data, we hereby inform you that your data will be included and processed in the I.T. File of the Fundación Ciudad de las Artes y las Ciencias with the purpose of being able to send information to you regarding our services, news and activities.
At any time the user can exercise the rights of access, correction, cancellation and opposition to the use of personal data by sending an e-mail to catedrasg@cac.es or a fax to: 0034 96 197 45 98.