

2nd Human Glutamate Dehydrogenases Conference,

June 10, 2012

Heraklion, Crete, Greece

Meeting Report

The Department of Neurology of the University of Crete, Medical School in collaboration with the Institute of Pharmacology and Pharmacotherapy, University of Copenhagen organized the 2nd Conference dedicated to the recent research advances in the field Human Glutamate Dehydrogenases. The meeting was held in Heraklion, Crete, Greece on the 10th of June, 2012.

Professor Andreas Plaitakis (University of Crete, Greece) and Professor Arne Schousboe (University of Copenhagen, Denmark) acted as Co-Chairs of the Organizing Committee, whereas Dr. Ioannis Zaganas (University of Crete, Greece), acted as the Co-ordinating Secretary. The secretarial support by Ms. Irini Tzanaki was also of key importance to the success of the meeting.

The meeting was attended by about 30 participants, including young scientists and graduate students from Europe and other countries. Specifically, the country of origin of participants included Brazil, Canada, Denmark, Greece, Ireland, Switzerland and U.S.A.

Program outline: This meeting was the 2nd meeting dedicated to the topic of Human Glutamate Dehydrogenases following the 1st successful meeting that was held in Heraklion, Crete in May 2010. Since the previous meeting, the field of Human Glutamate Dehydrogenases has acquired further interest, due to advances relating to genetics, structural biology, structure-function relationships, cellular bio-energetics, cellular signaling, metabolism, neurotransmission and human evolution. Aim of this meeting was once again to bring together researchers from around

the world who have a special interest in the study of this enzyme and to provide an opportunity for exchanging ideas in order to advance creative thinking in this area of science.

Meeting format:

The meeting combined main lectures by established investigators with oral presentations by young investigators, while sufficient time was allowed for discussion.

In total, there were 10 main presentations (of 30-45 minute duration) by scientists who covered several important aspects of glutamate dehydrogenase, including aspects of enzymatic catalysis and regulation, structure-function relationships, expression of GDH isoforms in human tissues, the metabolic function of GDH function in various organs, and the derangements of energy homeostasis in GDH knock out animals. Scientific presentation were followed by spirited discussions (about 10-15 minutes in duration), thus providing a unique opportunity for exchanging ideas in order to advance creative thinking in the glutamate dehydrogenase field of research.

Four post-doctoral fellows and Ph.D. students made brief presentations (of 15 minutes duration) on their work related to this enzyme. These young neuroscientists presented their work on mitochondrial targeting of glutamate dehydrogenase, on the construction of tagged variants of the enzyme, on the regulation of the human isoenzymes by L-leucine and on the effect on glutamate metabolism of the si-RNA knock-down of the enzyme in astrocytes.

The academic merit of the participants and their significant contributions in the field made this meeting a memorable scientific and educational experience.

ISN Grant: Owing to the generous grant from the International Society for Neurochemistry, we were able to cover the travel and accommodation expenses, as well as the registration fees, of 2 young neuroscientists for their participation in the meeting. In addition, we were able to waive the registration fees for 7 additional pre- and post- graduate students.

ISN Young Neuroscientist Grant beneficiaries (in parenthesis the amount allocated to each young neuroscientist):

Pajecka Kamilla, Copenhagen, Denmark (travel 453.74 euros, accommodation 70 euros, registration 250 euros)

Skytt Dorte, Copenhagen, Denmark (travel 654.71 euros, accommodation 70 euros, local transport from/to airport 60 euros, registration 250 euros)

Nielsen Camilla, Copenhagen, Denmark (registration, 250 euros)

Mathioudakis Lambros, Heraklion, Greece (registration, 250 euros)

Kanavouras Konstantinos, Heraklion, Greece (registration, 250 euros)

Bourbouli Mara, Heraklion, Greece (registration, 250 euros)

Katsioudi Georgia, Heraklion, Greece (registration, 250 euros)

Petraki Zoi, Heraklion, Greece (registration, 250 euros)

Kotzamani Dimitra, Heraklion, Greece (registration, 250 euros)

Thus, a total of **3,558.45** euros was allocated to the support of the Participation of Young Neuroscientists in the meeting (this corresponds to **\$4,412.50** –using an 1.24 dollar to euro rate-, or 60 % of the ISN Grant of **\$ 8,000**).

Note that \$ **400** or **322.50** euros (5 % of the ISN Grant) was withheld by the University of Crete Financial Department to cover overhead expenses.

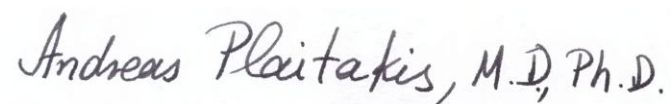
The rest of the ISN Grant (\$ **3,187.50** or **2,550** euros) was allocated to expenses relating to the meeting (including meals of invited speakers **840** euros, fees for transfer from/to the airport **300** euros, printing of meeting brochure and program **798** euros, bus to Rethimno and back for the official dinner **445** euros).

The names of the ISN beneficiaries appear on the home page of the Meeting (www.neurologycrete.gr/gdh), as well as in a special inset of the meeting program. Please find attached a pdf file of the first page of the meeting website, acknowledging the key contribution of the ISN grant for the success of this meeting.

Thank you again for your valuable contribution to the success of this meeting,

Sincerely

Andreas Plaitakis

A handwritten signature in black ink that reads "Andreas Plaitakis, M.D., Ph.D." The signature is written in a cursive style.

Professor emeritus,
Neurology Laboratory,
School of Health Sciences,

University of Crete,
Heraklion, Crete, Greece

Arne Schousboe

Professor,
Department of Pharmacology and Pharmacotherapy,
Faculty of Pharmaceutical Sciences,
University of Copenhagen,
Copenhagen, Denmark

Sunday June 10, 2012

Glutamate Dehydrogenase / Structure-Function (Chair: Plaitakis A)

09:00-09:30	Engel P	Coenzyme specificity in the glutamate dehydrogenase family
09:30-10:15	Smith TJ	Glutamate dehydrogenase and the hyperinsulinism/hyperammonemia disorder
10:15-10:40	Plaitakis A	Human <i>GLUD2</i> glutamate dehydrogenase: tissue expression and function
10:40-11:00	Spanaki C.	Immunocytochemical studies of human tissues using antibodies specific for hGH1 and hGDH2
11:00-11:30	Coffee break	
11:30-12:10	Maechler P	Abrogation of <i>Glud1</i> (Glutamate Dehydrogenase 1) in the Central Nervous System Modifies Energy Homeostasis
12:10-12:50	Treberg JR	Glutamate dehydrogenase: reversibility and inter-organ differences in contribution to nitrogen metabolism
12:50-13:35	Norenberg M	Why the brain fails when the astrocyte ails
13:35-15:00	<i>Lunch</i>	

Glutamate Dehydrogenase in nervous tissue (Chair: Stridh M)

15:00-15:30	Stridh M	Role of glutamate dehydrogenase in astrocyte energy and glutamate metabolism
15:30-16:00	Leke R	A potential detoxifying role of alanine synthesis during hyperammonemia in neural cultures
16:00-16:30	<i>Coffee Break</i>	

Selected Oral Presentations (Chair: Schousboe A)

16:30-16:45	Skytt D	SiRNA knock down of glutamate dehydrogenase in astrocytes affects glutamate metabolism leading to extensive accumulation of the neuroactive amino acids glutamate and aspartate
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16:45-17:00	Kotzamani D	Leader sequences and mitochondrial localization of <i>GLUD1</i> and <i>GLUD2</i> human glutamate dehydrogenases
17:00-17:15	Pajecka K	Comparison of heterologous expression systems for the production of human glutamate dehydrogenase 1 and 2
17:15-17:30	Zaganas I	hGDH1 and hGDH2 mutants provide insights into the mechanism of activation of human glutamate dehydrogenases by L-leucine
17:30-18:00	Conclusions/ Closing remarks (Plaitakis A, Schousboe A)	
19:00-22:00	Dinner	