

# **1<sup>ST</sup> INTERNATIONAL CONFERENCE ON THE GLYCOBIOLOGY OF NERVOUS SYSTEM: FROM THE GENOME RESEARCH TO THE GLYCOME.**

**Seoul, South Korea, September 2<sup>nd</sup>-5<sup>th</sup>, 2017**

**Chairpersons:**

**Akio Wanaka, Nagoya University, President of the Asian Pacific Society for Neurochemistry**

**Sandro Sonnino, University of Milan, President Elect, International Glycoconjugate Organization**

**Local organization:**

**Woong Sun, Korea University, Secretary of the Asian Pacific Society for Neurochemistry**

The 1<sup>st</sup> International Conference on the Glycobiology of nervous System was held in Seoul, South Korea, from September 2<sup>nd</sup> to September 5<sup>th</sup>. The conference has been organized in Seoul, taking advantage by the fact that several glycoscientists were in the island of Jeju, South Korea, attending in the previous week the 24<sup>th</sup> International Symposium on Glycoconjugates. Great help for the conference organization has been given by the Asian Pacific Society for Neurochemistry President, Secretary and Associated.

78 participants from China, Taiwan, Japan, Korea, India, Canada, USA, Australia, Israel and Italy attended the Conference. 39 were young scientists as advance-graduated students, PhD students and postdoctoral fellows.

The Conference venue was the fantastic conference area of the Korea University, in Hana square, Seoul. The conference hall, the adjoining rooms, the lobby with many armchairs and sofa, and the dining room allowed a great scientific and social atmosphere.

In the closing remarks it has been expressed the will and the wish that the 2<sup>nd</sup> International Conference can be organized as pre- or post-meeting of the 25<sup>th</sup> International Glycoconjugate Symposium, August 25<sup>th</sup>-31<sup>st</sup>, 2019, Milano, Italy.

**The magnificent venue, the Korea University in Hana square, Seoul, South Koera.**



## CONFERENCE PARTICIPANTS

- 1- Abe Chikara,
- 2- An, Minae
- 3- Anu
- 4- Aureli Massimo
- 5- Campbell Edward M.,
- 6- Cappai Roberto,
- 7- Chan Ying Shing,
- 8- Chiricozzi Elena
- 9- Choi, Keunyul
- 10- Choi, Seungin
- 11- Chu-Wei Kuo
- 12- Chu-Wei Kuo,
- 13- Daisy Kwok-Yan Shum
- 14- de Britto Pará de Aragão Camila
- 15- Dong-Hoon Kim
- 16- Ekaterina Demina,
- 17- Garozzo Domenico,
- 18- Goldman Radoslav,
- 19- Grassi Sara
- 20- Hart Gerald W.,
- 21- Hirabayashi Yoshio,
- 22- Hirokazu Yagi,
- 23- Inokuchi Jin-ichi,
- 24- Iwaki Yuya
- 25- Kadomatsu Kenji,
- 26- Kamimura Keisuke,
- 27- Kang Kyungtae,
- 28- Kato Koichi,
- 29- Kazuhisa Iwabuchi
- 30- Khoo Kay-Hooi,
- 31- Kim, Donghui
- 32- Kim, Dongsoon
- 33- Kim, Minsuk
- 34- Kitazume Shinobu
- 35- Kohji Itoh
- 36- Laura Mauri
- 37- Ledeen Robert
- 38- Lee Kiyounng
- 39- Lee, Eunsoo
- 40- Lee, Hyejin
- 41- Lee, Juhyun
- 42- Li Su-Chen
- 43- Li Yu-Teh,
- 44- Lim, Jiyeon
- 45- Loberto Nicoletta

46- Maura Samarani  
47- Mehra Surabhi,  
48- Mori Airi,  
49- Mutoh Tatsuro,  
50- Nishitsuji Kazuchika  
51- Park, Keyhwa  
52- Park, Mirae  
53- Prinetti Alessandro  
54- Pshezhetsky Alexey V.,  
55- Russo Laura,  
56- Saito Taiki,  
57- Sato Chihiro,  
58- Schiumarini Domitilla  
59- Segal Daniel,  
60- Seo, Kubin  
61- Shintaro Michael Uno,  
62- Son, Jongwan  
63- Son, Yejin  
64- Song, Moonkyu  
65- Sonnino Sandro  
66- Tanaka Hiroki,  
67- Taniguchi Naoyuki  
68- Tsuji Daisuke,  
69- Tsukimoto Jun,  
70- Uchimura Kenji  
71- Wanaka Akio,  
72- Wang Bing,  
73- Wang Pao-Yuan,  
74- Woong Sun  
75- Yijuang Chern  
76- Yoon So-young  
77- Yoshimura Atsushi,  
78- Yutaka Itokazu

## **REGISTRATION FEE**

Registration fee was fixed at US\$ 200.

# PROGRAM OF THE CONFERENCE

## September 2<sup>nd</sup>

**14.00-14.30**

### **Opening remarks**

**Im Joo Rhyu**, Dean of BK21 program, Korea University, Seoul, Korea  
**Sandro Sonnino**, Conference Chair, University of Milano, Italy  
**Akio Wanaka**, Conference Chair and President of APSN, University of Nara, Japan

**14.30-18.30**

### **Session 1 - Glycosylation and energy metabolism in brain**

14.30-15.00

The Nutrient Sensor, O-GlcNAc, Regulates Appetite and Synapse Maturation in Hypothalamic Neurons  
**Gerald W. Hart**, Baltimore, USA

15.00-15.30

O-GlcNAc cycling maintains Brain Proteostasis and Metabolism  
**John A. Hanover** Bethesda, USA

15.30-16.00

**Special KU/APSN lecture:** Spexin is a potential regulator of energy and glucose homeostasis  
**Dong-Hoon Kim** Seoul, Korea

16.00-16.30

### **Coffee and tea**

### **Session 2 - Functional glycomics.**

16.30-17.00

Metabolic Labeling of Polysialic Acids in Rat Primary Neurons  
**Kyungtae Kang**, , Seoul, Korea

17.00-17.30

Dissecting the sulfated glycotopes of mouse brain via advanced mass spectrometry-based glycomics.  
**Kay-Hooi Khoo** Taipei, Taiwan

17.30-18.00

The characterization of the laminin-binding glycans on alpha-dystroglycan catalyzed by several causative gene products of dystroglycanopathy.  
**Hirokazu Yagi**, Nagoya, Japan

18.00-18.30

Alterations of global protein glycosylation in Alzheimer's disease – causal and potentially theranostic  
**Daniel Segal**, Tel-Aviv University, Israel

18.30-19.00

### **General Discussion**

19.00 - 21.00

### **Welcome Dinner**

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## September 3<sup>rd</sup>

**9.00-16.30**

### **Session 3 – Amyloid diseases**

9.00-9.30

New Thinking about Parkinson's Disease: GM1 Deficiency as Cause; GM1 Analogs as Cure  
**Robert Ledeen** Newark, USA.

9.30-10.00

The role of galectin proteins in the host cell response to amyloid fibril invasion  
**Edward M. Campbell**, Maywood, USA

10.00-10.30

How glycosylation affects amyloid beta production

**Shinobu Kitazume**, Wako, Japan

10.30-11.00

**Coffee and tea**

11.00-11.30

Glycan modification of BACE1 regulates its localization and accelerates Alzheimer's disease

**Naoyuki Taniguchi**, Wako, Japan

11.30-12.00

Neural N-glycans in Alzheimer's and other diseases

**Domenico Garozzo**, Catania, Italy

12.00-12.30

Glycosaminoglycans in protein aggregation diseases

**Kazuchika Nishitsuji**, Tokushima, Japan

12.30-13.00

Diverse Mechanism of Glycosaminoglycans Mediated  $\alpha$ -synuclein Fibrillation.

**Surabhi Mehra** Mumbai, India

13.00-14.30

**Lunch time**

14.30-15.00

Deficiency of a sulfotransferase for sialic acid-modified keratan sulfate in microglia mitigates Alzheimer's pathology

**Kenji Uchimura**, Nagoya, Japan

15.00-16.30

Round table on the role of glycans in the amyloidogenic processes.

**Roberto Cappai**, Melbourne, Australia

16.30-17.00

**Coffee and tea**

**17.00-19.00**

**Session 4 – Membrane organization and cell signaling**

17.00-17.30

Glia-Neuron interaction based upon novel glycolipid in lipid rafts

**Yoshio Hirabayashi** Wako, Japan

17.30-18.00

Lipid-driven membrane organization and signaling in myelin repair

**Alessandro Prinetti**, Milano, Italy

18.00-18.30

Properties and functions of anti-glycosphingolipid antibodies are highly depend on the organization of glycosphingolipid-enriched domains.

**Kazuhisa Iwabuchi**, Tokyo, Japan

18.30-19.00

**General discussion**

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## September 4th

**9.00-13.00**

**Session 5 – Neuronal regeneration and synaptic plasticity**

9.00-9.30

Glycosaminoglycans in axon regeneration and neural plasticity.

**Kenji Kadomatsu**, Nagoya Japan

9.30-10.00

Glypican regulates synaptic plasticity at the Drosophila neuromuscular junction

**Keisuke Kamimura**, Tokyo, Japan

10.00-10.30

The neurotrophic properties of GM1 ganglioside: a new study.

**Elena Chiricozzi**, Milano, Italy

10.30-11.00

**Coffee and tea**

11.00-11.30

Neuronal and astrocytic proheparanase: Roles in regulating synaptic strength in the rat

**Daisy Kwok-Yan Shum**, Hong Kong, China

11.30-12.00

Role of sialic acid glycans and sialylated glycoprotein lactoferrin as key molecular players in enhancing neurodevelopment and cognition in piglets

**Bing Wang**, Locked Bag, Australia

12.00-12.30

Neoglycosylated collagen for neuronal regeneration

**Laura Russo**, Milano, Italy

12.30-13.00

Gangliosides in Neural Stem Cells

**Itokazu Yutaka**, Augusta, USA

**14.30-16.00**

**Session 6 – Sulfated glycans**

14.30-15.00

**Special KU/APS N lecture:** Specific patterns of chondroitin sulfate proteoglycan expression in the adult CNS

**Akio Wanaka**, Nara, Japan

15.00-15.30

**Special KU/APS N lecture:** Emerging role of perineuronal chondroitin sulfates and semaphorin 3A on the developing vestibular circuitry

**Ying Shing Chan**, Hong Kong, China

15.30-16.00

**General discussion**

**16.00-18.00**

**Session 7 – Poster session**

18.30-20.30

Farewell Party

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## September 5<sup>th</sup>

**9.00-11.30**

**Session 8 - Presentations Selected from Posters**

9.00-9.15

Incorporation mechanism of deaminoneuraminic acid (KDN) in mammalian cells

**Yuya Iwaki**, Nagoya, Japan

9.15-9.30

Synaptic Dysfunction in Sanfilippo Type C Syndrome

**Camila de Britto Pará de Aragão**, Montreal, Canada

9.30-9.45

Mechanisms underlying the carrier protein-specific Lewis X modification catalyzed by fucosyltransferase IX

**Taiki Saito**, Nagoya, Japan

9.45-10.00

Persistent activation of cerebral neuraminidases following post-natal inflammatory exposure

**Ekaterina Demina**, Montreal, Canada

10.00-10.15

Discovery of exosomal glycosidases in microglia and macrophage cells

**Atsushi Yoshimura**, Nagoya, Japan

10.15-10.30

Impairment of autophagosome-lysosome fusion in lysosomal storage disorders  
**Hiroki Tanaka**, Tokushima, Japan

10.30-11.00  
**Coffee and tea**

11.00-11.15  
Lysosomal impairment causes the onset of neurodegeneration in mouse granule neurons: the side effect of glycosphingolipid metabolism  
**Maura Samarani**, Milano, Italy

11.15-11.30  
A new *in vitro* model to study Niemann-Pick Type A disease  
**Nicoletta Loberto**, Milano, Italy

**11.30-16.30**  
**Session 9 - Glycohydrolases and glycosyl transferases**

11.30-12.00  
Cerebellar accumulation of GM2 and regional variation of glycosphingolipid expression in a variant B1 Tay-Sachs brain  
**Yu-Teh Li**, New Orleans, USA

12.00-12.30  
Neuropathogenesis of murine disease model with combined deficiencies of lysosomal cathepsin A (Ctsa) and neuraminidase-1 (Neu1) and therapeutic approach.  
**Kohji Itoh**, Tokushima, Japan

12.30-13.00  
Roles of neuraminidases in CNS function  
**Alexey V. Pshezhetsky**, Montreal,

13.00-14.30  
**Lunch Time**

14.30-15.00  
Biochemical analyses of polysialic acid synthesized by the polysialyltransferase ST8SIA2 found in psychiatric disorder patients.  
**Chihiro Sato**, Nagoya, Japan

15.00-15.30  
ST8  $\alpha$ -N-acetyl-neuraminide  $\alpha$ -2,8-sialyltransferase 3 (ST8SIA3) functions as a signal coordinator in the striatum  
**Yijuang Chern**, Taipei, Taiwan.  
Canada

15.30-16.00  
The GM3 synthase deficiency in human and mice  
**Jin-ichi Inokuchi**, Sendai, Japan

16.00-16.30  
Anti-neutral lycolipids antibodies-mediated whole nervous systems impairment: A new disorder, EMRN  
**Tatsuro Mutoh**, Toyoake, Japan

16.30-17.00  
**General discussion**

**17.00**  
**Final Remarks**

## **ISN YOUNG SCIENTIST AWARDS.**

**Awarded young scientists were covered for travel, registration fee and local expenses.**

**Ekaterina Demina**, Postdoctoral fellow

*Sainte-Justine University Hospital Research Center, University of Montreal. Montreal, Canada*

Oral presentation:

Persistent activation of cerebral neuraminidases following post-natal inflammatory exposure

**Laura Russo**, Postdoctoral fellow

*Department of Biotechnology and Bioscience, University of Milano-Bicocca, Milano, Italy*

Oral presentation:

Neoglycosylated collagen for neuronal regeneration

**Surabhi Mehra**, PhD student

*Department of Biosciences and Bioengineering, IIT Bombay, Mumbai, India*

Oral presentation

Diverse Mechanism of Glycosaminoglycans Mediated  $\alpha$ -synuclein Fibrillation

**Taiki Saito**, PhD student

*Faculty of Pharmaceutical Sciences, Nagoya City University, Nagoya, Japan*

Oral presentation:

Mechanisms underlying the carrier protein-specific Lewis X modification catalyzed by fucosyltransferase IX

**Camila de Britto Pará de Aragão**, Postdoctoral fellow

*CHU Sainte-Justine Research Center, University of Montreal, Montreal, Canada*

Oral presentation:

Synaptic Dysfunction in Sanfilippo Type C Syndrome

**Elena Chiricozzi**, Postdoctoral fellow

*Department of Medical Biotechnology and Translational Medicine, University of Milan, Segrate, Italy*

Oral presentation:

The neurotrophic properties of GM1 ganglioside: a new study



## **ACCOUNT OF THE EXPENSES FOR THE US\$ 20,000 ISN-CC SUPPORT (received US\$ 16000)**

### **1-Expenses for the ISN Young Scientist awards**

#### **Ekaterina Demina,**

Air ticket: 1203  
5 nights Hotel stay: 600  
Total: **1803**

#### **Laura Russo**

Air ticket: 1689  
5 nights Hotel stay: 600  
Total **2289**

#### **Surabhi Mehra**

Air ticket: 562  
5 nights Hotel stay: 600  
Total **1162**

#### **Taiki Saito**

Air ticket: 323  
5 nights Hotel stay: 600  
Total: **923**

#### **Camila de Britto Pará de Aragão**

Air ticket: 1151  
5 nights Hotel stay: 600  
Total: **1751**

#### **Elena Chiricozzi**

Air ticket: 1137  
5 nights Hotel stay: 600  
Total **1737**

**Total expenses for ISN Young Scientist awards: US\$ 9665**

### **2-Expenses for registration fee of both awarded ISN Young Scientists and young Scientists**

- 1- **Chu-Wei Kuo**, PhD student
- 2- **Pao-Yuan Wang**, PhD student
- 3- **Laura Russo**, Postdoctoral fellow, ISN Young Scientist award
- 4- **Massimo Aureli**, Postdoctoral fellow
- 5- **Nicoletta Loberto**, Postdoctoral fellow
- 6- **Maura Samarani**, Postdoctoral fellow
- 7- **Domitilla Schiumarini**, Postdoctoral fellow
- 8- **Sara Grassi**, Postdoctoral fellow
- 9- **Elena Chiricozzi**, Postdoctoral fellow, ISN Young Scientist award
- 10- **Camila de Britto Pará de Aragão**, Postdoctoral fellow, ISN Young Scientist award

- 11- **Ekaterina Demona**, Postdoctoral fellow, ISN Young Scientist award
- 12- **Surabhi Mehra**, PhD student, ISN Young Scientist award
- 13- **Taiki Saito**, PhD student, ISN Young Scientist award
- 14- **Yejin Son**, advance-graduated students
- 15- **Kubin Seo**, advance-graduated students
- 16- **Minae An**, advance-graduated students
- 17- **Juhyun Lee**, advance-graduated students
- 18- **Minsuk Kim**, advance-graduated students
- 19- **Hyejin Lee**, PhD student
- 20- **Mirae Park**, PhD student
- 21- **Donghui Kim** , PhD student
- 22- **Anu**, PhD student
- 23- **Keunyul Choi**, PhD student
- 24- **Jiyeon Lim**, PhD student
- 25- **Moonkyu Song**, PhD student
- 26- **Choi Seungin**, PhD student
- 27- **Jongwan Son**, postdoctoral fellow
- 28- **Eunsoo Lee**, postdoctoral fellow
- 29- **Soyoung Yoon**, postdoctoral fellow
- 30- **Keyhwa Park**, postdoctoral fellow
- 31- **Kim Dongsoon**, postdoctoral fellow
- 32- **Kay-Hooi Khoo**, postdoctoral fellow
- 33- **Chikara Abe**, PhD student
- 34- **Yuka Iwaki**, PhD student
- 35- **Atsushi Yoshimura**, PhD student
- 36- **Jun Tukimoto**, PhD student
- 37- **Daisuke Tsji**, PhD student
- 38- **Airi Mori**, PhD student
- 39- **Hiroki Tanaka**, PhD student

**Total expenses for the registration fee of young Scientists 39xUS\$200=US\$ 7800**

**Total expenses for young scientists, 1+2: US\$ 17465**

### **3-Conference chair expenses**

Sandro Sonnino

Air ticket:	1137
Registration fee:	200
5 nights Hotel stay:	600
<b>Total</b>	<b>US\$ 1937</b>

Akio Wanaka

Air ticket:	340
Registration fee:	200
5 nights Hotel stay:	600
<b>Total:</b>	<b>US\$ 1140</b>

**Total expenses of Conference Chairs: US\$ 3077**

**Gran total US\$ 20542**

The difference from US\$ 20000 has been covered by the sponsor support and income from registration fee.

Dear Sandro

Thank you for the message. As I told you, I was really impressed by the quality of the talks throughout the meeting.

Woong provided us with such a very beautiful and comfortable environment and So-Young did great job in managing the events.

All in all, the meeting was very successful and I hope Glyconeurobiology meeting and APSN, ISN would continue collaborating for future opportunities.

With best regards,

Akio

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Akio Wanaka, M.D., Ph.D.  
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2017-09-12 22:10 GMT+09:00 Alessandro Prinetti <[alessandro.prinetti@unimi.it](mailto:alessandro.prinetti@unimi.it)>:Dear Sandro and Akio,

Please allow me to formally congratulate for the great success of the Seoul meeting. Comments from participant were enthusiastic and definitely they felt the meeting above expectations.

You have set an important standard and now the community knows that a meeting of this kind can be successfully organized, so I hope we can continue for the future. I also think that it was an excellent example of cooperation between different groups and hope that APSN can benefit from it.

I would like to acknowledge the important role of KU the local organization, Woong and his staff did a great job- with some help from the Italian-Korean staff. And a special is owed to So-young: always a step ahead of our needs and requests, always efficiently,  
always with a smile!

감사합니다

Alex

Alessandro Prinetti  
Professor of Biochemistry  
University of Milano

Dear Dr. Sonnino,

Thank you for the opportunity to participate at the 1st International Conference on the Glycobiology of Nervous System. The program and organizations were outstanding.  
Yours sincerely,

Ekaterina Demina

Dear Drs Sandro and Akio,

Congratulations for great success! It was my pleasure to serve as LOC for the GlycoNeuro meeting. Also I learned a lot from this event in many aspects: how to lead many different groups into one, how to organize international meeting efficiently, and of course what the future direction of glyconeurobiology is. I hope and believe that we could meet/collaborate again.

Best,

Woong

Dear Sandro:

It was so nice to see both of you in Seoul. The Conference on the Glycobiology of Nervous System was a great success. Su-Chen and I enjoyed the meeting so much. We were happy to have the opportunity to learn many new functional aspects of glycoconjugates on the nervous system. We appreciate the time and efforts two of you devoted in organizing this meeting. Truly, the glycoconjugate field needs the capable and enthusiastic persons like two of you. We are also happy to see the involvement of more young researchers in the glycobiology research.

We returned home safely at midnight on Sept 8<sup>th</sup>. We had Saturday and Sunday to recover from the jet lag. Being in Seoul, was our first Korean experience. We curiously enjoyed Korean foods for the first time. We also would like to mention that the Holiday Inn Seoul Seonbuck was an excellent hotel. Their services and room facilities were all first class. The same kind of hotel in the US would charge much more.

Su-Chen joins me in thanking you for including us in this meeting.

Best regards,

Y.-T.

Yu-Teh Li, Ph.D.  
Professor  
Department of Biochemistry and Molecular Biology SL8643  
Tulane University School of Medicine  
1430 Tulane Avenue  
New Orleans, La 70112-2699  
Phone: (504) 988-2451  
Fax: (504) 988-2739  
E-Mail: [yli1@tulane.edu](mailto:yli1@tulane.edu)

Dear Professor Sandro Sonnino,

The conference have granted me a great discussion with distinguished researchers.

I am pleased that I could deliver our work orally in front of distinguished scientists. And especially, I really appreciate you for having given me time for listening to my poster presentation right before the farewell party. I have been so motivated by this conference to research more and study neurology. Let me say again, Thank you for organizing.

Buona giornata!

Sincerely,  
Taiki Saito

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