

# ISN Symposium on Sphingolipids in neural pathologies

We have organized an “*ISN Symposium on Sphingolipids in neural pathologies*” that has been included in the “*FEBS special meeting in Sphingolipid Biology: Sphingolipids in physiology and pathology*” that took place in Cascais, Portugal, 6-10 May 2019.

Sphingolipids are a fundamental class of molecules that are involved in structural, organizational and signaling properties of eukaryotic membranes. Defects in their production or disposal lead to acquired and inherited human diseases. A growing community of scientists has embraced the challenge to dissect different aspects of sphingolipid biology using a variety of approaches, and a substantial part of this community met last May in the beautiful town of Cascais in Portugal. Over 200 scientists, with 50% gender balance, from 26 countries animated the conference, held in a 15th century citadel, sharing their data and opinions on the current understanding and future challenges in sphingolipid research. The meeting covered interdisciplinary topics associated to sphingolipid biology in physiology and pathology, ranging from emerging tools to study sphingolipid structure and function, to their roles in membrane organization, dynamics, signaling and metabolism. The imminent role of sphingolipids in several human diseases, including, cancer, metabolic syndrome, genetic disorders and neurodegenerative diseases, both as players in the aetiology and as targets and/or therapeutic entities of those diseases was strongly discussed. Scientific sessions moderated by recognized leaders of the field, together with poster and oral communications from established, early-stage career scientists and students, provided the ideal setting for networking and close interaction between speakers and participants.

The **organizers** included:

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The **Scientific Advisory Board** included:

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### The Venue & Location

The Symposium took place at Hotel Pestana Cidadela Cascais. The venue had a large conference room and an adjacent poster session room. Dining was in the same hotel. Participants were accommodated at Pestana Cidadela and at Hotel Vila Galé (located 600m from the venue).

### Key Figures on Participants

Number of Applicants for the Event: **240**  
 Number of Accepted Participants: **205 + 18 guests (including children)**

The **Total Number** of regular participants, including plenary speakers but excluding accompanying guests and local organizers of the Course/Workshop/Special Meeting was:

<b>Total Number</b>		<b>205</b>
Regular Participants Included:		
# graduate students & postdoctoral students (less than 5 years)		78
# principal investigators from academia & industry and postdocs (more than 5 years)		127
Number <b>Invited Plenary Speakers:</b>		<b>33</b>
# paid by FEBS Support -		27
# paid by ISN Support -		<b>5</b>
# paid by EMBO Support -		1
Number <b>Members of Scientific Advisory/Committee Board</b>		<b>5 (3 of which chairs/speakers)</b>

### Geographic distribution of participants

# participants from Europe & Turkey	<b>135</b>
# participants from USA & Canada & South America	<b>63</b>
# participants from Australia	<b>0</b>
# participants from Asia	<b>33</b>
# participants from Africa	<b>0</b>

### The Scientific Presentations Comprised

# invited plenary lectures	<b>33 (2 of which keynotes)</b>
# selected talks or student presentations	
10 minutes short talks	29
2 minutes flash talks	14
# poster presentations	2 sessions/2h each <b>(98 posters total)</b>
# no presentation (visitors & company representative)	0

**invited speakers and lecturers who have attended (In red are those participating to the ISN symposium)**

1. Alice Yu
2. Alicia Alonso
3. Annarita Di Lorenzo
4. Antonella de Matteis
5. Antonio Gomez-Munoz
6. Bruno Segui
7. Chiara Luberto
8. Christoph Arenz
9. **Dagmar Wachten**
10. **Einat Vitner**
11. **Elisabetta Albi**
12. **Erich Gulbins**
13. Fikadu Tafesse
14. Galya Staneva
15. Gemma Fabrias
16. Howard Riezman
17. Jin-ichi Inokuchi
18. Joo Won Park
19. Joost C. M. Holthuis
20. Kentaro Hanada
21. Konrad Sandhof
22. Maria João Sarmento
23. Paola Signorelli
24. Peter Nagy
25. Rodrigo Almeida
26. Sarah Spiegel
27. Sebastien Granier
28. Thierry Levade
29. Thorsten Hornemann
30. **Vittorio Maglione**
31. Yasuyuki Igarashi
32. Yohann Boutte
33. Yoshio Hirabayshi

### **Feedback & Comments by Participants**

76% of the participants (155 out of 205 participants) submitted a survey form provided by FEBS. From this, 94% considered this event as excellent or good, highlighting the organization of the scientific program (94%), the quality of the scientific training and interaction with speakers (90%), the quality of the lectures and talks (90%), the discussions after the presentations or sessions (93%), the balance between training and scientific lectures (80%). Moreover, 90% of the participants that submitted the survey indicated that the event fulfilled their expectations. In addition, 97% reported that there was sufficient information available about the course, no problems with transportation (95%), no problems with course language (96%), enough time for scientific discussions with other participants (90%), enough time for discussion after poster sessions (86%), opportunity for informal discussions with lectures (96%), to meet others in the field (98%), to obtain overview of the fields (97%) and to receive help with current work (89%). The overall duration of the course was considered right for 92% of the participants that submitted the survey. 95% considered the location and accommodation

excellent or good and 75% rated the facilities as excellent or good. Most of the participants learnt about the course via web or email (46%) or word-of-mouth (30%).

Most of the comments of the respondents highlighted the quality and excellence of the meeting, some of them suggesting a follow up of this conference. Several participants reported on the outstanding environment of the meeting that enabled close interactions among participants, as well as, the overall quality of the program, both in terms of topics covered and talks given by leading scientists that usually are not present at these meetings. Even though most of the participants agreed regarding the great organization and quality of the program, some suggested that the schedule was too intense and additional free time was valuable. Some respondents also indicated that the meeting would benefit from a larger room for poster presentations, better audio-system and bigger projection screen.

Specific comments about the ISN symposium included the following:

*'The FEBS special meeting on sphingolipid biology covered a great range of topics from novel tools to study sphingolipid structure and function to the role of sphingolipids in different diseases. I particularly enjoyed the **focus on neuroscience from health to disease**, ranging from the role of sphingolipids in modulating viral infections in the CNS, in the control of major depression, or in the treatment of Huntington's disease.'* - **Dagmar Wachten** – invited speaker

*'The FEBS special meeting 2019 on sphingolipid biology was very informative, especially for young people. The conference was well structured with different sessions focusing on three major topics viz i) introduction of innovative tools to study sphingolipid structure, metabolism and function, ii) role of sphingolipids in membrane structure and dynamics, iii) new discoveries regarding the role of sphingolipids in signaling, trafficking, and cell metabolism in physiology and pathology. **The ISN symposium** on sphingolipids in neural pathologies was very interesting for me considering the work I did on the role of glycosphingolipids in neuronal differentiation. Additionally, last session had focused on the role of glycosphingolipids in the context of viral infection of CNS, and in the neurodegeneration which occurs in Huntington's disease.'* - **Domenico Russo** – Attendee PostDoc

*'The FEBS special meeting on sphingolipid biology was a remarkable conference as its organizers carefully chose the speakers in order to bring together the last innovations on sphingolipid research as well as a comprehensive review on the new discoveries of sphingolipids patho-biological roles. My interest went specially to the data presented in the frame of the ISN symposium whereby the relationship between sphingolipid dysmetabolism and neural pathology was investigated.'* – **Tânia C.B. Santos**– Attendee PhD student



## Highlights of the symposium

The ISN Symposium was chaired by **Elisa Albi** (University of Perugia, Italy) who introduced the speakers highlighting *the recent progresses of sphingolipid neurobiology*. **Einat Vitner** (Israel Institute of Biological Research, Ness Ziona, Israel) discussed her data about glucosylceramide brain accumulation in Gaucher disease mouse models and its protective effect towards Sindbis and West Nile virus infections. Prof. Vitner indeed finds that glucosylceramide accumulation due to knock out of the glucosylceramidase GBA1 leads to the induction of type I interferon response that counteracts viral infection which invites to study whether asymptomatic Gaucher disease individuals are more resistant to develop CNS pathology in response to viral infection. **Dagmar Wachten** (University of Bonn, Germany) reported on her results on the role of the non-lysosomal glucosylceramidase (GBA2) on locomotion. Mutations of GBA2 in humans have been associated to hereditary spastic paraplegia, autosomal recessive cerebellar ataxia, and the Marinesco-Sjögren like syndrome, while GBA2 gene ablation in mice does not recapitulate the severity of these syndromes. Nonetheless, prof. Wachten showed how inhibition of GBA2 activity in isolated cerebellar mouse neurons dramatically affects F-actin dynamics and reduces neurite outgrowth, which has been associated with the development of neurological disorders. Thus, in spite the species-specific differences in GBA2 defects *in vivo* the role of this enzyme in controlling neuronal function is conserved across species. **Erich Gulbins** (University Hospital Essen, Germany) spoke about the role of sphingolipids in major depression. Prof. Gulbins data indicate that commonly used antidepressants inhibit acid sphingomyelinase and that sphingomyelinase inhibition is required for the antidepressant efficacy. According to Gulbins, sphingomyelin accumulation in the lysosomes and of ceramide in the endoplasmic reticulum induce autophagy in hippocampal neurons and this autophagic process is the key mode of action of antidepressants thus suggesting that sphingolipid-controlled autophagy as an important target for antidepressive treatment methods. **Vittorio Maglione** (Neuromed, Pozzilli, Italy) discussed about the involvement of sphingolipids and sphingolipid targeting drugs in the treatment of Huntington disease. More precisely Dr. Maglione reported on the use of drugs impacting on sphingosine-1-phosphate metabolism and on their effects on the maintenance of the blood brain barrier integrity and on the Huntington manifestations in a well-accepted mouse model.

## ISN Symposium Budget

The ISN funds were used to cover the travel and accommodation of the ISN symposium invited speakers as detailed below.

### Travel expenses for Speakers at the Symposium

name	EU/USA	travel max	shuttle	flights	total	reimbursed
<b>Elisabetta Albi</b>	EU	300.00 €	30	124.72	154.72 €	154.72 €
<b>Einat Vitner</b>	EU	300.00 €		652.00	652.00 €	300.00 €
<b>Dagmar Wachten</b>	EU	300.00 €	30	294.94	324.94 €	300.00 €
<b>Erich Gulbins</b>	EU	300.00 €	30	410.57	380.57 €	300.00 €
<b>Vittorio Maglione</b>	EU	300.00 €	30	300	330.00 €	300.00 €
Total						<b>1'354.72 €</b>
Dollars						<b>1506.249 \$</b>

### Accommodation expenses for Speakers at the Symposium

name	Hotel	Lunches/Dinners	total
<b>Elisabetta Albi</b>	690	350	1'040.00 €
<b>Einat Vitner</b>	690	350	1'040.00 €
<b>Dagmar Wachten</b>	690	350	1'040.00 €
<b>Erich Gulbins</b>	690	350	1'040.00 €
<b>Vittorio Maglione</b>	690	350	1'040.00 €
Total			<b>5'200.00 €</b>
Dollars			<b>5802.28 \$</b>

The overall expenses attributable to the ISN symposium sum up to 6554.72 € (roughly equivalent to **7315 \$**)

### Information to the audience about ISN and about the advantages of the ISN membership

The Attendees of the 2019 FEBS special meeting on sphingolipid biology received information about the ISN in multiple occasions and through several means.

The ISN logo has been included in:

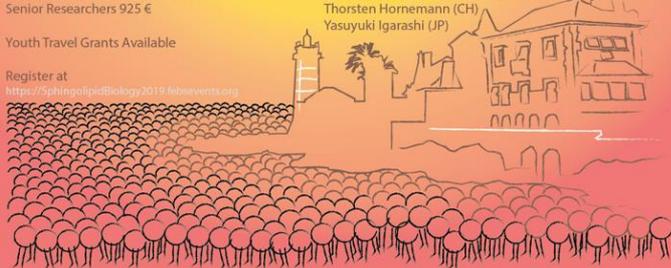
1. The welcome webpage of the event  
(<https://sphingolipidbiology2019.febsevents.org>)
2. The Sponsorship webpage of the event  
(<https://sphingolipidbiology2019.febsevents.org/sponsorship>)
3. The Programme eBook  
(<https://sphingolipidbiology2019.febsevents.org/downloads/ProgramBook-sphingolipidbiology2019.pdf>)
4. In the event Poster



# The 2019 Sphingolipid Meeting

Sphingolipids in physiology and pathology  
Cascais, Portugal, May 6-10 2019

<p><b>Organizing Committee</b></p> <p>Liana Silva (PT) Giovanni D'Angelo (CH) Christopher Clarke (USA) Yusuf Hannun (USA) Thierry Levade (FR)</p> <p><b>Scientific Committee</b></p> <p>Ashley Cowart (USA) Riccardo Ghidoni (IT) Antonio Gomez-Munoz (ES) Thorsten Hornemann (CH) Chiara Luberto (USA)</p> <p><b>Registration Fees</b></p> <p>Early Stage Researchers 525-635 € Senior Researchers 925 €</p> <p><b>Youth Travel Grants Available</b></p> <p>Register at <a href="https://sphingolipidbiology2019.febsevents.org">https://sphingolipidbiology2019.febsevents.org</a></p>	<p><b>Speakers Include</b></p> <p>Elisabetta Albi (IT) Rodrigo Almeida (PT) Alicia Alonso (ES) Christoph Arenz (DE) Yohann Boutte (FR) Myles Cabot (USA) Annarita Di Lorenzo (USA) Antonella De Matteis (IT) Gemma Fabrias (ES) Anne-Claude Gavin (DE) Antonio Gomez-Munoz (ES) Sebastien Granier (FR) Erich Gulbins (DE) Yakir Guri (CH) Kentaro Hanada (JP) Yoshio Hirabayashi (JP) Joost C. M. Holthuis (DE) Thorsten Hornemann (CH) Yasuyuki Igarashi (JP)</p> <p>Jin-ichi Inokuchi (JP) Thierry Levade (FR) Chiara Luberto (USA) Vittorio Maglione (IT) Peter Nagy (HU) Joo Won Park (KR) Frances Platt (UK) Howard Riezman (CH) Maria Sarmiento (CZ) Bruno Segui (FR) Paola Signorelli (IT) Sarah Spiegel (USA) Galyna Staneva (BG) Fikadu Tafesse (USA) Dagmar Wachten (DE) Einat Vitner (IL) Alice Yu (TW)</p>
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The ISN Symposium was advertised both on the event website and in the Programme eBook.

Information about the ISN sponsorship and on the advantages of ISN membership were reported by the ISN member Giovanni D'Angelo during the introductory remarks, and by all the organizers during the Concluding remarks. Dedicated slides were used (see photo).



The ISN sponsorship to the FEBS Special meeting on sphingolipid biology was also acknowledged on social media and reported in a meeting report soon to be published in the Journal of Cell Science.