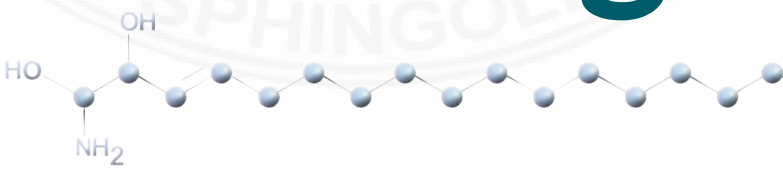
SPHINGOLIPID CLUB

NEUROMED I.R.C.C.S. ISTITUTO NEUROLOGICO MEDITERRANEO

Fondazione NEUROMED

14th SLC Meeting



September 7-11, 2022

Neuromed Research Centre, Pozzilli (Is), ITALY

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SLC Meeting description

Sphingolipids have been first described as one of the major structural constituents of biological membranes. However, their functional role has attracted increased attention over the years.

They are crucial in the control of cell survival and differentiation by regulating several molecular and biochemical pathways.

The Sphingolipid Club International Meeting will cover all the topics associated with sphingolipids, ranging from their biochemical and biophysical properties to the development of new technologies and applications. Particular attention will be also paid to the role of sphingolipids in both human health and disease conditions with the aim to provide a global scenario of emerging role of sphingolipids in translational medicine.

This Meeting will bring together well-established experts and young investigators and will be open to researchers from outside the field, who have recently become interested in sphingolipid biology.

All this will provide a vibrant, interdisciplinary and cross-generational environment which will allow all the participants to share their “sphingolipid vision” and to establish new fruitful and exciting collaborations.

3 **PROGRAM**

3 **Wednesday, Sept. 7, 2022**
Grand Hotel Europa, Isernia

3 **Thursday, Sept. 8, 2022**
Neuromed Research Centre, Pozzilli

7 **Friday, Sept. 9, 2022**
Neuromed Research Centre, Pozzilli

9 **Saturday, Sept. 10, 2022**
Neuromed Research Centre, Pozzilli

12 **Sunday, Sept. 11, 2022**
Grand Hotel Europa, Isernia

13 **ABSTRACTS**

15 **Oral Presentations**

71 **Posters**

91 **PARTICIPANTS**

14th SLC Meeting

Wednesday, Sept. 7, 2022
Grand Hotel Europa, Isernia

14:00-20:30 *Welcoming and registration*

20:30 *Light dinner*

Thursday, Sept. 8, 2022
Neuromed Research Centre, Pozzilli

09:00-09:05 *Welcome greetings*
Luigi Frati *Scientific Director IRCCS Neuromed*
Giovanni de Gaetano *President IRCCS Neuromed*

09:05-09:14 *Opening remarks*
Vittorio Maglione, Alba Di Pardo (IRCCS Neuromed, IT)

09:15-09:50 *Keynote Lecture*
Timothy Cox (University of Cambridge, UK)
Sphingolipids – classical matters in the ancient and modern world

09:50 -11:45 **SESSION 1**
Sphingolipids in health and disease (I)
Chairs: **Marco Presta** (Brescia, IT),
Carmen Garcia-Ruiz (Barcelona, ES)

09:50 - 10:15 **Lauren Ashley Cowart** (Virginia Commonwealth University, US)
Sptlc3 and novel sphingolipids in health and disease

10:15 -10:30 **Duyen Tran** (University of Tasmania, AU)
Toxic 1-deoxysphinganine, compromises the functionality of skeletal myoblasts and underlies the development of type 2 diabetes mellitus

10:30-10:45 **Anna Kovilakath** (Virginia Commonwealth University, US)
The novel sphingolipid enzyme SPTLC3 ameliorates ischemic failure by reducing reactive oxygen species

10:45 -11:00 **Marcelo Einicker-Lamas** (Universidade Federal do Rio de Janeiro, BR)
Sphingosine-1-phosphate prevents human embryonic stem cell death following ischemic injury

11:00-11:15 *Coffee break*

11:15-11:30 **Isabelle Seidita** (University of Florence, IT)
Sphingosine-1-phosphate acts as a pro-inflammatory cue in human endometrial stromal cells acting via ERK5: implication in endometriosis

11:30-11:45 **Zoltan Benyo** (Semmelweis University, HU)
Identification of signaling pathways mediating coronary flow reduction induced by sphingosine-1-phosphate

11:45-12:45 **SESSION 1**
Sphingolipids in health and disease (II)
Chairs: **Lauren Ashley Cowart** (Richmond, US)
Philippe Guerre (Toulouse, FR)

11:45-12:00 **Valentine Yolander** (Virginia Commonwealth University, US)
Sphingosine kinase 1 and sphingosine-1-phopshate receptor function in adipocyte beiging

12:00-12:15 **José Fernandez-Checa** (University of Barcelona, ES)
Dietary and genetic disruption of hepatic methionine metabolism induces acid sphingomyelinase expression to promote steatohepatitis

12:15-12:30 **David Montefusco** (Virginia Commonwealth University, US)
SPTLC3 and atypical sphingolipids as regulators of hepatic glucose production

12:30-12:45 **Mariana Nikolova-Karakashian** (University of Kentucky, US)
Role of neutral sphingomyelinase 2 in fatty liver disease and insulin resistance

12:45-14:20 *Lunch*

14:20-15:55 **SESSION 1**
Sphingolipids in health and disease (III)
Chairs: **Thierry Levade** (Toulouse, FR)
Chiara Donati (Florence, IT)

14:20-14:45 **Diego Centonze** (IRCCS Neuromed and University of Rome Tor Vergata, IT)
Inflammatory synaptopathy as a novel target of S1P receptor modulation in experimental multiple sclerosis

14:45-15:00 **Mirek Machala** (Veterinary Research Institute, CZ)
Sphingolipid and glycosphingolipid profiles are altered during benzo[a]pyrene-induced epithelial-mesenchymal transition of normal human bronchial epithelial cells, as well as in their exosomes

15:00-15:25 **Andrea Huwiler** (University of Bern, CH)
The role of Sphingosine kinase 2 in chronic kidney disease

15:25-15:40 **Christiane Mühle** (University of Erlangen DE)
COVID-19 and its clinical severity are associated with alterations of plasma sphingolipids and enzyme activities of sphingomyelinase and ceramidase

15:40-15:55 **Trushnal Waghmare** (University of Würzburg, DE)
Role of neutral sphingomyelinase 2 and sialophorin as virus effector in T cells

15:55-17:20 **SESSION 2**
Sphingolipids and malignant diseases (I)
Chairs: **Christiane Mühle** (Erlangen, DE)
Michele Dei Cas (Milan, IT)

15:55 -16:20 **Marco Presta** (University of Brescia, IT)
Beta-Galactosylceramidase: more than a psychosine scavenger

16:20-16:35 **Hui-Ming Lin** (Garvan Institute of Medical Research, AU)
Modulation of circulating sphingolipids in metastatic prostate cancer by simvastatin

16:35-16:50 *Coffee break*

16:50-17:05 **Giovanna Chiorino** (Fondazione Edo ed Elvo Tempia, Biella, IT)
Targeted sphingolipid analysis to improve prostate cancer detection

17:05-17:20 **Lorry Carrié** (Université Toulouse III Paul-Sabatier, FR)
Tumor cell-derived sphingosine 1-phosphate promotes loss of adhesion to keratinocytes and contributes to primary melanoma invasion

17:20-18:35 **SESSION 2**
Sphingolipids and malignant diseases (II)
Chairs: **Gehrild Van Echten-Deckert** (Bonn, DE)
Angel Gaudioso (Madrid, ES)

17:20-17:35 **Carine Dufau** (Université de Toulouse III Paul-Sabatier, FR)
Role of ceramide metabolism in TNF-induced melanoma dedifferentiation

17:35-17:50 **Davide Capoferri** (University of Brescia, IT)
Beta-galactosylceramidase modulates the pro-oncogenic features of melanoma cells

17:50-18:05 **Chiara Raggi** (University of Florence, IT)
Irregular glycosphingolipid patterns in human cholangiocarcinoma stem-like subsets

18:05-18:20 **Francois Paris** (Université de Nantes, FR)
Release of ceramide by irradiated endothelial cell inhibits tumor cell proliferation after repression of Lamin B1 expression

18:20-18:35 **Sumaiya Afsar** (University of Bonn, DE)
SGPL1 ablation affects glucose metabolism in a way that abets oncogenesis

20:30 *Dinner*

Friday, Sept. 9, 2022
Neuromed Research Centre, Pozzilli

09:00-11:05 **SESSION 3**
Sphingolipid biology: mechanisms and tools (I)
Chairs: **Francois Paris** (Nantes, FR)
Andrea Huwiler (Bern, CH)

09:00-09:25 **Antonella De Matteis** (Telethon Institute of Genetics and Medicine, IT)
ER-Golgi contact sites: regulators and targets of sphingolipid

09:25-09:40 **Marco Trinchera** (University of Insubria, IT)
Bi-allelic inactivating variants of Lactosylceramide Synthase B4GALT5 responsible for a novel congenital disorder of glycosylation involving glycosphingolipids

09:40-09:55 **Roxana Manaila** (University of Bern, CH)
Sphk1 and sphk2 differentially regulate erythropoietin synthesis in mouse renal interstitial fibroblast-like cells

09:55-10:10 **Tanes Imamura de Lima** (École Polytechnique Fédérale de Lausanne, CH)
Inhibition of *de novo* ceramide synthesis restores mitochondrial and protein homeostasis in muscle aging

10:10-10:25 **Caterina Giovagnoni** (Maastricht University, NL)
Function of ceramide transfer protein for biogenesis and sphingolipid composition of extracellular vesicles

10:25-10:50 **Webster Santos** (Virginia Tech, US)
Discovery, structure-activity relationship studies, and in vivo activity of sphingosine-1-phosphate transporter spns2

10:50-11:05 **Michele Dei Cas** (University of Milan, IT)
Mass spectrometry measurement of sphingolipids delta-4-desaturase 1 activity and its application in related genetic diseases

11:05-11:20 *Coffee break*

11:20-13:00 **SESSION 3**
Sphingolipid biology: mechanisms and tools (II)
Chairs: **Dagmar Meyer zu-Heringdorf** (Frankfurt, DE)
Massimo Aureli (Milan, IT)

11:20-11:35 **Philippe Guerre** (ENVT Toulouse, FR)
Targeted sphingolipid analysis suggests mechanisms of fumonisin toxicity in chickens differs depending on the organ studied

11:35-12:00 **Tsaffrir Zor** (Tel Aviv University, IL)
Short fatty acid sulfatides are endogenous ligands for TLR4/MD-2

12:00-12:15 **Tristan Martineau** (Université de Sherbrooke, CA)
Urine screening test using a tandem mass spectrometry approach for early detection of lysosphingolipidoses

12:15-12:30 **Camillo Morano** (University of Milan, IT)
A new "how to" in sphingolipidomics as a tool for a common sample handling and analysis

12:30-12:45 **Essa M. Saied** (Humboldt-Universität zu Berlin, DE)
Discovery of the first selective and drug-like small molecule inhibitors of Alkaline Ceramidase 3

12:45 -13:00 **Stefano Piotto** (University of Salerno, IT)
Mechanistic study of the role of hydroxylation of sphingolipids

13:00-15:00 *Lunch and Poster viewing*

15:00-20:30 Social time: Picture time and visit to Agnone

20:30 *Dinner*

Saturday, Sept. 10, 2022
Neuromed Research Centre, Pozzilli

09:00-13:00 **ISN Symposium: Sphingolipids and brain: pathophysiology and therapeutics**
Chairs: **Alba Di Pardo, Vittorio Maglione** (Pozzilli, IT)

09:00-09:10 *Introduction by Chairs*

09:10-09:35 **Simonetta Sipione** (University of Alberta, CA)
Gangliosides: old dogs with new tricks

09:35-10:00 **Massimo Aureli** (University of Milan, IT)
Role of the lysosomal impairment in the onset of neuronal degeneration

10:00-10:25 **Wiebke Herzog** (University of Erlangen, DE)
Regulation of blood-brain barrier properties by Sphingosine-1-phosphate signaling

10:25-10:50 **Eric Camerer** (Université Paris Cité, FR)
Tight control of S1P signaling at the blood-brain barrier

10:50-11:05 *Coffee break*

11:05-11:30 **Pilar Martinez-Martinez** (University of Maastricht, NL)

11:30 -11:45 **Angel Gaudioso** (Centro Biologia Molecular Severo Ochoa (CSIC-UAM), Madrid, ES)
Sphingomyelin 16:0 is a therapeutic target for brain pathology in Acid Sphingomyelinase deficiency

11:45-12:00 **Liubov Kalinichenko** (University of Erlangen, DE)
Ceramide system contributes to learning and memory

12:00-12:15 **Daan Van Kruining** (Maastricht University, NL)
FTY720 decreases ceramide levels in the brain and prevents memory impairments in a mouse model of familial Alzheimer's disease expressing ApoE4

12:15-12:30 **Sara Grassi** (University of Milan, IT)
Sphingolipid-dependent membrane organization and signaling orchestrating myelin repair

12:30-12:45 **Giuseppe Pepe** (IRCCS Neuromed, IT)
Treatment with THI, an inhibitor of Sphingosine-1-Phosphate Lyase (SGPL1), modulates glycosphingolipid metabolism and results therapeutically effective in a mouse model of Huntington's disease

12:45-13:00 **Shah Alam** (University of Bonn, DE)
S1P-lyase deficiency in the brain increases glucose breakdown evoking a P2Y1 Receptor-dependent astrogliosis

13:00-14:00 *Lunch*

14:00-15:00 **Poster flash presentations (2 slides in 2 min)**
Chair: **Riccardo Ghidoni** (Milan, IT)

Gloria Grelle M.R.S. (Universidade Federal do Rio de Janeiro, BR)
LC-HRMS-based sphingolipid profiling of renal cells exposed to ischemia

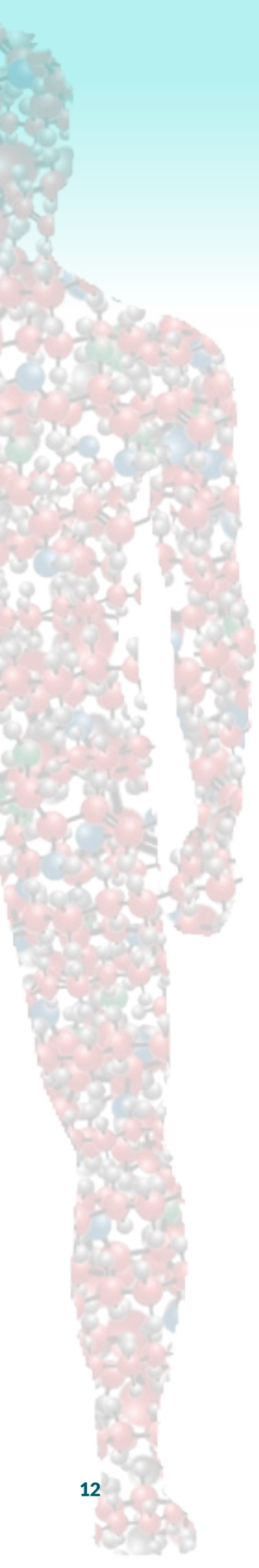
Dragana Fabris (University of Zagreb, HR)
Ceramides and sphingomyelins in ischemic stroke: a preliminary study

Gloria Grelle M.R.S. (Universidade Federal do Rio de Janeiro, BR)
Ceramide-1-Phosphate as a potential regulator of the second sodium pump from kidney proximal tubules through different protein kinase pathways

Luisa Volk (Universität of Frankfurt am Main, DE)
Functional consequences of sphingosine-1-phosphate lyase deletion in mouse hepatocytes

Samuela Cataldi (University of Perugia, IT)
Egg yolk sphingomelin facilitates the maturation of hippocampal embryonic cells

Federico Fiorani (University of Perugia, IT)
Exosomes amplify the signal of vitamin D3-induced embryonic hippocampal cell differentiation via ceramide



Tommaso Beccari (University of Perugia, IT)
Neuroprotective effect of Eicosapentaenoic acid and Docosahexaenoic acid on SH-SY5Y cells

Michele Dei Cas (University of Milan, IT)
Altered sphingolipid content in extracellular vesicles derived from primary intrahepatic cholangiocarcinoma cells

Marzia Corli (University of Brescia, IT)
Unravelling the role of ß-galactosylceramidase in melanoma neovascularization

Ondreji Kovac (Veterinary Research Institute, CZ)
Possible role of the aryl hydrocarbon receptor in modulation of sphingolipid and glycosphingolipid metabolism in colon cancer cell models

Josè Luis Abad (CSIC Barcelona, ES)
Fluorescent ceramide-labeled probes with bodipy and coumarin-based coupy fluorophores

Alix Pierron (ENVT Toulouse, FR)
Targeted sphingolipid analysis reveals differences on wild type mouse and SOCS2 deficient mouse in peritonitis zymosan induced

Christiane Mühle (University Erlangen, DE)
Interplay of sphingolipids and α-synuclein in Parkinson's disease and major depressive disorder

Lucia Sessa (University of Salerno, IT)
The influence of hydroxylation in the mechanism of action of α-hydroxy-ceramide

Bisera Stepanovska Tanturovska (University of Bern, CH)
S1P stimulates erythropoietin production in mouse renal interstitial fibroblasts by S1P1 and S1P3 receptor activation and HIF-2α stabilization

Karoli Liliom (Semmelweis University, HU)
Apolipoprotein D is a lipocalin carrier protein for lysophospholipid mediators

Gemma Fabrias (CSIC Barcelona, ES)
A novel fluorogenic probe to monitor the activity of acid ceramidase, fatty acid amide hydrolase and N-acylethanol-amine acid amidase

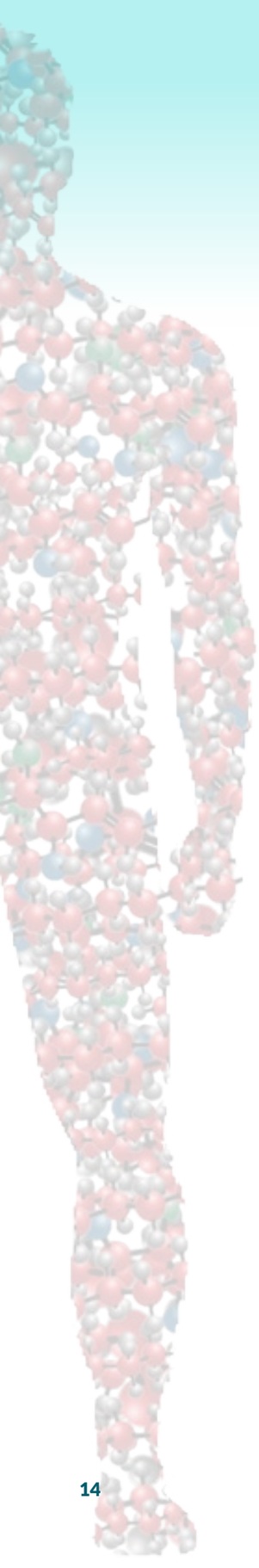
Salvatore Fiorinello (National Research Council of Italy, Napoli, IT)
Pharmacological treatment with sphingosine analogues to correct glycosphingolipid metabolic derangements in Rett syndrome models

Christiane Mühle (University Erlangen, DE)
Sphingomyelin synthases in depression and antidepressant treatment

Fabrizia Noro (IRCCS Neuromed, IT)
The effect of gangliosides on human platelet aggregation and platelet-leukocyte mixed aggregate formation

15:00-15:15 *Coffee break*

15:15-16:30 *Laboratories guided tour*
Neuromed Research Centre



16:30 - 18:00 **SESSION 4**
Sphingolipids and brain 2.0
Chairs: **Simonetta Sipione** (Edmonton, CA)
Eric Camerer (Paris, FR)

16:30 - 16:55 **Christian Müller** (University of Erlangen, DE)
Neutral Sphingomyelinase in the control of alcohol abuse and its comorbidities

16:55-17:10 **Floriana Della Ragione** (National Research Council of Italy, Napoli, IT)
Imbalance of glycosphingolipid metabolism in Rett Syndrome as a novel potential therapeutic target

17:10-17:35 **Thorsten Hornemann** (USZ, Zürich, CH)
Motor neuron disease or sensory neuropathy? L-Serine as a modulating factor

17:35-18:00 **Alessandra D'Azzo** (St. Jude Children's Research Hospital, Menphis, US)
Role of membrane contact sites in the neuropathogenesis of GM1-Gangliosidosis

20:30 *Gala dinner and live entertainment*

Sunday, Sept. 11, 2022
Grand Hotel Europa, Isernia

09:00-10:00 *General Meeting of the SLC*

10:00-10:15 *Closing remarks*

SPHINGOLIPID CLUB

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