

29th Symposium on Glycosaminoglycans

September 12th – 14th, 2022



Organizers:

Marco Guerrini and Antonella Bisio

Istituto di Ricerche Chimiche e Biochimiche "G. Ronzoni", Milan
Italy

Gerd Bendas and Martin Götte

University of Bonn University of Münster
Germany

Welcome to San Servolo Island 2022!

“Dear Villa-Vigoni symposia friends,

We, Job and Giangiacomo, would like to inform you all that this year Job Harenberg, co-founder with Benito Casu of the German-Italian Glycosaminoglycan Symposia, and Giangiacomo Torri are handing over the leadership to Antonella Bisio, Marco Guerrini, Gerd Bendas and Martin Götte. It is a great pleasure for us to have found these well-known scientists among the participants to continue the tradition of the symposia. We are grateful to them for accepting this role. From 2023 onwards, the symposia will switch back to the Villa Vigoni in Lovenò on Lake Como, Italy. There, we will also celebrate the 30th anniversary of the symposium with a special event.”

Job and Giangiacomo

As last year, the 29th edition of the annual symposia will take place on San Servolo Island, in Venice Lagoon. Eminent specialists from all over the world are invited to discuss both current and emerging topics of interest in the fields of chemistry, biochemistry, biology, pharmacology, and in the clinical applications of heparin and other glycosaminoglycans. In particular, sessions devoted to COVID-19 and Glycosaminoglycan Research, as well as others covering both basic and applied research aspects have been considered. The subjects of interest cover biosynthesis, structural characterization and protein interactions, biological functions, pharmaceutical and clinical aspects including anti-inflammatory and anti-tumor activity.

The symposium will have a hybrid character, allowing both in-presence and virtual participation. However, as per tradition, participation is only by invitation. A sufficient time will be allotted for in-depth discussion. The informal, workshop-like character of the symposium and the pleasant surroundings of San Servolo Island will stimulate the traditional after-session interactions among participants as in the past 28 editions.

Marco, Antonella, Gerd and Martin

Honorary Board

Job Harenberg and Giangiacomo Torri

Scientific Board

Annamaria Naggi, Marco Guerrini, Antonella Bisio, Roland Krämer, Gerd Bendas, Martin Götte, Susanne Alban, Kay Grobe, Jawed Fareed, Ram Sasisekharan.

Scientific Secretary

Antonella Bisio

Monday, September 12th 2022

13.30 – 14.30 **Lunch**

15.00 – 15.10 **Welcome address: Giangiacomo Torri**

COVID-19 PANDEMIC AND GLYCOSAMINOGLYCAN RESEARCH

Moderator: **Edwin Yates**

15.10 – 15.30 **Geert-Jan Boons**, Utrecht
Heparan sulfate proteoglycans as attachment Factor for SARS-CoV-2.

15.30 – 15.50 **Clive Page**, London
Nebulized heparin and glycomimetics as treatment for COVID-19, ARDS and other chronic inflammatory diseases of the lung.

15.50 – 16.10 **Daniela Ligi and Ferdinando Mannello**, Urbino
Circulating histones and COVID-19 cytokine storm: heparin and heparinoid treatments exhibit different anti-inflammatory properties.

16.10 – 16.30 **Discussion**

16.30 – 16.50 **Coffee and tea**

COVID-19 PANDEMIC AND GLYCOSAMINOGLYCAN RESEARCH

Moderator: **Marco Guerrini**

16.50 – 17.10 **Stefano Elli**, Milan
Initial contact between SARS-CoV-2 spike S1 protein and cell surface glycans involves multiple binding modes.

17.10 – 17.30 **Kay Grobe**, Münster
Optimized SARS-CoV-2 interactions with heparan sulfate - an evolutionary strategy to increase virus mobility at the cell surface?

17.30 – 17.50 **Rudolf Gruber**, Geretsried
Therapeutic potential of pentosan polysulfate in viral infections.

17.50 – 18.10 **Discussion**

20.00 **Welcome cocktail**

20.30 **Dinner**

THE ROLE OF HYALURONIC ACID

Moderator: **Annamaria Naggi**

- 9.00 – 9.20 **Alberto Passi**, Varese
Hyaluronan, when structural simplicity meets biological complexity
- 9.20 – 9.40 **Sabrina Bertini**, Milan
Development of a method to generate 3D bioprinted models of colorectal cancer using crosslinking hyaluronic acid and gelatin.
- 9.40 – 10.00 **Nadia Freato**, Padua
Bridging anti-inflammatory, anti-fibrotic and pro-regenerative effects: engineered hyaluronan for pulmonary conditions treatment.
- 10.00 – 10.20 **Discussion**
- 10.20 – 10.40 **Coffee and tea**

NEW ANALYTICAL APPROACHES

Moderator: **Barbara Mulloy**

- 10.40 – 11.00 **Jian Liu**, Chapel Hill
Analysis of 3-O-sulfated heparan sulfate using isotopically labeled oligosaccharide calibrants.
- 11.00 – 11.20 **Rebecca Miller**, Copenhagen
A cell-derived library of glycosaminoglycans for the dissection of 3-O-sulfation in heparin and heparan sulfates.
- 11.20 – 11.40 **Francesco Gatto**, Stockholm
Profiling of glycosaminoglycans in blood and urine in health and cancer – findings from high-throughput data across >5'000 samples.
- 11.40 – 12.00 **Discussion**
- 13.00 – 14.00 **Lunch**

PHARMACEUTICAL AND REGULATORY ASPECTS

Moderator: **Elaine Gray**

- 14.30 – 14.50 **Ali Al-Hakim**, Gaithersburg
General consideration for diversifying heparin drug products by introducing new animal sources and the challenges facing heparin materials prepared by synthetic methods.
- 14.50 – 15.10 **Yiming Yao**, Suzhou
Ovine LMWH bioequivalence study and pharmacovigilance
- 15.10 – 15.30 **Walter Jeske**, Chicago
Alternate sourcing of glycosaminoglycans and defibrotide. Comparative results from bovine, ovine and porcine mucosal tissue
- 15.30 – 15.50 **Jawed Fareed and Ahmed Kouta**, Chicago
Endogenous glycosaminoglycans and anti-heparin PF4 antibodies in various pathologic conditions. Pathophysiologic manifestations.
- 15.50 – 16.10 **Discussion**
- 16.10 – 16.30 **Coffee and tea**

GLYCOSAMINOGLYCAN-PROTEIN INTERACTIONS

Moderator: **Roland Krämer**

- 16.30– 16:50 **Jeffrey Esko**, San Diego
Antithrombin-heparan sulfate revisited.
- 16:50 – 17.10 **Jeremy Turnbull**, Copenhagen
Evidence for selective regulation of FGF-FGFR signalling by 3-O-sulfation.
- 17.10 – 17.30 **Uri Barash**, Haifa
Role of heparanase-2 (Hpa2) in tumor suppression and normal development.
- 17:30 – 17:50 **Susanne Alban**, Kiel
Chemokine- and growth factor-induced reactions of different cancer cell lines and their structure-dependent modulation by fucoidan.
- 17.50 – 18.10 **Discussion**
- 20.00 **Dinner**

BIOSYNTHETIC ASPECTS

Moderator: **Jin-ping Li**

- 9.00 – 9.20 **Lena Kjellen**, Uppsala
Biosynthesis of heparin/heparan sulfate: What is new?
- 9.20 – 9.40 **Marcelo Lima**, Keele
Golgi temporal and spatial regulation of HS modifying enzymes during HS biosynthesis.
- 9.40 – 10.00 **Romain Vivès**, Grenoble
Post-synthetic mechanisms regulating heparan sulfate structure and function.
- 10.00 – 10.20 **Discussion**
- 10.20 – 10.40 **Coffee and tea**

HEPARIN AND OTHER GLYCOSAMINOGLYANS IN MALIGNANCY

Moderator: **John Gallagher**

- 10.40 – 11.00 **Gerd Bendas**, Bonn
Targeting HS3ST2 activity to affect breast cancer cell malignancy and platelet-induced coagulability.
- 11.00 – 11.20 **Christian Gorzelanny**, Hamburg
Impact of circulating tumor cell exposed heparan sulfate on metastasis.
- 11.20 – 11.40 **Martin Götte**, Münster
The heparan sulfate proteoglycan Syndecan-3 is a new pathogenesis factor in ovarian and breast cancer.
- 11.40 – 12.00 **General discussion**
- 12.00 – 12.10 **Closing remarks: Job Harenberg**
- 13.00 – 14.00 **Lunch**

Location of the Symposium

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