



Program

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17th Symposium on Glycosaminoglycans

New developments of anticoagulant and non-anticoagulant glycosaminoglycans and of other coagulation inhibitors

September 21st - 23th, 2009

Organizers:

Job Harenberg
Clinical Pharmacology
Mannheim

Benito Casu
„G. Ronzoni“ Institute for Chemical and Biochemical Research,
Milan

Welcome to Villa Vigoni 2009

As for the past sixteen editions, the 17th Glycosaminoglycan Symposium will take place in Villa Vigoni (Lovenno, Lake Como). Started as Italian-German meetings (the villa is owned by the German Government), the symposia have become more and more international, with eminent specialists from all over the world invited to contribute to discussion of topics of actual or emerging interest in the field of chemistry, biochemistry, biology, pharmacology, and clinical applications of heparin and other glycosaminoglycans. Both basic and applied aspects will be covered and discussed, with about twenty percent of participants being associated with industrial companies. Participation in the symposium (only by invitation) is limited to a maximum of 70 participants.

This year the topics selected for discussions include: approaches to establish structure-activity relationships with special emphasis on inflammation, low-molecular weight heparins and heparin oligosaccharides, biotechnological heparins, and clinical pharmacology assessment of heparins and non-GAG antithrombotic agents. The sensitive issue of heparin contaminants and open issues in the development of generic LMW-heparins will also be covered. Keynote speakers will outline the state-of-the art in each field and present novel results. A sufficient time will be allotted to in-depth discussion. The informal, workshop-like character of the symposia and the pleasant surroundings of the villa traditionally stimulate also after-session interactions among participants.

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Main topics

Anticoagulants

Glycosaminoglycans, heparins, low-molecular-weight heparins, synthetic pentasaccharides, new antithrombotic drugs, thrombin inhibitors

Characterization of glycosaminoglycans

Anticoagulant assays, nuclear magnetic resonance, mass spectrometry, capillary electrophoresis, new biological assays, heparin contaminants, standardization and harmonization of methods

Structure-function relationships

Interactions of glycosaminoglycans with platelet factor 4; heparin-induced thrombocytopenia. Interactions with growth factors, heparanase, and other proteins overexpressed in inflammation and cancer. Glycosaminoglycans and amyloidosis

Clinical studies

Deep venous thrombosis and pulmonary embolism, glycosaminoglycans, ischemic stroke, myocardial infarction, new indications, prolonged prophylaxis of venous thromboembolism, pentasaccharides, thrombin inhibitors, low-molecular weight heparins and cancer

Scientific board

B. Casu, J. Harenberg, G. Torri, R. Sasisekharan

Monday, September 21st, 2009

14.30-14.40

J. Harenberg , Mannheim and **B. Casu, G. Torri**, Milan
Welcome address

Session I

GLYCOSAMINOGLYCAN-PROTEIN INTERACTIONS.

a) **Issues of specificity.** Discussion leader: **J. Gallagher**

14.40-15.00

J. Gallagher, Manchester
The heparan sulfate code

15.00-15.20

H. Nader, San Paulo, Brazil
Signaling pathways elicited by heparin on endothelial cells

15.20-15.40

Discussion

15.40-16.00

Coffee, Tea

Session II

b) **Issues for drug discovery and safety.**

Discussion leader: **R. Sasisekharan**, Cambridge, USA

16.00-16.30

C. Viskov, Paris
Relationships between structure, affinity for antithrombin, and inhibition of Factor-Xa by heparin oligosaccharides.

16.30-16.50

R. Leader, London
Novel drug development opportunities for heparin

16.50-17.10

M. Petitou, Paris
Synthetic heparan sulfate oligosaccharides.
Rationales for drug discovery.

17.10-17.30

Discussion

Tuesday, September 22nd, 2009

GLYCOSAMINOGLYCANS, INFLAMMATION, AND CANCER 1

Moderators: S. Mousa, Albany and **S. Alban**, Kiel

Session III

9.00-9.20 **I. Capila**, Cambridge, USA
A novel LMWH that interacts with heparin-binding proteins and inhibits metastasis in mice

9.20-9.40 **J.-p. Li**, Uppsala
Heparan sulfate and heparin in inflammation

9.40-10.00 **L. Borsig**, Zurich
Interplay of selectins and heparanase in triggering inflammation.

10.00-10.20 **Discussion**

10.20-10.40 **Coffee and tea**

10.40-11.00 **D. Heymann**, Nantes
Glycosaminoglycans and osteoclastogenesis

11.00-11.20 **R. D. Sanderson**, Birmingham, USA
Mechanism of action of heparin derivatives as inhibitors of multiple myeloma.

11.20-11.40 **J. Fischer**, Essen
Inhibition of Hyaluronic acid synthesis: effects on cancer and vascular biology

11.40 – 12.00 **Discussion**

Tuesday, September 22rd, 2009

Session V

**CONVERGENT APPROACHES TO THE ANALYSIS
OF HEPARIN 1**

Moderators: **B. Mulloy**, Potters Bar, **A. Naggi**, Milano

- 14.30-14.50 **G. Torri**, Milan, **E. Yates**, Liverpool, **B. Mulloy**, Potters Bar
A new NMR-based approach to characterize heparins and their contaminants.
- 14.50-15.10 **U. Schieborr**, Frankfurt
NMR investigations on protein/heparin interactions
- 15.10-15.30 **R. Krämer**, **H. Szelke**, Heidelberg
Detection and neutralization of heparins by small molecule probes.
- 15.30-15.50 **S. Alban**, Kiel
Novel assay for the quality control of heparins
- 15.50-16.10 **Discussion**
- 16.10-16.30 **Tea, Coffee**

Session VI

**CONVERGENT APPROACHES TO THE ANALYSIS
OF HEPARIN 2**

Moderators: **G. Ventkatamaran**, Cambridge, USA;
F. Markwardt, Erfurt

- 16.30-16.50 **A. Szajek**, Rockville, USA
Implementation of USP criteria for characterization of heparin and LMWHs
- 16.50-17.10 **B. Mulloy**, Potters Bar
New contaminations of heparin preparations
- 17.10-17.30 **G. Nowak**, Jena
A new platelet aggregation assay to determine thrombin activity.
- 17.30-17.50 **Discussion**

Wednesday, September 23rd, 2009

Session VII	PHARMACOLOGICAL AND CLINICAL STUDIES
	Moderator: K. Kirchmaier , Wiesbaden
9.00-9.20	G. Palareti , Bologna Clinical aspects of heparin-induced thrombocytopenia.
9.20-9.40	M. Wehling , Mannheim Anticoagulation in the elderly – between Scylla and Charybdis.
9.40-10.00	A. Stemberger , Munich Local anticoagulation of vascular prosthesis from <i>in vitro</i> studies and animal experiments.
10.00-10.20	Discussion
10.20-10.40	Coffee, Tea
SESSION VIII	Round-Table Discussion Future of Heparins
	Moderator: G. Palareti , Bologna
10.40-11.00	E. Gray , Potters Bar Calibration of the 6th International standard for UFH
11.00-11.20	Th. Unger , Berlin Thrombin and antithrombin agents in theory and clinical practice
11.20-11.40	V. Laux , Wuppertal Update on thrombosis targets or the future of thrombosis research
11.40-12.00	Discussion
	Closing remarks
	B. Casu, G Torri, and J. Harenberg

Sponsors of the Symposium 2009

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General Information

Monday, September 21st, 2009

13.00 -14.00: Lunch in Villa Vigoni
19.00: Dinner in Villa Vigoni

Tuesday, September 22nd, 2009

8.00-9.00: Breakfast
13.00 -14.00: Lunch in Villa Vigoni
19.00: Dinner in Villa Vigoni

Wednesday, September 23rd, 2009

8.00-9.00: Breakfast
12.30-13.30: Lunch in Villa Vigoni

Location of the Symposium:

"Villa Vigoni e.V."
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Lovenno di Menaggio
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