

# LIPID MEDIATORS IN HEALTH AND DISEASE

A TRIBUTE TO BENGT SAMUELSSON

Stockholm, Sweden August 27<sup>th</sup>-29<sup>th</sup>, 2014

## KEYNOTE LECTURE

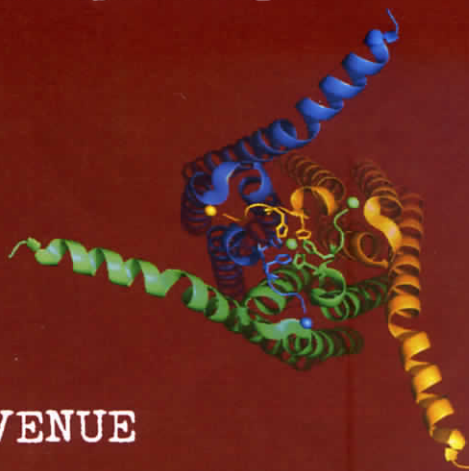
**Bengt Samuelsson**

## SPEAKERS

Lawrence J. Marnett  
Jesper Z. Haeggström  
Takehiko Yokomizo  
Charles N. Serhan  
Volker Brinkmann  
Valerie O'Donnell  
Sven-Erik Dahlén  
Makoto Murakami  
Robert C. Murphy  
Edward A. Dennis  
William L. Smith  
Richard L. Proia  
Nicolas G. Bazan  
K. Frank Austen  
Shuh Narumiya  
Takao Shimizu  
Alan R. Brash  
Carlo Patrono  
Sarah Spiegel  
Lina M. Obeid  
Colin D. Funk  
Timothy Hla  
Bruce Levy

## CONFERENCE PROGRAM

[www.lipmed.org](http://www.lipmed.org)



## VENUE

**Nobel Forum**  
Nobels väg 1  
Karolinska Institutet  
Stockholm  
Sweden

Supported by:



**Karolinska  
Institutet**



**KUNGL.  
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THE ROYAL SWEDISH ACADEMY OF SCIENCES

*Knut and Alice  
Wallenberg  
Foundation*

*Bengt "stick" → Bob  
murphy*

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# WELCOME

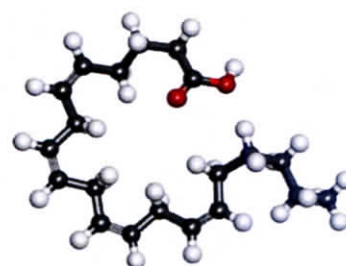
Lipids exert a multitude of functions, which are essential for cell structure and compartmentalization, metabolism, energy homeostasis, and intracellular signaling. They are also vital mediators in endocrine, paracrine and autocrine signaling pathways.

Important classes of lipid mediators include steroid hormones, eicosanoids, platelet activating factor, sphingolipids, and endocannabinoids. Dysregulations in the synthesis, actions and metabolism of these mediators are associated with disease development and several very successful drugs emanate from insights to the role of these signaling cascades in pathogenesis. For instance, synthetic glukocorticoids are indispensable drugs against a variety of severe inflammatory conditions and aspirin as well as new generations of non-steroidal anti-inflammatory drugs are effective treatments of pain, fever, and edema. Prostaglandin analogs are used for treatment of glaucoma and in veterinary medicine. More recently, anti-leukotrienes have been marketed as a new medication against asthma and in 2010, fingolimod, which is a synthetic analog of sphingosine, was approved by FDA as a first-line drug for treatment of multiple sclerosis. Hence, research on lipid mediators is important for generation of new knowledge on the molecular pathogenesis of human diseases and development of new medicines.

The field of lipid mediators is vibrant with a series of recent breakthroughs in basic as well as clinical research and therapeutic opportunities. The mission of this meeting is to bring together the world's leading expertise in the area for discussions of cutting edge topics, exchange of new concepts and technical advances, as well as identification of new paths and strategies for the future.

A special purpose of the meeting is to celebrate Nobel Laureate Bengt Samuelsson, his tremendous contributions to the field of lipid mediators, and the 35<sup>th</sup> anniversary of the discovery of the leukotrienes.

With wishes for a memorable scientific meeting!



A handwritten signature in blue ink that reads "Jesper Z. Haeggström".

Jesper Z. Haeggström, MD, PhD  
Conference Chair



## THANKS TO OUR SPONSORS!



# COMMITTEES

## Organizing Committee

Jesper Z. Haeggström  
Björn Odlander  
Charles N. Serhan

## Conference Chair

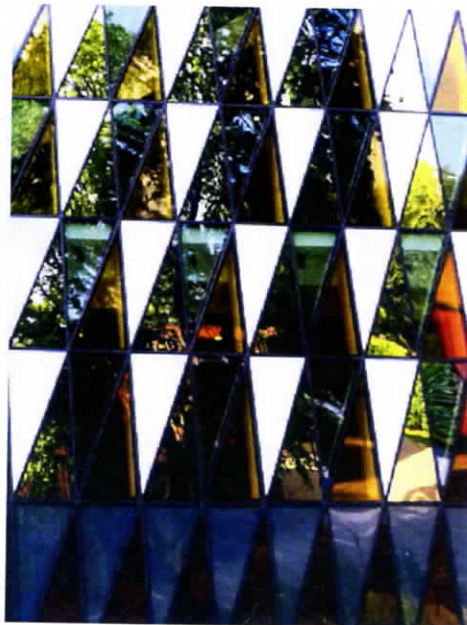
Jesper Z. Haeggström

## Program Committee

Jesper Z. Haeggström  
Timothy Hla  
Charles N. Serhan  
Takao Shimizu

## Local Executive Committee

Victoria Balabanova  
Karin Hornay  
Jesper Z. Haeggström  
Anders Wetterholm



*AULA MEDICA, GLASS REFLECTIONS*

# LIPID MEDIATORS IN HEALTH AND DISEASE

A TRIBUTE TO BENGT SAMUELSSON

## SCIENTIFIC PROGRAM



Venue: Nobel Forum, Nobels väg 1, Karolinska Institutet, August 27-29, 2014.

### WEDNESDAY, AUGUST 27

- |             |   |
|-------------|---|
| 11.30-13.00 | Lunch at Nobel Forum  |
| 13.00-13.10 | Welcome address and opening remarks<br><i>Anders Hamsten &amp; Jesper Z. Haeggström</i> |
| 13.10-14.00 | Keynote Lecture<br><i>Bengt Samuelsson</i>  |

### Session 1: Phospholipases A<sub>2</sub> and acyltransferases

*Chairpersons:* Carol A. Rouzer & Hans-Erik Claesson

- |             |  |
|-------------|--|
| 14.00-14.30 | PLA <sub>2</sub> ; structures, mechanisms, and membrane interactions<br><i>Edward A. Dennis</i>                    |
| 14.30-15.00 | Characterization of lysophospholipid acyltransferase <i>in vitro</i><br>and <i>in vivo</i><br><i>Takao Shimizu</i> |
| 15.00-15.30 | Novel biological functions of PLA <sub>2</sub><br><i>Makoto Murakami</i>   |
| 15.30-16.00 | Coffee break   |

## **Session 2: Cyclooxygenases and prostanoid receptors**

*Chairpersons:* Mats Hamberg & Per-Johan Jakobsson

- |             |  |
|-------------|--|
| 16.00-16.30 | COX-1 and COX-2<br><i>William L. Smith</i>   |
| 16.30-17.00 | Prostanoid receptors<br><i>Shuh Narumiya</i> |

## **THURSDAY, AUGUST 28**

## **Session 3: NSAIDs, coxibs, and beyond**

*Chairpersons:* Paola Patrignani & Volker Ullrich

- |             |  |
|-------------|--|
| 09.00-09.30 | Pharmacology of aspirin and other NSAIDs<br><i>Carlo Patrono</i>               |
| 09.30-10.00 | Novel COX products and therapeutic opportunities<br><i>Lawrence J. Marnett</i> |
| 10.00-10.30 | Coffee break   |

## **Session 4: Novel sources of lipid mediators**

*Chairpersons:* Angelo Sala & Ernst Oliw

- |             |  |
|-------------|--|
| 10.30-11.00 | Mass spectrometry of oxylipins; past, present, and future<br><i>Robert C. Murphy</i> |
| 11.00-11.30 | Esterified oxylipins<br><i>Valerie O'Donnell</i>                                     |
| 11.30-12.30 | Lunch  |

## **Session 5: Lipoxygenases and leukotrienes**

*Chairpersons:* G. Enrico Rovati & Nicolas Flamand

- |             |  |
|-------------|--|
| 12.30-13.00 | 5-lipoxygenase<br><i>Colin D. Funk</i>   |
| 13.00-13.30 | Receptors for leukotriene B <sub>4</sub><br><i>Takehiko Yokomizo</i>           |
| 13.30-14.00 | Cysteinyl-leukotrienes, enzymes, and novel receptors<br><i>K. Frank Austen</i> |
| 14.00-14.30 | Coffee break   |



## Session 6: Lipoxygenases and leukotrienes, therapeutic applications

Chairpersons: Giancarlo Folco & Olof Rådmark

- 14.30-15.00 Leukotrienes and prostaglandins as targets for treatment of asthma  
*Sven-Erik Dahlén*
- 15.00-15.30 12R-lipoxygenase; a key role in human ichthyosis  
*Alan R. Brash*
- 15.30-16.00 Enzymes in the leukotriene cascade; novel therapeutic opportunities  
*Jesper Z. Haeggström*
- 5:30 lunch  
17:30

## FRIDAY, AUGUST 29

## Session 7: Novel mediators in resolution of inflammation

Chairpersons: Kenneth V. Honn & Jan Palmblad

- 09.00-09.30 Omega-3 fatty acids and synthesis of proresolving mediators  
*Charles N. Serhan*
- 09.30-10.00 Proresolving lipid mediators in asthma  
*Bruce Levy*
- 10.00-10.30 Lipid mediators in vision and neuroprotection  
*Nicolas G. Bazan*
- 10.30-11.00 Coffee break

## Session 8: Sphingolipids, from inborn neurodegenerative disorders to inflammation

Session sponsored by



Chairpersons: Yusuf Hannun & Josef Pfeilschifter

- 11.00-11.30 Discovery and bioactions of sphingosine-1-phosphate  
*Sarah Spiegel*
- 11.30-12.00 Sphingosine kinases  
*Lina M. Obeid*
- 12.00-13.00 Lunch
- 13.00-13.30 Receptors for sphingosine-1-phosphate  
*Timothy Hla*
- 13.30-14.00 Animal models for sphingolipid deficiency  
*Richard L. Proia*
- 14.00-14.30 Fingolimod; a first line drug for treatment of MS  
*Volker Brinkmann*





**Session 9: Personal reflections, special episodes, and memories**

14.30-15.15

*John A. Oates, William Lands, Nicolas G. Bazan, Robert C. Murphy, Takao Shimizu & Gerald Weissmann.*

15.15

Concluding remarks

*Jesper Z. Haeggström, Tim Hla, Charles N. Serhan, & Takao Shimizu*



**Karolinska  
Institutet**

# SPEAKERS

**K. Frank Austen**

Division of Rheumatology, Immunology and Allergy, Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA

**Nicolas G. Bazan**

Neuroscience Center of Excellence, Louisiana State University Health Sciences Center, New Orleans, LA, USA.

**Alan R. Brash**

From the Department of Pharmacology and the Vanderbilt Institute of Chemical Biology, Vanderbilt University, Nashville, TN, USA

**Volker Brinkmann**

Novartis Institutes for Biomedical Research, Basel, Switzerland

**Sven-Erik Dahlén**

Centre for Allergy Research, Institute for Environmental Medicine, Karolinska Institutet, Stockholm, Sweden

**Edward A. Dennis**

Department of Chemistry and Biochemistry and Pharmacology, School of Medicine, University of California at San Diego, La Jolla, CA, USA

**Colin D. Funk**

Department of Biomedical and Molecular Sciences, Queen's University, Kingston, ON, Canada

**Anders Hamsten**

President, Karolinska Institutet, Stockholm, Sweden

**Jesper Z. Haeggström**

Dept of Medical Biochemistry and Biophysics, Karolinska Institutet, Stockholm, Sweden

**Timothy Hla**

Center for Vascular Biology, Department of Pathology and Laboratory Medicine, Weill Cornell Medical College, Cornell University, New York, NY, USA

**William Lands**

Fellow, AAAS & ASN, USA

**Bruce Levy**

Harvard Medical School, Department of Internal Medicine, Brigham and Women's Hospital, Boston, MA, USA

**Lawrence J. Marnett**

Departments of Biochemistry, Chemistry, and Pharmacology, Vanderbilt University School of Medicine, Nashville, TN, USA

**Makoto Murakami**

Lipid Metabolism Project, Tokyo Metropolitan Institute of Medical Science, Tokyo, Japan

**Robert C. Murphy**

Department of Pharmacology, University of Colorado at Denver, Aurora, CO, USA

**Shuh Narumiya**

Medical Innovation Center and Innovation Center for Immunoregulation Technologies and Drugs, Kyoto University Graduate School of Medicine, Kyoto, Japan

**John A. Oates**

Department of Medicine, Division of Clinical Pharmacology, Vanderbilt University Medical Center, Nashville, TN, USA

**Lina M. Obeid**

Department of Medicine, Stony Brook University, Stony Brook, New York, NY, USA

**Valerie O'Donnell**

Institute of Infection and Immunity, School of Medicine, Cardiff University, Cardiff, United Kingdom

**Carlo Patrono**

Department of Pharmacology, Catholic University School of Medicine, Rome, Italy

**Richard L. Proia**

Genetics of Development and Disease Branch, National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health, Bethesda, MD, USA

**Bengt Samuelsson**

Dept of Medical Biochemistry and Biophysics, Karolinska Institutet, Stockholm, Sweden

**Charles N. Serhan**

Center for Experimental Therapeutics and Reperfusion Injury, Department of Anesthesiology, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA

**Takao Shimizu**

Department of Biochemistry and Molecular Biology, Faculty of Medicine, University of Tokyo, Bunkyo-ku, Tokyo, Japan

**William L. Smith**

Department of Biological Chemistry, University of Michigan Medical School, Ann Arbor, MI, USA

**Sarah Spiegel**

Department of Biochemistry and Molecular Biology, Department of Microbiology and Immunology, and Department of Medicinal Chemistry, Virginia Commonwealth University School of Medicine, Richmond, VA, USA

**Gerald Weissmann**

Department of Medicine, NYU Langone Medical Center, NY, USA

**Takehiko Yokomizo**

Department of Biochemistry, Juntendo University School of Medicine, Tokyo, Japan

## **CHAIRPERSONS**

Hans-Erik Claesson

Nicolas Flamand

Giancarlo Folco

Mats Hamberg

Yussuf Hannun

Kenneth V. Honn

Ernst Oliw

Jan Palmblad

Paola Patrignani

Josef Pfeilschifter

Carol A. Rouzer

G. Enrico Rovati

Olof Rådmark

Angelo Sala

Volker Ullrich

## **DISCUSSANTS**

Ernest Arenas

Samar Basu

Barbro Dahlén

Takashi Izumi

Charlotte Edenius

Elisabeth Granström

Maria Kumlin Haeggström

Sven Hammarström

Arne Holmgren

Tomas Hökfelt

Jan-Åke Lindgren

Hans-Gustav Ljunggren

Kirk Maxey

Ralf Morgenstern

Marcia Newcomer

Björn Odlander

Sten Orrenius

Johan Raud

Agnes Rinaldo-Matthis

Walt Shaw

Jan Sjövall

Birgitta Strandvik

Karl Tryggvason

Min Wan

Anders Wetterholm

Craig Wheelock



## SOCIAL PROGRAM

### Reception in Aula Medica

Wednesday August 27<sup>th</sup>

Time: directly after last session

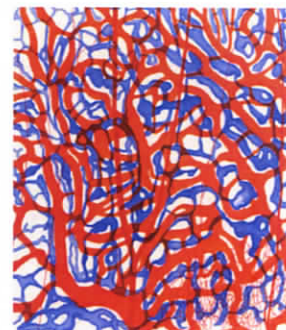


### Guided tour at The Hagströmer Medico-Historical Library

Thursday August 28<sup>th</sup> at 1 pm

Haga Tingshus,

Annerovägen 12, Solna (please see map)



### Dinner at Villa Pauli

Thursday August 28<sup>th</sup> at 18.30

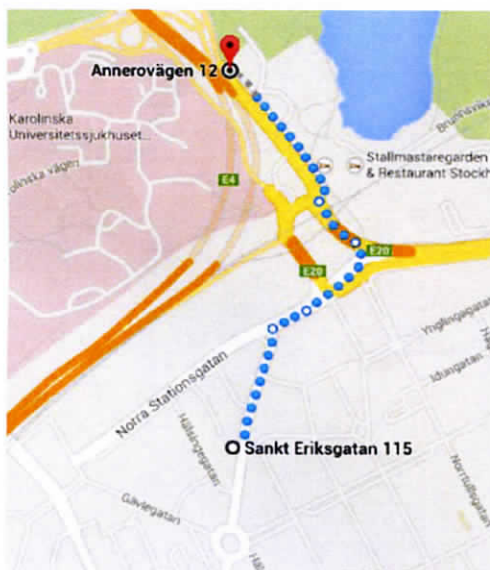
Transportation to the restaurant by boat from Brunnsviken. Departure at 17.30 from dock behind Haga Forum (please see map), arrival at 18.30. In case of bad weather, busses will be available at Elite Palace Hotel/Hotel Norrtull.



# MAPS



From Elite Palace Hotel (A) to Nobel Forum (B)



From Elite Palace Hotel, S:t Eriksgatan 115, to The Hagströmer Medico-Historical Library, Haga Tingshus, Annerövägen 12 (900 m).



From Elite Palace Hotel, S:t Eriksgatan 115, to the boat dock (Brunnsviken) behind Stallmästaregården (900 m).

