

Atherosclerosis: Lessons Learned and Concepts Challenged

February 4–8, 2018 | Sagebrush Inn & Suites | Taos, New Mexico | USA

Scientific Organizers:

Laura F. Michael, Eli Lilly and Company, USA

Gerard Pasterkamp, University Medical Center Utrecht, Netherlands

Sekar Kathiresan, Massachusetts General Hospital, USA

Atherosclerosis is a chronic, systemic disease process whereby fatty deposits, inflammation and fibrosis accumulate in arterial vessel walls. Organ systems, including heart, brain, kidneys, as well as extremities, can be damaged, leading to atherosclerosis-driven clinical outcomes. According to the American Heart Association, 15.5 million Americans have coronary heart disease, of which 7.6 million experienced myocardial infarction. These statistics are reflective of global incidence. Treatment of atherosclerosis often begins with robust cholesterol-lowering treatments, yet many patients continue to experience cardiovascular events. Recent attempts to provide cardiovascular protection to such patients have included anti-inflammatory and HDL-raising therapeutic approaches that have yielded little benefit. Building knowledge of atherosclerosis disease etiology, defining unique attributes of patient differences as simple as sex or genetic inheritance, and using technology to identify patients with early disease is foundational for the scientific community to develop urgently needed therapeutics. The current concept of acute coronary syndrome (“the vulnerable plaque”) and widely applied animal models are debated because clinical presentation, underlying pathology and pathogenetic mechanisms are subject to change due to improved medical treatment. The goals of this meeting are to: 1) Challenge current dogma of atherosclerosis etiology and explore intra-organ cross-talk that may underlie disease evolution; 2) Consider emerging risk factors and their origins as intervention targets; and 3) Explore cutting-edge technologies to discover new therapeutic targets and approaches for drug development. By bringing together scientists from preclinical to clinical settings and from industry to academic institutions, this conference will nurture discussions to translate breakthrough discoveries into therapeutics.


Session Topics:

- The Natural History of Atherosclerotic Disease
 - Lipoprotein Risk Factors
 - Diabetes, Obesity and Atherosclerosis
 - The Inflammation Hypothesis
 - The Milieu Exterior
 - Crosstalk Among Organs
 - Models and Biomarkers for Atherosclerotic Disease
 - Emerging Fields of Research
- plus three workshops*

Scholarship Application & Discounted Abstract Deadline: October 5, 2017

Abstract Deadline: November 7, 2017

Discounted Registration Deadline: December 7, 2017



Note: Scholarships are available for graduate students and postdoctoral fellows and are awarded based on the abstract submitted. Submitting an abstract is an excellent opportunity to gain exposure for your work. Abstracts submitted by the abstract deadline will also be considered for short talks on the program.

Meeting Hashtag: #KSathero

www.keystonesymposia.org/18B2

KEYSTONE SYMPOSIA™
on Molecular and Cellular Biology
Accelerating Life Science Discovery

www.keystonesymposia.org/meetings | 1.800.253.0685 | 1.970.262.1230

a 501(c)(3) nonprofit educational organization

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Atherosclerosis: Lessons Learned and Concepts Challenged (B2)

February 4-8, 2018 • Sagebrush Inn & Suites • Taos, New Mexico, USA

Scientific Organizers: Laura F. Michael, Gerard Pasterkamp and Sekar Kathiresan

Sponsored by Amgen Inc., MedImmune and Novo Nordisk A/S

Abstract & Scholarship Deadline: October 5, 2017 / Abstract Deadline: November 7, 2017 / Discounted Registration Deadline: December 7, 2017

SUNDAY, FEBRUARY 4

Arrival and Registration

MONDAY, FEBRUARY 5

The Natural History of Atherosclerotic Disease

***Daniel J. Rader**, University of Pennsylvania, USA

Peter Libby, Brigham and Women's Hospital, USA

Requiem for the Vulnerable Plaque, Challenging Current Concepts

Sekar Kathiresan, Massachusetts General Hospital, USA

Inherited Basis for Myocardial Infarction

Gerard Pasterkamp, University Medical Center Utrecht, Netherlands

Geno-Phenotyping of the Vulnerable Plaque and Patient

Philippe Boucher, University of Strasbourg, France

Short Talk: Wnt5a Decreases mTORC1/SREBP2 Activity and

Promotes Endosomal Cholesterol Trafficking to the ER in Mice and in

Human Vascular Smooth Muscle Cells

Sumeet A. Khetarpal, University of Pennsylvania, USA

Short Talk: A Human APOC3 Missense Variant and Monoclonal

Antibody Accelerate apoC-III Clearance and Lower Triglyceride-rich

Lipoprotein Levels

Workshop 1

***Ira G. Schulman**, University of Virginia Health System, USA

Liam Brunham, University of British Columbia, Canada

Genetic Regulation of HDL Cholesterol Levels during Sepsis

Ruchi Gupta, MedImmune/AstraZeneca, USA

LOX-1: The Cause of and Solution to Inflammation and Lipid

Accumulation in Atherosclerosis

Anna Kerstin Emy Hultgardh, Lund University, Sweden

IL-22 Deficiency Reduces Formation of Advanced Atherosclerotic

Carotid Plaques in ApoE-Deficient Mice

Ashok Kumar Kumawat, Orebro University, Sweden

Targeting IL-6/IL17A in Vascular Inflammation using Affibody

Molecules

Mulugeta Melkie Zegeye, Orebro University, Sweden

Activation of JAK/STAT3 and PI3K Pathways Are Crucial for MCP-1

Induction by IL6 Trans-Signaling in Human Endothelial Cells

Sean Allen, Northwestern University, USA

Targeted Inhibition of NF- κ B in Mouse Models of Atherosclerosis

Results in Sex-Dependent Immunomodulation

Anna Mathew, University of Michigan, USA

Myeloperoxidase-Derived Oxidants Damage Artery Wall Proteins in

an Animal Model of Chronic Kidney Disease-Accelerated

Atherosclerosis

Lipoprotein Risk Factors

***Laura F. Michael**, Eli Lilly and Company, USA

Kiran Musunuru, University of Pennsylvania, USA

Therapeutic Genome Editing as a Cure for Atherosclerosis

Anne Tybjærg-Hansen, Copenhagen University Hospital, Denmark

Triglyceride-Rich Lipoproteins and Atherosclerotic Cardiovascular

Disease: New Insights from Epidemiology, Genetics, and Biology

Daniel J. Rader, University of Pennsylvania, USA

Functionalizing HDL Cholesterol

Poster Session 1

TUESDAY, FEBRUARY 6

Diabetes, Obesity and Atherosclerosis

***Siddhartha Jaiswal**, Stanford University, USA

J. Mark Brown, Cleveland Clinic, USA

Selective Small Molecule Inhibition of Gut Microbial Enzymes for the

Treatment of Cardiometabolic Disorders

Joerg Heeren, University Medical Center Hamburg-Eppendorf,

Germany

Protective Role of Brown Adipose in Atherosclerosis Development

Laura F. Michael, Eli Lilly and Company, USA

Diabetes and Atherosclerosis: Anti-Diabetic Agents that Improve

Cardiovascular Outcomes

Robert C. Bauer, Columbia University, USA

Short Talk: Adipose Knockout of Tribbles-1, a GWAS Locus for

Coronary Artery Disease, Reduces Plasma Lipids and Increases

Circulating Adiponectin

Brian Parks, University of Wisconsin-Madison, USA

Journal of Lipid Research Junior Investigator Award: Short Talk:

Leveraging Mouse Liver Co-Expression Networks and Human Lipid

GWAS Data to Identify and Validate Cholesterol Metabolism Genes

The Inflammation Hypothesis

***Katey Rayner**, University of Ottawa, Canada

Ziad Mallat, University of Cambridge, UK

Immune Modulation in Atherosclerosis

Jan Nilsson, Lund University, Sweden

Autoimmunity, Injury and Repair as Potential Targets for Intervention

in Atherosclerosis

Paul M. Ridker, Brigham and Women's Hospital, Harvard Medical

School, USA

Anti-inflammatory Therapies for Chronic Atherosclerosis

Poster Session 2

WEDNESDAY, FEBRUARY 7

The Milieu Exterieur

***Gerard Pasterkamp**, University Medical Center Utrecht, Netherlands

Salim Yusuf, McMaster University, Canada

How Can We Reduce Premature CVD Globally in a Generation?

Sudha B. Biddinger, Boston Children's Hospital, Harvard Medical

School, USA

Beyond Hyperglycemia: Novel Mediators of Diabetes-Associated

Cardiovascular Disease

Seppo Yla-Herttuala, University of Eastern Finland, Finland

Epigenetics, VEGFs and Noncoding RNAs in Atherosclerosis and

Angiogenesis

Robert E. Gerszten, Beth Israel Deaconess Medical Center, USA

Translating Exercise into Reduced Atherosclerosis Burden

Brian Bennett, US Department of Agriculture, USA

Short Talk: Genetic and MicroRNA Association with the

Cardiometabolic Disease Risk Factor TMAO

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Atherosclerosis: Lessons Learned and Concepts Challenged (B2)

February 4-8, 2018 • Sagebrush Inn & Suites • Taos, New Mexico, USA

Scientific Organizers: Laura F. Michael, Gerard Pasterkamp and Sekar Kathiresan

Sponsored by Amgen Inc., MedImmune and Novo Nordisk A/S

Abstract & Scholarship Deadline: October 5, 2017 / Abstract Deadline: November 7, 2017 / Discounted Registration Deadline: December 7, 2017

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Atherosclerosis: Lessons Learned and Concepts Challenged (B2)

February 4-8, 2018 • Sagebrush Inn & Suites • Taos, New Mexico, USA

Scientific Organizers: Laura F. Michael, Gerard Pasterkamp and Sekar Kathiresan

Sponsored by Amgen Inc., MedImmune and Novo Nordisk A/S

Abstract & Scholarship Deadline: October 5, 2017 / Abstract Deadline: November 7, 2017 / Discounted Registration Deadline: December 7, 2017

Michael C. Petriello, University of Kentucky, USA
Short Talk: Serum Levels of Dioxin-Like Pollutants Are Positively Associated with the Cardiometabolic Disease Risk Biomarker Trimethylamine-N-oxide in Leaner Individuals

Workshop 2

***Dominique P.V. de Kleijn**, University Medical Center Utrecht, Netherlands

Camilla Gustafsen, Aarhus University, Denmark
Heparan Sulfate Proteoglycans Present PCSK9 to the LDL Receptor

Fan E. Mo, National Cheng Kung University, Taiwan
CCN1 and Its Receptor Integrin $\alpha 6 \beta 1$ Instigate a Vicious Circle to Accelerate Disturbed Flow-Induced Atherosclerosis

Andrew J. Morris, University of Kentucky, USA
Functional Validation of PPAP2B Gene Variants as Determinants of Coronary Artery Disease Risk

Edward R. O'Brien, University of Calgary, Canada
Natural Antibodies to HSP27 Are Novel Biomarkers for Cardiovascular Health: HSP27 Immunization Attenuates PCSK9 Transcription and Atherogenesis

Ira G. Schulman, University of Virginia Health System, USA
Regulation of HDL Function and Inflammation by Liver X Receptors

Tapan Shah, Rutgers New Jersey Medical School, USA
Sex Specific Differences in Post-Transcriptional Gene Regulation of BMP2 in Cardiovascular Calcification

Vincent J. Venditto, University of Kentucky, USA
Anti-ApoA-I Antibody Profiles Predict Cardiovascular Disease Outcomes in Patients and in a Mouse Model of Atherosclerosis

Hong Yang, Meharry Medical College, USA
Upregulation of ABCA1 Transcription and Inhibition of ABCA1 Protein Degradation by VLDLR/apoER2 Pathway

Crosstalk Among Organs

***Jan Nilsson**, Lund University, Sweden

Viktoria Gusarova, Regeneron Pharmaceuticals, USA
ANGPTL3 Blockade as a Therapeutic Approach for Treatment of Dyslipidemia and Atherosclerosis

Lilach O. Lerman, Mayo Clinic, USA
New Concepts in Atherosclerotic Renovascular Disease: Current Status

Joachim Herz, University of Texas Southwestern Medical Center, USA
Multitasking Therapeutics: What Brain Development, Alzheimer's Disease and Atherosclerosis Have in Common

Johan Lars Markus Björkegren, Icahn School of Medicine at Mount Sinai, USA
Cardiometabolic Risk Loci Share Downstream Cis- and Trans-Gene Regulation Across Tissues and Diseases

Poster Session 3

THURSDAY, FEBRUARY 8

Keynote Address

***Sekar Kathiresan**, Massachusetts General Hospital, USA

Jesper Gromada, Regeneron Pharmaceuticals, USA
PCSK9 and ANGPTL3 Inhibitors: A New Era of Lipid-Lowering Therapies

Models and Biomarkers for Atherosclerotic Disease

***Viktoria Gusarova**, Regeneron Pharmaceuticals, USA

Jacob Fog Bentzon, Centro Nacional de Investigaciones Cardiovasculares, Spain
Gene-Modified Minipigs: Applications in Atherosclerosis Imaging

Lesca Miriam Holdt, University Hospital, LMU Munich, Germany
Circular RNA in Atherosclerosis

Katey Rayner, University of Ottawa, Canada
New Inflammatory Drivers and Biomarkers of Atherosclerosis

Kelsey E. Jarrett, Baylor College of Medicine, USA
Short Talk: Somatic Genome Editing of Ldlr with AAV-CRISPR Is a Rapid Method for Atherosclerosis Investigation

Workshop 3

***Thomas Beyer**, Eli Lilly and Company, USA

Maria Ines Azambuja, Universidade Federal do Rio Grande do Sul, Brazil

The Information that We Need to Advance Knowledge on Atherogenesis Exists and It Is Stored as Levels and Trends of Mortality over the Last Century: Influenza is the Key to Retrieve It

Dominique P.V. de Kleijn, University Medical Center Utrecht, Netherlands
Diagnosis of Atherosclerotic Coronary Heart Disease using Plasma Extracellular Vesicle Proteins

Trine Pagh Ludvigsen, Novo Nordisk A/S, Denmark
Effect of Statin Treatment Compared to Dietary Cessation on Aortic Plaque Size and Inflammation in a Diet-Induced Atherosclerotic Göttingen Minipig Model

Ananthi Rajamoorthi, St. Louis University School of Medicine, USA
Therapeutic Silencing of CIDEA/Fsp27 Is Atheroprotective in Ldlr-/- Mice

Divya Sagar, MedImmune, USA
Soluble LOX-1: A Potential Biomarker for SLE and Cardiovascular Comorbidity

James Wingrove, CardioDx, USA
The Added Value of a Multi-Omics Approach for the Evaluation of Patients with Suspected Obstructive Coronary Artery Disease

Jifeng Zhang, University of Michigan, USA
Attenuated Atherosclerosis in Human Apolipoprotein A-II knockin Rabbits

Emerging Fields of Research

***Sekar Kathiresan**, Massachusetts General Hospital, USA

Marlys L. Koschinsky, Western University, Canada
Lipoprotein(a): Ready for Prime Time?

Hester den Ruijter, University Medical Center, Utrecht, Netherlands
Sex Differences in Cardiovascular Disease

Siddhartha Jaiswal, Stanford University, USA
Clonal Hematopoiesis in Aging and Atherosclerotic Cardiovascular Disease

Meeting Wrap-Up: Outcomes and Future Directions (Organizers)

KEYSTONE SYMPOSIA

on Molecular and Cellular Biology

Atherosclerosis: Lessons Learned and Concepts Challenged (B2)

February 4-8, 2018 • Sagebrush Inn & Suites • Taos, New Mexico, USA

Scientific Organizers: Laura F. Michael, Gerard Pasterkamp and Sekar Kathiresan

Sponsored by Amgen Inc., MedImmune and Novo Nordisk A/S

Abstract & Scholarship Deadline: October 5, 2017 / Abstract Deadline: November 7, 2017 / Discounted Registration Deadline: December 7, 2017

FRIDAY, FEBRUARY 9

Departure