

NOBEL SYMPOSIA

NOBEL SYMPOSIUM IN PHYSIOLOGY OR MEDICINE

Progress and challenges in cardiovascular medicine

STIAS, 21-25 OCTOBER 2024

**NOBEL
IN AFRICA**

A STIAS INITIATIVE



NOBEL SYMPOSIUM IN PHYSIOLOGY OR MEDICINE

PROGRESS AND CHALLENGES IN CARDIOVASCULAR MEDICINE

INTRODUCTORY NOTE

Cardiovascular disease (CVD) is today the main cause of death globally. While progress in prevention and therapy has led to reduced death rates in high-income countries, an epidemic increase is taking place in low- and middle-income countries (LMICs). In fact, LMICs, including in the sub-Saharan African region, are fast emerging as the new epicentre of the global CVD epidemic, where CVD and certain other non-communicable diseases are projected to increasingly pose a challenge to public health and national economies. Furthermore, in the sub-Saharan Africa region, an additional burden of CVD attributable to HIV is emerging. The aims of this symposium are twofold: to assess progress in research on disease mechanisms and their translation into prevention and therapy, and to discuss how best to use this knowledge to control and improve the CVD situation in the world of today and tomorrow.

The Nobel Symposium (NS171) on *Progress and Challenges in Cardiovascular Medicine* from 21 – 25 October 2024 will be the fourth symposium in the Nobel in Africa series at STIAS. This invitation-only symposium will gather leading scientists, together with selected observers, in the field of cardiovascular medicine for five days, with lectures, discussions and ample time for informal conversations. It will also create a unique opportunity to adapt current scientific knowledge for handling the CVD epidemic in low- and middle-income countries.

Convenors: Göran Hansson, Karolinska Institute, Jan Nilsson, Lund University and Hans Strijdom, Stellenbosch University

The Nobel in Africa – NOBEL SYMPOSIA series is a STIAS Initiative in partnership with Stellenbosch University, under the auspices of the Nobel Foundation and the Royal Swedish Academy of Sciences with funding from the Knut & Alice Wallenberg Foundation. The NOBEL SYMPOSIA mark is owned by the Nobel Foundation.

PROGRAMME

| MONDAY, 21 OCTOBER 2024 | | |
|--|--|---|
| OPENING SESSION (open to media and invited guests) | | MC: Elana Afrika-Bredenkamp |
| 08:30 | Registration | |
| 09:00 – 09:30 | Opening remarks: <ul style="list-style-type: none"> Royal Swedish Academy of Sciences, Göran Hansson STIAS Director, Edward K. Kirumira Stellenbosch University Rector & Vice-Chancellor, Wim de Villiers | |
| SESSION 1 | CVD IN THE 21 ST CENTURY | Chair: Jan Nilsson |
| 09:30 – 10:10 | Keynote: Cardiovascular Diseases in the 21 st Century | Abdallah Daar, University of Toronto |
| 10:10 – 10:30 | Respondent: Cardiovascular Diseases of the 21 st Century – An African Perspective | Ntobeko Ntusi, South African Medical Research Council |
| 10:30 – 11:00 | COFFEE & TEA BREAK END OF OPENING SESSION | |
| SESSION 2 | CVD IN A GLOBAL PERSPECTIVE | Chairs: Jan Nilsson & Faadiel Essop |
| 11:00 – 11:30 | Nutrition and cardiovascular disease | Salim Yusuf, McMaster University (virtual) |
| 11:30 – 12:00 | Global trends in the incidence, prevalence, and outcomes of cardiovascular disease | Annika Rosengren, University of Gothenburg |
| 12:00 – 12:30 | Conjoint conditions: cardiovascular disease in context of multiple chronic diseases | Shane Norris, University of Southampton |
| 12:30 – 13:30 | LUNCH | |
| SESSION 3 | CVD-RISK FACTORS AND PREVENTION | Chairs: Fil Swirski & Fred Bukachi |
| 13:30 – 14:00 | Vascular health drivers in a (South) African context | Lisa Ware, University of the Witwatersrand |
| 14:00 – 14:30 | Insulin and exercise-mediated mechanisms of glucose metabolism in cardiometabolic disease | Juleen Zierath, Karolinska Institute |
| 14:30 – 15:00 | COFFEE & TEA BREAK | |
| SESSION 4 | POST-INFECTION CVD | Chairs: Claudia Monaco & Michael Pepper |
| 15:00 – 15:30 | Post-infection CVD | Chiara Giannarelli, NYU Grossman School of Medicine |
| 15:30 – 16:00 | Flow matters: exploring the dynamics of blood clot formation | Malebogo Ngoepe, University of Cape Town |
| 18:30 – 21:00 | WELCOME DINNER at STIAS | |

TUESDAY, 22 OCTOBER 2024

| SESSION 5 | | |
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| ATHEROSCLEROSIS AND IMMUNITY | | Chairs: Ira Tabas & Stephen Malin |
| 09:00 – 09:30 | Cytokines participate in atherosclerosis | Peter Libby, Harvard Medical School |
| 09:30 – 10:00 | CD31 agonists: from immune whisperer to stealth stent savior in atherosclerosis | Giuseppina Caligiuri, Institut National de la Santé et de la Recherche Médicale (INSERM) |
| 10:00 – 10:30 | Breakdown of tolerance to self drives atherosclerosis | Klaus Ley, Augusta University |
| 10:30 – 11:00 | COFFEE & TEA BREAK (Group photo for symposium participants) | |
| SESSION 6 | | |
| ATHEROSCLEROSIS – RESOLUTION OF INFLAMMATION | | Chairs: Kathryn Moore & Engelbert Nonterah |
| 11:00 – 11:30 | Macrophage efferocytosis and inflammation resolution in atherosclerosis | Ira Tabas, Columbia University Irving Medical Center |
| 11:30 – 12:00 | Bench to bedside: Advancing pro-efferocytic therapies into the clinic for the treatment of atherosclerotic cardiovascular disease | Nick Leeper, Stanford University |
| 12:00 – 13:30 | LUNCH | |
| SESSION 7 | | |
| ATHEROSCLEROSIS – INFLAMMATION AND IMMUNITY | | Chairs: Lars Maegdefessel & Rabia Johnson |
| 13:30 – 14:00 | Co-stimulatory Immune checkpoints in atherosclerosis | Esther Lutgens, Mayo Clinic |
| 14:00 – 14:30 | Cardiovascular disease and cancer: cross-disease communication | Kathryn Moore, NYU Grossman School of Medicine |
| 14:30 – 15:00 | The impact of humoral immunity in atherosclerotic cardiovascular disease | Christoph Binder, Medical University of Vienna |
| 15:00 – 15:30 | COFFEE & TEA BREAK | |
| SESSION 8 | | |
| CLONAL HEMATOPOESIS | | Chairs: Peter Libby & Shane Norris |
| 15:30 – 16:00 | Genome instability in the immune system: Linking aging with cardiovascular disease | Kenneth Walsh, University of Virginia |
| 16:00 – 16:30 | Cholesterol and Inflammasomes in Clonal Hematopoiesis and Atherosclerosis | Allan Tall, Columbia University |
| 16:30 – 17:00 | Discussion | |
| STELLENBOSCH UNIVERSITY CHANCELLOR'S PUBLIC LECTURE, Jan Mouton Learning Centre | | Programme Director: Sibusiso Moyo, DVC Research, Innovation & Postgraduate Studies |
| 17:30 | Transport from STIAS to SU campus | |
| 18:00-18:10 | Welcome & Opening remarks | Wim de Villiers, Rector & Vice-Chancellor, Stellenbosch University |
| 18:10 – 18:15 | Introduction of the speaker | Nico Gey van Pittius, Vice-Dean Research & Internationalisation, Faculty of Medicine and Health Sciences, Stellenbosch University |
| 18:15 – 19:15 | Who wins the Nobel Prize? The secrets behind the world's most coveted awards | Göran K. Hansson, Department of Medicine, Solna, Karolinska Institute |
| 19:15 – 19:30 | Q&A and Vote of Thanks | Hester Klopper, DVC Strategy, Global and Corporate Affairs, Stellenbosch University |
| 19:30 | Reception | |

OUTREACH

| | | |
|----------------------|--|--|
| 08:30 | Transport from STIAS to Tygerberg & Groote Schuur | |
| 10:00 – 14:00 | Centre for Cardio-metabolic Research in Africa (CARMA), Faculty of Medicine and Health Sciences, Stellenbosch University (Tygerberg Campus) Site visit | Hosts: Faadiel Essop (Director) & Hans Strijdom |
| | Seminar with invited faculty members and students: <ul style="list-style-type: none"> • Peter Libby, Clonal Hematopoiesis Links Aging, Cancer and Cardiovascular Diseases • Juleen Zierath, Regulation of glucose transport by insulin and energy sensing pathways in Type 2 diabetes | |
| | Light lunch | |
| 10:00 – 14:00 | Cape Heart Institute, Faculty of Health Sciences, University of Cape Town (Groote Schuur Campus) Site visit | Hosts: Karen Sliwa (Director) & Sandrine Lecour |
| | Seminar with invited faculty members and students: <ul style="list-style-type: none"> • Lars Maegdefessel, Deciphering atherosclerosis with multi-omics approaches • Annika Rosengren, Obesity – a challenge to cardiovascular health | |
| | Light lunch | |
| 14:00 | Return transport to STIAS | |
| 15:30 – 16:00 | COFFEE & TEA BREAK | |
| SESSION 9 | CVD CHALLENGES IN LOW- AND MIDDLE-INCOME COUNTRIES | Moderator: Hans Strijdom |
| 16:00 – 18:00 | Roundtable Discussion | Nelson Sewankambo, Makerere University Engelbert Nonterah, Ghana Health Service Rabia Johnson, South African Medical Research Council Fred Bukachi, University of Nairobi Abdallah Daar, University of Toronto |
| 18:00 | Braai, STIAS Fellows in Residence Invited | |

THURSDAY, 24 OCTOBER 2024

| SESSION 10 | METABOLISM AND CVD | Chairs: Børge Nordestgaard & Andre Pascal Kengne |
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| 09:00 – 09:30 | The gut microbiota in cardiometabolic diseases - from association to causation | Fredrik Bäckhed, University of Gothenburg |
| 09:30 – 10:00 | Advances in lipid lowering therapies for homozygous familial hypercholesterolaemia | Frederick Raal, University of the Witwatersrand |
| 10:00 – 10:30 | Dysfunctional lipoproteins: linking cancer to cardiovascular disease | Sandrine Lecour, University of Cape Town |
| 10:30 – 11:00 | COFFEE & TEA BREAK | |
| SESSION 11 | ATHEROSCLEROSIS – INJURY, REPAIR AND PLAQUE VULNERABILITY | Chairs: Andreas Edsfeldt & Antonino Nicoletti |
| 11:00 – 11:30 | Decoding macrophages in atherosclerosis | Claudia Monaco, University of Oxford |
| 11:30 – 12:00 | Smooth muscle cell fate and plasticity in atherosclerosis | Lars Maegdefessel, Technical University Munich |
| 12:00 – 13:30 | LUNCH | |
| SESSION 12 | ATHEROSCLEROSIS - INJURY, REPAIR AND PLAQUE VULNERABILITY cont. | Chairs: Giuseppina Caligiuri & Anton Doubell |
| 13:30 – 14:00 | Mechanisms of atherosclerotic disease progression: "one size does not fit all." | Gerard Pasterkamp, University Medical Centre Utrecht |
| 14:00 – 14:30 | 4W and 1H of human vulnerable plaques | Isabel Gonçalves, Lund University |
| 14:30-15:00 | Deep phenotyping of perivascular fat using CT imaging: from bench to bedside | Charalambos Antoniades, University of Oxford |
| 15:00 – 15:30 | COFFEE & TEA BREAK | |
| SESSION 13 | CVD AND THE NERVOUS SYSTEM | Chairs: Kenneth Walsh & Angela Woodiwiss |
| 15:30 – 16:00 | Neural regulation of inflammation | Peder Olofsson, Karolinska Institute |
| 16:00 – 16:30 | The Nervous-Immune Supersystem in Cardiovascular Health | Fil Swirski, Icahn School of Medicine at Mount Sinai, New York |
| 16:30 – 17:00 | Discussion | |
| 18:30 | Transport from guest houses to dinner venue | |
| 19:00 – 21:00 | Symposium Dinner, Clos Malverne Wine Estate | |

FRIDAY, 25 OCTOBER 2024

| SESSION 14 | NOVEL APPROACHES TO TARGETED THERAPY AND CVD RISK PREDICTION | Chair: Gerard Pasterkamp |
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| 09:00 – 09:30 | Lipoprotein(a), remnant cholesterol, and triglycerides | Børge Nordestgaard, University of Copenhagen |
| 09:30 – 10:00 | Why Target Residual Inflammatory Risk? | Paul Ridker, Harvard Medical School |
| 10:00 – 10:30 | Peripartum Cardiomyopathy- from proteomics to disease specific therapy | Karen Sliwa, University of Cape Town |
| 10:30 – 11:00 | COFFEE & TEA BREAK | |
| SESSION 15 | PROGRESS IN PREVENTION AND THERAPY OF CVD | Moderator: Göran Hansson |
| 11:00 – 12:00 | Roundtable discussion | Jan Nilsson, Lund University Paul Ridker, Harvard Medical School Lars Maegdefessel, Technical University Munich Esther Lutgens, Mayo Clinic |
| 12:00 – 12:30 | Closing | Göran Hansson, Karolinska Institute Jan Nilsson, Lund University Hans Strijdom, Stellenbosch University |
| 12:30 – 14:00 | LUNCH | |

PARTICIPANTS

| First Name | Last name | Unit | Institution | Country |
|--------------|-----------------|---|--|----------------|
| Carmelita | Abrahams | Cape Heart Institute, Faculty of Health Sciences | University of Cape Town | South Africa |
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