



UNIVERSITY
OF OSLO



Anders Jahre's Awards for Medical Research 2022 – The Jahre Lectures

Thursday 3 November 2022 at 10.00–13.45 hrs. Professorboligen, Karl Johansgate 47

The lectures are open to everyone. Register at invitasjon@admin.uio.no before 16 October.

PROGRAM:

- 10.00–10.10** Welcome and presentation of the younger winners by **Anne Gjøen Simonsen**
- 10.10–10.55** Lecture by **Lars Wiuff Andersen**
Associate Professor, University of Aarhus, Denmark
Cardiac arrest – improving outcomes through clinical research
- 10.55–11.40** Lecture by **Lykke Sylow**
Associate Professor, University of Copenhagen, Denmark
Molecular miracles and misfortunes of insulin resistance and muscle loss in cancer and diabetes
- 11.40–12.30** Lunch
- 12.30–12.35** Presentation of Harald Stenmark by **Anne Gjøen Simonsen**
- 12.35–13.35** Lecture by **Harald Stenmark**
Professor, Oslo University Hospital and University of Oslo, Norway
Cellular membrane dynamics and cancer
- 13.35–13.45** Conclusion and closing by **Anne Gjøen Simonsen**

Anders Jahre's Awards for Medical Research honor research of outstanding quality in basic and clinical medicine. The prizes are awarded by the University of Oslo and are among the largest within Nordic biomedical research.



Harald A. Stenmark

PHOTO: ØYSTEIN HORGMO



Lars Wiuff Andersen

PHOTO: PRIVATE



Lykke Sylow

PHOTO: LARS SVANKJÆRVIDENSKABERNES SELSKAB

Abstracts 2022:

Cellular membrane dynamics and cancer

Harald Stenmark

Professor, Oslo University Hospital and University of Oslo, Norway

When trying to understand the cellular processes that gradually transform normal cells into cancer cells, most focus has been on changes in DNA and on signalling pathways that control cell proliferation and survival. In our laboratory we have been interested in the fact that most cancer-relevant cellular processes depend on proteins that interact with cellular membranes. The dynamic rearrangements of cellular membranes therefore control processes that prevent normal cells from transforming into cancer cells, and dysregulation of cellular membrane dynamics is indeed frequently involved in cancer progression. We have been investigating the molecular biology of membrane dynamics that controls genome integrity, signal transduction, nutrient uptake, metabolism, survival and invasion, with special emphasis on phosphorylated membrane lipids known as phosphoinositides, and a multi-subunit molecular machinery known as ESCRT. This has led to the discovery of novel molecules that either prevent or accelerate cancer progression.

Cardiac arrest – improving outcomes through clinical research

Lars W. Andersen

Associate Professor, University of Aarhus, Denmark

Cardiac arrest is a devastating condition that suddenly affects millions of people each year. Despite improvement in outcomes over the last 20 years, outcomes still remain dismal. Only approximately 15-30% of those who have a cardiac arrest are alive 30 days later. The goal of my research group is to improve these numbers. We aim to achieve this goal through clinical research ranging from observational studies to synthesis of the existing literature, to large, multicenter, randomized clinical trials. Our focus is on all aspects of the “survival chain” including early interventions provided by bystanders, drugs given by clinicians during the cardiac arrest, and more advanced treatments during and after the cardiac arrest.

Molecular miracles and misfortunes of insulin resistance and muscle loss in cancer and diabetes

Lykke Sylow

Associate Professor, University of Copenhagen, Denmark

My research focuses on delineating the molecular causes of muscle loss and associated metabolic dysfunctions. We are trying to identify mechanisms that, at the molecular level, control muscle mass, function, and metabolism. Our most central contribution to the field is the discovery of a new signaling pathway, via Rho GTPases, that controls insulin sensitivity in skeletal muscle in patients with type 2 diabetes.

With muscle loss and insulin resistance being central features of cancer, ageing, and diabetes, we are uncovering the pathology of these conditions at the molecular level. Here, a breakthrough was when we revealed that the cancer produces remarkable changes to distant tissues, such as skeletal muscle.

In fact, cancer can make the muscle insulin resistant and make the muscle loose mass. This is detrimental to survival and quality of life for patients, and we are therefore trying to understand how the tumor can “speak” with the muscle and what we can do to prevent this.

Because exercise produces such remarkable benefits on our health, we focus on how muscle loss and metabolic abnormalities can be improved or even reversed by exercise training.