100 year anniversary of
Göran Gustafsson (1919–2003)

UPPSALA
UNIVERSITET

# NEW HORIZONS IN DIABETES RESEARCH

12–13 September 2019

## Scientific symposium

Humanities Theatre
Uppsala University

# Thursday 12 September

## 12.30 Welcome

**Eva Åkesson**, Vice-chancellor, Uppsala University, Sweden
**Stellan Sandler**, Vice-rector, Uppsala University, Sweden
*Welcome and opening remarks*

## 12.40–16.20 150-year anniversary of the discovery of pancreatic islets - New horizons

Chair **Anders Tengholm**, Uppsala University, Sweden

**Patrick MacDonald**, University of Alberta, Canada
*Insights from combined functional and transcriptomic profiling of human islet cells*

**Bryndis Birnir**, Uppsala University, Sweden
*GABA signalling in pancreatic islets*

**Olof Idevall**, Uppsala University, Sweden
*Organelle dynamics in beta-cells*

## 14.00–14.30 Coffee break

**Alejandro Caicedo**, University of Miami, Miller School of Med, USA
*New insights into the innervation of the pancreatic islet*

**Gustaf Christoffersson**, Uppsala University, Sweden
*Imaging local immune regulation in the pancreas*

**Olov Andersson**, Karolinska Institutet, Sweden
*In vivo drug discovery to stimulate beta-cell regeneration*

**Frank Reimann**, University of Cambridge, United Kingdom
*Enteroendocrine cells and glucose homeostasis*

## 17.00 Göran Gustafsson Lecture in Medicine 2019

**Anders Malmberg**, Deputy vice-chancellor, Uppsala University
*Introduction*

**Bernard Thorens**, University of Lausanne, Switzerland
*Brain neuronal circuits controlling glucose homeostasis and feeding behavior*

## 18.00–19.00 Scientific poster exhibition with refreshments

# Göran Gustafsson (1919–2003)

Göran Gustafsson was born in the far north of Sweden. Becoming a successful businessman, notably in real estate, Göran Gustafsson created the economic basis for his donations to two foundations that promote basic scientific research. Through these donations, Göran Gustafsson's vision was to provide Swedish researchers with the required conditions for competing with the best researchers in the world.

# Friday 13 September

## 9.00–11.50 Type 2 diabetes – New paradigms in pathobiology and treatment

Chair **Jan Eriksson**, Uppsala University, Sweden

**Jan Eriksson**, Uppsala University, Sweden
*Stratification of type 2 diabetes patients: will it enable precision medicine?*

**Angela M. Valverde**, Institute of Biomedicine Alberto Sols (CSIC) and CIBERDEM, Madrid, Spain
*Non-alcoholic fatty liver disease: insights from cellular and animal models*

**Marcel den Hoed**, Uppsala University, Sweden
*Image and CRISPR-based screens in zebrafish larvae to improve our understanding of diabetes aetiology*

## 10.20–10.50 Coffee break

**Tina Vilsböll**, University of Copenhagen, Denmark
*Incretin hormones – basis for new treatment era*

**John Wilding**, University of Liverpool, United Kingdom
*Will SGLT2 inhibitors change the diabetes and cardiovascular landscape?*

## 11.50–13.00 Lunch

## 13.00–15.10 Technical applications for the advances of diabetes

Chair **Per-Ola Carlsson**, Uppsala University, Sweden

**Klearchos Papas**, University of Arizona, USA
*Oxygenated macrocapsules for pancreatic islet transplantation*

**Diego Balboa**, Helsinki University, Finland
*CRISPR Cas9 technology for human pluripotent reprogramming and the understanding of human beta-cell disease*

**Olof Eriksson**, Uppsala University, Sweden
*Novel tracers for imaging of the pancreas and their beta-cells by PET*

**Roman Hovorka**, University of Cambridge, United Kingdom
*Closed loop technology*

**Robin Strand**, Uppsala University, Sweden
*Imiomics and machine learning in whole-body imaging studies of diabetes*

## 15.10–15.40 Coffee break

## 15.40–17.30 How do we form societies preventing diabetes?

Chair **Tove Fall**, Uppsala University, Sweden

**Anna-Maria Volkmann**, University College London, United Kingdom
*Cities changing diabetes*

**Brent Loken**, Stockholm University, Sweden: EAT foundation
*Can we feed a future population of 10 billion people a healthy diet within planetary boundaries?*

**Duk-Hee Lee**, Kyungpook National University, Korea
*Environmental pollutants and diabetes*

**Jonathan Cedernaes**, Uppsala University, Sweden
*Circadian rhythms, shift work and diabetes*


## 100 years and 2 days of utmost importance

It is with great pleasure we welcome you to Uppsala University and the international scientfic symposium New horizons in diabetes research. During two days we will present a comprehensive overview of research at the absolute forefront of our field.

Diabetes is a growing global health problem where science still needs to find effective means for prevention and cure. By gathering leading experts in the field, our aim is to strengthen the platform for our common endeavor to meet one of the major health care challenges of our time.

With this symposium Uppsala University and The Göran Gustafsson Foundation for Research at Uppsala University and KTH wish to commemorate that 100 years have passed since the birth of Göran Gustafsson, a true philanthropist in the world of science.

**Stellan Sandler**
professor, medical cellbiology
vice-rector, Uppsala University

**Tove Fall**
professor, molecular epidemiology
Uppsala University

## Göran Gustafsson lecturer in medicine

**Professor Bernard Thorens** conducts research on the molecular physiology of energy homeostasis at the Center for Integrative Genomics of the University of Lausanne. He graduated in biochemistry and obtained his PhD from the University of Geneva. Following postdoctoral training at the Whitehead Institute for Biomedical Research at MIT, Cambridge, USA, he returned to Switzerland to establish his own laboratory. Bernard Thorens is renowned for his pioneering work on glucose transporters and gluco-incretin receptors, which he initiated by the cloning and functional characterization of the GLUT2 transporter and the GLP-1 receptor in pancreatic beta-cells. These original discoveries were followed by continued cutting-edge research on different glucose sensing mechanisms and blood glucose control. His present research focusses on how brain glucose-sensing neurons control glucose homeostasis via autonomic nervous effects on pancreatic alpha- and beta-cell function, as well as how these neurons determine feeding behaviour. His laboratory also investigates signalling pathways, which adapt beta-cell mass and function to gluco-incretin hormone action and metabolic stress with the aim to find novel targets for the treatment of diabetes. The work of Professor Bernard Thorens has been recognised by several prestigious prizes.