Rolf Luft Symposium 2024

Rolf Luft Award 2024

5 September 2024

Nobel Forum, Karolinska Institutet

Karolinska Institutet

Rolf Luft
Foundation for Diabetes Research

novo nordisk®

Motivation for the Rolf Luft Award 2024

Frances Ashcroft discovered the KATP channel expressed in beta cells which is a critical component of the signaling pathway that stimulates insulin secretion in response to elevated blood glucose. She discovered that closure of this channel by glucose metabolism into ATP plays an essential role in insulin release. She provided many mechanistic insights into the molecular operation of the channel, and its regulation by nucleotides and sulphonylurea drugs.

In a formidable collaboration with Andrew Hattersley, a previous Luft Prize winner, she showed that gain-of-function mutations in KATP channel genes cause neonatal diabetes and elucidated the underlying molecular mechanisms. They showed that these patients are well treated with sulphonylureas and do not need to be treated with insulin. Their work has revolutionized the treatment of neonatal diabetes and over 90% of patients have switched from insulin injections to oral sulphonylurea theory. This has greatly improved their clinical condition and quality of life.

Ashcroft's recent studies have showed that hyperglycemia in diabetes impairs oxidative metabolism in beta cells, by altering expression of numerous metabolic genes, which is mediated by a glycolytic metabolite (not glucose itself). Blocking glucose metabolism prevents the deleterious effects of hyperglycaemia on the beta cells. This suggests a novel approach to preventing beta cell decline in type 2 diabetes.

In addition to her scientific accomplishments Ashcroft is a prominent and acclaimed author. She wrote an important text book, *Ion Channels in Health and Disease* and has also written several acclaimed books for the lay public. In her book *The Spark of Life*, Ashcroft explains how electrical signals are essential for life. In *Life at the Extremes*, Ashcroft weaves stories of extraordinary feats of endurance with historical material and the latest scientific findings as she investigates the limits of human survival and the remarkable adaptations that enable us to withstand extreme conditions.

PROGRAM

Rolf Luft Symposium, Nobel Forum, Karolinska Institutet

Rolf Luft Foundation 20th Anniversary, September 5, 2024

09:00	Introduction, Kerstin Brismar(chair), Alan Raffensperger, Jeffrey Friedman
09:05	**Jeffrey Friedman**, Rockefeller University, US *Obesity, Causes and Treatment: The End of the Beginning*
09:35	**C Ronald Kahn**, Harvard Medical School, USA *Defining The Molecular Basis for Insulin Resistance in Type 2 Diabetes and Metabolic Syndrome*
10:05	Coffee/tea
10:25	**Sir Stephen O'Rahilly**, Cambridge University, UK *Hormones, metabolism and behaviour*
10:55	**Nils-Göran Larsson**, Karolinska Institutet *How metabolism is impacted by the organization of the respiratory chain*
11:25	Lunch, Svarta Räfven for invited speakers and organizers
13:00	Introduction**,** *Chair: Kerstin Brismar*
13:05	**Rolf Luft Award Ceremony** *Marie Arsenian Henriksson, Vice President for Research, KI.* Recipient of Rolf Luft Award: *Dame Commander Frances Ashcroft,* University of Oxford, UK
13:10	**The Prize lecture: *Frances Ashcroft*** Metabolic regulation of insulin secretion in health and disease,
14:10–14:40	Coffee/tea

14:40 **Rolf Luft Symposium for researchers and clinicians**
Chair: *Daniel Andersson*

14:45 **Sergiu Catrina**, *Reduced response to hypoxia as a contributing factor to diabetes complications*

15:00 **Lisa Juntti Berggren**, *ApoCIII and the relation to diabetes*

15:15 **Afroditi Barouti***, Low* Carbohydrate diet in type 1 diabetes,

15:30 *En blick in i Novo Nordisk forskning och utveckling (Novo Nordic future research)* **TBD**

15:45 **Fruktpaus**

16:00 **Flash News from ongoing research in Stockholm:**

Peter Ueda, *SGLT2i och ketoacidos*,
David Nathanson, *Monogen Diabetes,*
Vladimer Darsalia, *Diabetes and Stroke,*

16:30 **Ylva Trolle Lagerros och Joanna Uddén,**
Behandling av obesitas, idag och i framtiden

17:00 **Reflektion**

17:15 – 17.45 Lättare förtäring.

Rolf Luft

Father of Endocrinology in Sweden

Father of Mitochondrial medicine

Rolf Luft was born in 1914 in Stockholm, Sweden. In 1944, he obtained his PhD from Karolinska Institutet for his thesis entitled: ”A study on Hirsutism, Cushing´s Syndrome and Precocious Puberty”.

A grant from the Knut & Alice Wallenberg Foundation in 1946 gave him the opportunity to visit Massachusetts General Hospital in USA for one year, working with Fuller Albright. As a professor and head of the Department of Endocrinology at Karolinska Hospital, he has supervised a legion of scholars in diabetes.

He discovered in 1958 a disturbed function of mitochondria as a cause of disease (referred to as Luft disease) that led to the development of Mitochondrial Medicine for which the word identifies him as the Father of Mitochondrial Medicine. In the early descriptions of mitochondrial diseases, diabetes mellitus was thought to be related. In 1988, mutations in the mitochondria were associated with diabetes mellitus that led to the discovery of mitochondrial diabetes.

He received innumerable awards, a number of honorary doctorates and was made an honorary member of several diabetic associations and scientific academies in different countries. He served as President of the International Diabetes Federation (IDF) for six years and was a founding member of The European Association for the Study of Diabetes (EASD). He was a member of the Nobel Assembly at Karolinska Institutet 1961 – 1980 and served as chairman of the Nobel Committee for Physiology or Medicine 1976 - 1978. Rolf Luft published the first national program for diabetes care 1967. Rolf Luft died in 2007.