

Faculty Club - 24. January 2020

12:00 – 1:30 pm, RWTH Guesthouse

Prof. Kai Simons, MPI CBG

Lipids: fingerprints of health and disease

Lipids are important building blocks of life. Their main function is to form the matrix of our cell membranes where they support a variety of functions essential for life. But what do most of us know about lipids (fats)? Even biomedical researchers know little. Lipids disappeared in the DNA revolution. So did fats from foods. When you enter a supermarket you see lots of food products from which fats have been removed e.g. fat-free milk or yogurt. Cholesterol was long considered to be like a poison. On the other hand, there is fat everywhere conspicuously around us. An obesity epidemic is spreading worldwide undermining our societies. How did we land in this mess?

My research has uncovered an important principle that demonstrates how lipids can functionalize cell membranes. We have developed methods that can analyze lipids quantitatively and rapidly. We have used this technology to analyze blood cells and plasma with the aim to establish multi-parametric lipid signatures that measure health and disease. In the presentation we will discuss how lipids could contribute to deliver personalized health advice for a better life.



Kai Simons received his MD degree from the University of Helsinki in 1964. Simons then conducted postdoctoral research with A.G. Bearn at Rockefeller University in New York. In 1967, he accepted a PI position from the Finnish Medical Research Council at the University of Helsinki. In 1975, he became a Group Leader at the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany and there he started the Cell Biology Program, which became the focal point for molecular cell biology in Europe. In 2001 Kai Simons moved to Dresden to build up the new Max Planck Institute for Molecular Cell Biology and Genetics. This Institute is today an internationally recognized center in its area of research. This hub in the molecular life sciences was the driving force that pushed TU Dresden to elite status in the Federal Excellence Initiative, Simons recent research has focused on cell membrane organization and function. He has pioneered the concept of lipid rafts as a membrane organizing principle, based on the phase-separating capabilities

of lipids in cell membranes. Lipid research is now experiencing a renaissance and is bound to play an exciting role for understanding health and disease. Recently, he founded a startup 'Lipotype' that specializes in lipidomics to support this goal. He has received a honorary degree in Geneva, Leuven, Oulu and Kuopio as well as membership in the National Academy of Sciences USA, the American Academy of Arts and Sciences, Leopoldina and EMBO.

Registration

Please register [here](#) by Monday January 20, 2020 or send an email to facultyclub@ers.rwth-aachen.de

Please note that a [contribution](#) of 15 Euro for lunch snack and beverages will be requested on site. Based on your registration, we make a binding order to the catering company. We therefore ask for your understanding that the cost contribution is due unless you cancel your registration by noon of the previous day at the latest.