

## GRK 2576 Guest Lecture

**Title:** Increasing energy turnover of adipose tissue to combat obesity

**Speaker:** Susanne Keipert, PhD

Group Leader at the Department of Molecular Biosciences, The Wenner-Gren Institute, Stockholm University

**Date:** 09. November 2022

**Time:** 14:00 h CET

**Location:** Oskar Minkowski-Saal & Paul Langerhans-Saal, DDZ  
(please register with [nicole.rockel@ddz.de](mailto:nicole.rockel@ddz.de) by November 7<sup>th</sup>)

**Zoom:**

<https://us06web.zoom.us/j/89611355904?pwd=RTZGWETxM0ExNlJlN2hseDh5T1Vrdz09>

Meeting-ID: 896 1135 5904; Kenncode: 411942

### Biography



Dr. Susanne Keipert received her PhD from the German institute of human nutrition (Dife) in Potsdam in 2011, where she worked on the effect of mitochondrial uncoupling on lifespan, substrate and energy metabolism in mice. She continued her training in energy metabolism and molecular physiology during her Postdoc at the Helmholtz Centre Munich (2013-2018). In 2019 she received the VR starting grant in medicine and health from the Swedish research council and opened her independent research group at the Department of Molecular Biosciences, The Wenner-Gren Institute at Stockholm University.

Her team is working on endocrine and molecular mechanisms that enhance energy expenditure to improve body weight and metabolic health. A special focus of her group is on the metabolic activation of adipose tissue as a potential target to fight obesity and its comorbidities. In the last 10 years, she discovered and established the role and metabolic action of fibroblast growth factor 21, an important regulator of adipose tissue remodelling and whole-body metabolism. Her research to clarify the physiological relevance of endogenous FGF21 for metabolism was recently honored by the Flormanska belöningen of the Royal Swedish Academy of Science (2021).

For more insights please see: <https://www.su.se/english/research/research-projects/investigating-molecular-mechanisms-to-enhance-adipose-tissue-metabolism>

### Selected recent publications

Klein Hazebroek M. and **Keipert S.**, “Obesity-resistance of UCP1-deficient mice associates with sustained FGF21 sensitivity in inguinal adipose tissue.” *Frontiers in Endocrinology*, Aug 2022, 11; **PMID: 36034414**

Cavaliere R., Hazebroek M.K., Cotrim C.A., Lee Y., Kunji E.R.S., Jastroch M., **Keipert S.** and Crichton P.G.. “Activating ligands of Uncoupling protein 1 identified by rapid membrane protein thermostability shift analysis” (2022) *Molecular Metabolism*, Aug;62:101526; **PMID: 35691529**

**Keipert S.**, Lutter D, Schroeder BO, Brandt D, Ståhlman M, Schwarzmayr T, Graf E, Fuchs H, Hrabe de Angelis M, Tschöp MH, Rozman J, Jastroch M, “Endogenous FGF21-signaling controls paradoxical obesity resistance of UCP1-deficient mice” (2020) *Nature communications*, 11 (1), 1-12; **PMID: 32005798**

\***Information on access:** please visit <https://www.vivid.hhu.de/qualification-program/guest-lectures> **Contact:** Dr. Nicole Rockel, +49-211-3382-558, [vivid@hhu.de](mailto:vivid@hhu.de)

## Talk teaser

Guest lecture with Dr. Susanne Keipert

### ***Increasing energy turnover of adipose tissue to combat obesity***

Novel therapeutic strategies are required for the treatment of the metabolic syndrome to assure health and life quality of our society. As obesity is caused by an imbalance of energy intake and energy expenditure, increasing energy loss is conceptually providing a potential therapeutic strategy to treat the obesity pandemic. The activation of brown adipose tissue or the "browning" of white adipose tissue are promising targets. By shifting the function from a primarily energy storing tissue to a metabolic active, energy wasting tissue, one could shift a metabolically unhealthy to a metabolic healthy phenotype.

In the first part of my talk I will focus on the activation of brown fat by directly targeting its main energy wasting, heat-producing protein (uncoupling protein 1, UCP1). In the second part, the role of an endocrine acting protein (FGF21) in metabolic activation and "browning" of white adipose tissue and its potential beneficial role on metabolic health will be discussed.