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GRK 2576 Guest Lecture

Title: **Novel Insights into Regulation of Energy and Glucose Metabolism by GIP and GIPR: GLP-1R co-Agonists**

Speaker: **Timo D. Müller, PhD**

Director of the Institute for Diabetes and Obesity (IDO), Helmholtz Center Munich, and the Walther-Straub-Institute for Pharmacology and Toxicology, Ludwig-Maximilians-University Munich (LMU), Germany

Date: **17. April 2024**
Time: **14:00 h CET**
Location: **Oskar Minkowski-Hall & Paul Langerhans-Hall, DDZ**

Zoom:
https://us06web.zoom.us/j/85639222951?pwd=D8UtonTCbrMPAKUXgkSZc27EDP6gIO.1
Meeting-ID: 856 3922 2951; Kenncode: 961730

Biography

Timo Müller is the Director of the Institute for Diabetes and Obesity at Helmholtz Munich, and a full Professor for energy and glucose metabolism at the Walther-Straub-Institute for Pharmacology and Toxicology, Ludwig-Maximilians-University Munich (LMU). Müller studied Animal Physiology at the Philipps-University Marburg, Germany. After graduating in 2005, he did his PhD thesis at the Department of Child and Adolescent Psychiatry and Psychotherapy, University of Duisburg-Essen, Germany. After receiving his PhD in 2009, Dr. Müller worked as a postdoctoral fellow at the Metabolic Disease Institute, University of Cincinnati, Ohio, USA. In 2011, Dr. Müller returned to Germany, where he together with Matthias Tschöp founded the Institute for Diabetes and Obesity at Helmholtz Munich. Dr. Müller is an ERC consolidator grant awardee and focuses in his research on the development and evaluation of novel unimolecular polypharmacological options to treat the metabolic syndrome, and in particular obesity and diabetes. He is part of an international team of scientists who pioneered the concept of GLP-1-based dual- and triple-agonists for the treatment of obesity and diabetes. He published >150 manuscripts, including articles in Cell, Nature Medicine, Nature Metabolism and Cell Metabolism.

Selected recent publications

Liskiewicz A, Khalil A, Liskiewicz D, Novikoff A, Grandl G, Maity-Kumar G, Gutgesell RM, Bakhti M, Bastidas-Ponce A, Czarnecki O, Makris K, Lickert H, Feuchtinger A, Tost M, Coupland C, Ständer L, Akindehin S, Prakash S, Abrar F, Castelino RL, He Y, Knerr PJ, Yang B, Hogendorf WFJ, Zhang S, Hofmann SM, Finan B, DiMarchi RD, Tschöp MH, Douros JD, **Müller TD**. Glucose-dependent insulinotropic polypeptide regulates body weight and food intake via GABAergic neurons in mice. ***Nat Metab.*** 2023 Dec;5(12):2075-2085. PMID: 37946085; PMCID: PMC10730394.

Quarta C, Stemmer K, Novikoff A, Yang B, Klingelhuber F, Harger A, Bakhti M, Bastidas-Ponce A, Baugé E, Campbell JE, Capozzi M, Clemmensen C, Collden G, Cota P, Douros J, Drucker DJ, DuBois B, Feuchtinger A, Garcia-Caceres C, Grandl G, Hennuyer N, Herzig S, Hofmann SM, Knerr PJ, Kulaj K, Lalloyer F, Lickert H, Liskiewicz A, Liskiewicz D, Maity G, Perez-Tilve D, Prakash S, Sanchez-Garrido MA, Zhang Q, Staels B, Krahmer N, DiMarchi RD, Tschöp MH, Finan B, **Müller TD**. GLP-1-mediated delivery of tesaglitazar improves obesity and glucose metabolism in male mice. ***Nat Metab***. 2022 Aug;4(8):1071-1083. PMID: 35995995; PMCID: PMC9398908.

Zhang Q, Delessa CT, Augustin R, Bakhti M, Colldén G, Drucker DJ, Feuchtinger A, Caceres CG, Grandl G, Harger A, Herzig S, Hofmann S, Holleman CL, Jastroch M, Keipert S, Kleinert M, Knerr PJ, Kulaj K, Legutko B, Lickert H, Liu X, Luippold G, Lutter D, Malogajski E, Medina MT, Mowery SA, Blutke A, Perez-Tilve D, Salinno C, Sehrer L, DiMarchi RD, Tschöp MH, Stemmer K, Finan B, Wolfrum C, **Müller TD**. The glucose-dependent insulinotropic polypeptide (GIP) regulates body weight and food intake via CNS-GIPR signaling. ***Cell Metab.*** 2021 Apr 6;33(4):833-844.e5. PMID: 33571454; PMCID: PMC8035082.

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Talk teaser

GRK 2576 vivid Guest lecture with Prof. Dr. Timo D. Müller

Novel Insights into Regulation of Energy and Glucose Metabolism by GIP and GIPR: GLP-1R co-Agonists

Co-Agonists targeting the receptors for GLP-1 and GIP are best-in-class drugs to treat obesity and diabetes, but the role of GIP in regulating energy and glucose metabolism remains controversial. Using a series of conditional KO Models, we recently demonstrated that GIP acts centrally on the GIP recepor to decrease body weight via inhibition of food intake, hence establishing GIP as novel central regulator of systemic energy metabolism.