

Anne Gemmink (f)(1989) is an Assistant Professor in the Department of Nutrition and Movement Sciences of Maastricht University Medical Center. Originally trained as an exercise physiologist, she is specialized in developing high-end microscopy techniques that allow quantitative assessment of lipid droplet and mitochondrial network remodeling, as well as the interaction between these organelles in skeletal muscle to apply in translational metabolism research. She studies the role of lipid droplet and mitochondrial network remodeling as a target to improve insulin sensitivity using human skeletal muscle biopsies obtained from lifestyle intervention studies performed in individuals with type 2 diabetes. In addition, she applies these techniques as well in cultured human primary myotubes to gain mechanistical insights in targeting lipid droplet and mitochondrial network remodeling. She visited the Max Planck Institute in Mainz, Germany to quantify lipid composition of myocellular lipid droplets with CARS microscopy. She was awarded the Young Talent Postdoc Fellowship from the CVON Energise consortium to conduct research on the role of lipid droplet lipolysis in regulating mitochondrial function in cultured human primary myotubes in the renowned lab of Rudolf Zechner at the University of Graz, Austria. Her work on the role of myocellular lipid droplet and mitochondrial network dynamics in the development of insulin resistance is internationally recognized. Dr. Gemmink was granted the Young Investigator Award from the European Foundation for the study of Diabetes in 2021. She has authored over 20 papers in leading journals in the field such as *Diabetologia*, *Nature Communications* and *Molecular Metabolism*.

Key publications

1. Gemmink A, Daemen S, Kuijpers HJH, Schaart G, Duimel H, López-Iglesias C, van Zandvoort MAMJ, Knoop K, Hesselink MKC. Super-resolution microscopy localizes perilipin 5 at lipid-droplet mitochondria interaction sites and at lipid droplets juxtaposing to perilipin 2. *Biochim Biophys Acta Mol Cell Biol Lipids*. 1862(11):1423-1432, 2018
2. Gemmink A*, Daemen S*, Wefers J, Hansen J, van Moorsel D, Astuti P, Jorgensen JA, Kornips E, Schaart G, Hoeks J, Schrauwen P, Hesselink MKC. Twenty-four hour rhythmicity in mitochondrial network connectivity and mitochondrial respiration; a study in human skeletal muscle biopsies of young lean and older individuals with obesity. *Mol. Metab.* 72:101727, 2023
3. Gemmink A, Daemen S, Brouwers B, Hoeks J, Schaart G, Knoop K, Schrauwen P, Hesselink MKC. Decoration of myocellular lipid droplets with perilipins as a marker for in vivo lipid droplet dynamics: A super-resolution microscopy study in trained individuals and insulin resistant individuals. *Biochim Biophys Acta Mol Cell Biol Lipids*. 1866(2):158852, 2021
4. Daemen S*, Gemmink A*, Paul A, Billecke N, Rieger K, Parekh SH, Hesselink MKC. Label-free CARS microscopy reveals similar triacylglycerol acyl chain length and saturation in myocellular lipid droplets of athletes and individuals with type 2 diabetes. *Diabetologia*. 63(12):2654-2664, 2020
5. Daemen S*, Gemmink A*, Brouwers B, Meex RCR, Huntjens PR, Schaart G, Moonen-Kornips E, Jørgensen J, Hoeks J, Schrauwen P, Hesselink MKC. Distinct lipid droplet characteristics and distribution unmask the apparent contradiction of the athlete's paradox. *Mol Metab.* 17:71-81, 2018
6. Gemmink A*, Bosma M*, Kuijpers HJ, Hoeks J, Schaart G, van Zandvoort MA, Schrauwen P, Hesselink MK. Decoration of intramyocellular lipid droplets with PLIN5 modulates fasting-induced insulin resistance and lipotoxicity in humans. *Diabetologia*. 59(5):1040-8, 2016

* Equal contribution