



## Mareike Schell

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Dr. Mareike Schell is a research fellow in the lab of Dr. Sudha Biddinger in the Division of Endocrinology at Boston Children's Hospital. Her current research focus is on spatial heterogeneity of hepatic mitochondrial metabolism in non-alcoholic fatty liver disease (NAFLD). After completing her MSc in Nutrition Science at the University of Potsdam, she continued working in the lab of Prof. Andre Kleinridders (German Institute of Human Nutrition Potsdam-Rehbruecke, now: University of Potsdam) and started her PhD in July 2018. For her thesis project she investigated the effects of *Lactobacillus rhamnosus* on established high-fat diet induced brain insulin resistance and emotional behavior by detailed biochemical, molecular, and 'omics' analyses, as well as behavioral testing in male and female mice. Previous studies have shown that the use of probiotics can improve emotional behavior by influencing the gut microbiome and insulin sensitivity. However, the underlying mechanisms driving these changes along with a therapeutic (i.e. after established obesity) potential have not been extensively explored. This work highlights sex-specific differences, as female mice exhibit metabolic changes upon treatment with *Lactobacillus rhamnosus*, while males show a specific improvement in depressive-like behavior. On a molecular level, obese male mice present with a beneficial signature of improved tyrosine hydroxylase gene expression and reduction of CKK mRNA levels in the nucleus accumbens after treatment with *Lactobacillus rhamnosus*, suggesting a crucial role of the dopaminergic system. This study was presented at the American Diabetes Association's (ADA) 82nd Scientific Sessions 2022 in New Orleans with the support from the DZD NEXT Conference Travel Grant and PoGS (Potsdam Graduate School) Travel Grant.