

Poster Abstract Submission

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Research Title	Genome-wide small RNA sequencing analysis identifies novel microRNAs expressed during development and are altered in obesity

Abstract:

MicroRNAs (miRNAs) are ~21bp long regulatory RNAs and involves in the regulation of cellular pathways by targeting associated mRNAs. They regulate all known cellular functions such as development, differentiation and metabolism and dysregulation in their expression have been linked to different diseases including metabolic diseases such as obesity and type 2 diabetes. Even though rat is a well-established model system for metabolic studies and the relevance of miRNAs as regulators of metabolism is well established, very few miRNAs have been identified in rats, compared to humans and mice. We carried out a genome-wide small RNA sequencing using rat skeletal muscle and compared two developmental stages, newborn (day 1) and adult (day 145) rats and two developmental conditions, lower birth weight (LBW, 5th to 25th percentile) and average birth weight (ABW, 50th to 75th percentile). Further small RNA-Seq analysis and miRNA functional verification was carried out to investigate the identified novel miRNAs involved in metabolic pathways and associated complications.