Abstract

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Gene expression profile of peripheral blood mononuclear cells in dogs

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Abstract

Molecular mechanisms and early diagnosis on the development of mild to moderate of canine obesity are not understood although recent dog obesity is a widespread problem. To understand the differences between normal weight and mild to moderate obesity, the purpose of this study is to investigate the gene expression profiles of peripheral blood mononuclear cells (PBMC) in dogs. This study comprised a sample of 12 privately-owned Miniature Dachshund, which were divided into two groups (obese and control) based on body condition scores (BCS). Serum biochemical parameters and PBMC gene expression profiles were compared between groups. A statistically significant between group differences was recorded for body weight (BW), BCS, serum Insulin and triglyceride (TG) levels ($p < 0.05$). RNA-seq revealed the upregulated 154 genes and the downregulated 198 genes in obese dogs at more than 3.5-fold change compared with control animals. Hemoglobin subunits alpha- and beta-like were detected in the downregulated genes. RT-PCR analysis showed downregulation of FOLH1, ALAS2 and LOC100855540 genes, and upregulation of BCL2L15 gene, suggesting that the metabolic difference between normal and mild to moderate obesity was involved in the hemoglobin metabolism.

Biography

Sayaka Miyai did PhD in Animal science, M-Tech (Biotechnology), actively involved in research and development in the field of Biotechnology and Animal Science. He published more than 46 research articles in International Journal of Repute.