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Adipokine profiling in white adipose tissue of c-Cbl^{-/-} mice: Effects of fasting and high fat diet

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Cbl (Casitas B-lineage Lymphoma) is a multiadaptor protein with E3 ubiquitin ligase activity that regulates signaling of Creceptors with tyrosine kinase activity such as insulin receptor c-Cbl null mice was reported to be more insulin sensitive than control littermates and be resistant to the deleterious effects of a high fat diet. In this study, we sought to determine the differences in the adipokine profile in WAT contribute to the greater insulin sensitivity. C57BL/6 (c-Cbl^{+/+}) and c-Cbl^{-/-} knockout mice were fed either a regular or a high fat diet (HFD) for six weeks. Insulin and glucose tolerance tests and adipokine expression were determined. *In vivo* glucose and insulin sensitivity was improved in c-Cbl^{-/-} compared to c-Cbl^{+/+} mice. RBP4 levels was increased in WAT of c-Cbl^{-/-} animals vs. c-Cbl^{+/+}. However, neither a HFD nor fasting altered RBP4 expression in WAT was found. Liver showed lower RBP4 levels in the HFD c-Cbl^{-/-} female compared to c-Cbl^{+/+}. Both adiponectin and leptin were decreased in c-Cbl^{-/-}. *In vitro* activation of extracellular kinases (ERK) pathway was elevated in the c-Cbl^{-/-} even in the absence of insulin. This finding was confirmed in the 3T3L1 adipocyte cell line depleted of c-Cbl, which also showed enhanced RBP4 expression. Expression of RBP4 in the c-Cbl^{-/-} mice in WAT with marked gender dimorphism was altered. Leptin and adiponectin levels were unchanged in the steady state but regulated by fasting and HFD. An increased signaling through the ERK pathway may be responsible for the increased adipokine expression in the null mice.

Biography

Gulizar Issa Ameen has completed her MSc in 2008 from Duhok University in Kurdistan region of Iraq. She is a PhD. student at the University of Liverpool, Faculty of Life Science, Department of Cellular and Molecular Physiology. She is Lecturer in Duhok University. She published 4 papers.

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