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## Effects of palmitoleic acid on the expression of obesogenic genes in adipose tissue of mice submitted to a high fat diet



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White adipose tissue (WAT) is specialized in storing energy in the form of triacylglycerols, providing fatty acids (FA) according to the energy demand of the individual, being expanded in obesity. Obesity is associated with the onset of metabolic syndrome, which in turn correlates with WAT dysfunction that includes changes in mitochondrial, metabolic and adipogenic genes expression in adipocytes. We recently demonstrated that palmitoleic acid (C16:1n7), a monounsaturated FA, increases the metabolic and oxidative capacity of 3T3-L1 adipocytes, modifying some bioenergetic parameters related to mitochondrial and metabolic functions. However, there are no data about its effects on the expression of WAT obesogenic genes from animals submitted to obesity by a high fat diet (HFD). Thus, in the present work, male C57BL/6 mice were submitted to the control diet (CO) or HFD for eight weeks. From the 5th week, the animals received C16:1n7 (300 mg/kg/day) or water for 30 days, by gavage. After euthanasia, the inguinal WAT was removed for analysis of ATGL, HSL, Perilipin, LPL, FABP4, Lipin, GLUT-4, Adiponectin, Leptin, CEBP-alpha and PPAR-gamma by real time RT-PCR gene expression. The following genes showed increased expression in the HFD group: ATGL, HSL, LPL, Lipin, GLUT-4, Leptin, PPAR-gamma and CEBP-alpha, all of which were partially or completely reversed by the C16:1n7 treatment. FABP4 expression was positively modulated in both the HFD and HFD+C16:1n7 groups, as well as the adiponectin. Accordingly, we suggest that palmitoleic acid is modulating and/or adapting the mice WAT helping them to deal with the energy demand from HFD. Thus, the animals treated with palmitoleic acid respond differently from the obese group, and therefore, the imposed condition of obesity by HFD.

### Biography

Maysa Mariana Cruz is pursuing her PhD from Federal University of São Paulo. She is a Pharmacist. She has completed her Master of Science and has published one paper as first author and seven papers as coauthor.

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