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A NOVEL UPLC/MS/MS METHOD FOR COMPREHENSIVE PROFILING AND QUANTIFICATION OF FATTY ACID ESTERS OF HYDROXY FATTY ACIDS IN WHITE ADIPOSE TISSUE

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Fatty acid esters of hydroxy fatty acid (FAHFA) is a novel lipid class with antidiabetic and anti-inflammatory effects. In this paper, a novel UPLC/MS/MS method was developed for comprehensive profiling and quantification of FAHFAs. Through optimization of the chromatographic conditions, FAHFA isomers can be efficiently separated and quantified in 29 min with excellent peak shapes and good robustness. Ultra-high-performance liquid chromatography coupled with quadrupole time-of-flight (UPLC/Q-TOF-MS) was employed for FAHFAs identification based on the high-resolution m/z values and the fragmentation rules. The specific precursor-product ions of FAHFAs identified by UPLC/Q-TOF-MS were further transmitted to the UPLC/MS/MS instrument for their quantification under the multiple reaction monitoring (MRM) scan mode. A total of 64 FAHFAs, belonged to 17 different family members, was identified in white adipose tissue (WAT) of golden hamsters. Nine of the 17 FAHFA family members were newly discovered in this paper. And linoleic acid and linolenic acid are newly found building blocks of FAHFAs in WAT. The total FAHFA number detected from WAT were far larger than any of the previously reported works. Finally, this method was employed to investigate the disturbance of FAHFAs under the pathological condition of hyperlipidemia and the fenofibrate regulation effects of FAHFA.

Biography

Ting Hu, PhD student of the Institute of Materia Medica, Peking Union Medical College & Chinese Academy of Medical Sciences. Her research focused on lipidomics research, mainly the development of new analytical method for lipid molecules, which are endogenously low abundances and difficult to detect. Research interests are LC-MS method development

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