Uptake of Diet Resveratrol into the Human Low-Density Lipoprotein. Identification and Quantification of Resveratrol Metabolites by Liquid Chromatography Coupled with Tandem Mass Spectrometry.

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**Abstract**

In this paper, a sensitive, precise, and selective analytical method has been developed for the identification and quantification of resveratrol metabolites in human low-density lipoprotein (LDL) after moderate consumption of red wine, using high-performance liquid chromatography electrospray in tandem mass spectrometry (LC–ESI-MS/MS). From different extraction procedures tested, solid-phase extraction was selected to minimize matrix effects reaching the highest sensitivity. Standard calibration curves prepared in human LDL for trans-resveratrol were linear over a range of 0.44–438.59 pmol/mL. The accuracy and interassay precision of this LC–MS/MS assay for resveratrol showed a coefficient of variation of <6.0%. The method allows detection and quantification limits for resveratrol in LDL at 0.15 and 0.44 pmol/mL, respectively. Results to date indicate that resveratrol metabolites were incorporated into LDL after a moderate intake of red wine. The metabolites identified in LDL were *trans*-resveratrol-3-*O*-glucuronide, *cis*-resveratrol-3-*O*-glucuronide, and *cis*-resveratrol-3-*O*-glucoside, as well as free *trans*-resveratrol. To our knowledge, it is the first time that a polyphenol from red wine, specifically resveratrol, has been identified in human LDL after moderate intake of red wine. Furthermore, these findings suggest that these compounds may deliver their antioxidant effect to LDL.

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