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Letter to the Editor

Resveratrol, a new biomarker of moderate wine intake?

In a recent study published in the *British Journal of Nutrition*, Spencer *et al.* [1] reviewed the strengths and the limitations of the biomarkers of dietary polyphenol intake, since nutritional biomarkers may be a better measure of dietary exposure than self-reported dietary data. These authors identified the criteria that must be considered in the development of such biomarkers as the following: (i) robust methodology; (ii) sensitivity; (iii) specificity; (iv) bioavailability. Different polyphenols were reviewed as potential biomarkers by the authors; we suggest that resveratrol should also be considered. We analysed resveratrol metabolites as potential biomarkers of wine consumption in two randomised cross-over trials and a cohort study[2]. Using a cut-off of 90 nmol/g, we were able to use urinary total resveratrol metabolite concentration to differentiate wine consumers from abstainers with a sensitivity of 72 % (60–84 %) and a specificity of 94 % (87–100 %). In these trials, urinary resveratrol was specific, as wine has been reported as the most important source of dietary resveratrol (98·4 %)[3], has an adequate half-life and provided a good correlation between these measured values and the dietary data reported (r 0·654; $P<0·001$). In addition, there is a robust analytical technique[4,5] using LC-MS-MS to determine urinary resveratrol metabolites and their pharmacokinetic parameters have been recently studied by Boocock *et al.* [6].

Taking these points into consideration, we want to propose urinary resveratrol metabolites as a biomarker of grape product consumption; this would be a new nutritional biomarker which accomplish and fulfil the criteria of Spencer *et al.* [1].

We declare no conflict of interest.

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References

1. Spencer JPE, Abd El Mohsen MM, Minihane A-M & Mathers JC (2008) Biomarkers of the intake of dietary polyphenols: strengths, limitations and application in nutrition research. *Br J Nutr* **99**, 12–22.
2. Zamora-Ros R, Urpí-Sardà M, Lamuela-Raventós RM, Estruch R, Vázquez-Agell M, Serrano-Martínez M, Jaeger W & Andres-Lacueva C (2006) Diagnostic performance of urinary resveratrol metabolites as a biomarker of moderate wine consumption. *Clin Chem* **52**, 1373–1380.
3. Zamora-Ros R, Andres-Lacueva C, Lamuela-Raventós RM, *et al.* (2007) Concentrations of resveratrol and derivatives in foods and estimation of dietary intake in a Spanish population: European Prospective Investigation into Cancer and Nutrition (EPIC)-Spain cohort. *Br J Nutr* doi:10.1017/S0007114507882997.
4. Urpí-Sardà M, Jáuregui O, Lamuela-Raventós RM, Jaeger W, Miksits M, Covas MI & Andres-Lacueva C (2005) Uptake of diet resveratrol into the human low density lipoprotein. Identification and quantification of resveratrol metabolites by liquid chromatography coupled with tandem mass spectrometry. *Anal Chem* **77**, 3149–3155.
5. Urpi-Sarda M, Zamora-Ros R, Lamuela-Raventos R, Cherubini A, Jauregui O, de la Torre R, Covas MI, Estruch R, Jaeger W & Andres-Lacueva C (2006) Rapid and highly sensitive method to characterize the metabolism of resveratrol in humans. *Clin Chem* **53**, 292–299.
6. Boocock DJ, Faust GE, Patel KR, *et al.* (2007) Phase I dose escalation pharmacokinetic study in healthy volunteers of resveratrol, a potential cancer chemopreventive agent. *Cancer Epidemiol Biomarkers Prev* **16**, 1246–1252.