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Title: Targeted profiling of polar intracellular metabolites using ion-pair–high performance liquid chromatography and ultra high performance liquid chromatography coupled to tandem mass spectrometry: Applications to serum, urine and tissue extracts



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2 using ion-pair – high performance liquid  
3 chromatography and ultra high performance liquid  
4 chromatography coupled to tandem mass spectrometry:  
5 Applications to serum, urine and tissue extracts.

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20 **Abstract**

21 The effective analysis of polar ionic metabolites by LC-MS, such as those encountered in  
22 central carbon metabolism, represents a major problem for metabolic profiling that is not  
23 adequately addressed using strategies based on either reversed-phase or HILIC methods. Here  
24 we have compared analysis of central carbon metabolites on optimized methods using HILIC,  
25 porous graphitic carbon or ion pair chromatography (IPC) using tributyl ammonium as IP

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