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Capillary electrophoresis-mass spectrometry for targeted and untargeted analysis of the sub-5 kDa urine metabolome of patients with prostate or bladder cancer: a feasibility study

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Abstract

Targeted and untargeted analyses of the sub-5 kDa urine metabolome of genitourinary cancer patients (prostate and/or bladder) were performed without chemical derivatization using capillary electrophoresis-electrospray ionization-mass spectrometry (CE-ESI-MS). For targeted analysis, endogenous levels of sarcosine and 5 other amino acid metabolites implicated in the progression of prostate cancer were quantified in four patients and in a pooled urine sample from healthy volunteers. An untargeted analysis (*m/z* 50 to 850) of patient urine was performed using the same CE-ESI-MS system identifying over 400 distinct molecular features per patient. All patient urine samples were collected at prostatectomy/cystectomy via catheter. Patient urine samples were