Supplementary Material (ESI) for Analyst

Supporting Information

Direct Analysis of Dried Blood Spots Utilizing Desorption Electrospray Ionization (DESI) Mass Spectrometry

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Table S1. Optimal Solvent Composition for Analyte Extraction for UPLC-MS/MS

	Sitamaquine	Terfenadine	Prazosin
Whatman FTA Elute	75/25 Methanol/Water	50/50 Methanol/Acetonitrile	Methanol
Whatman FTA	75/25 Methanol/0.1%Formic Acid	75/25 Methanol/0.1%Formic Acid	75/25 Acetonitrile/Water
Whatman 31 ETF	75/25 Methanol/0.1%Formic Acid	50/50 Methanol/Acetonitrile	75/25 Acetonitrile/Water
Whatman 903	75/25 Acetonitrile/Water	75/25 Acetonitrile/Water	75/25 Acetonitrile/Water
Ahlstrom 237	75/25 Acetonitrile/Water	75/25 Acetonitrile/Water	75/25 Acetonitrile/Water

Table S2. Summary of calibration performance data for terfenadine and prazosin in DBS samples prepared on Whatman 31 ETF specialty paper

	Calibration Standards R^2=0.9998; weight: none			
	Terfenadine Nominal Concentration (ng mL^{-1})			
	10	**100**	**1000**	**10000**
Trial 1	2.9	85.7	958.2	9413.1
Trial 2	95.7	154.5	889	10406.5
Trial 3	64.9	142.5	923.1	10285.9
Mean	54.5	127.6	923.4	10035.2
SD	47.3	36.8	34.6	542.1
%CV	86.7	28.8	3.7	5.4
%Bias	445.0	27.6	-7.7	0.4

	Calibration Standards R^2=0.9998; weight: none			
	Prazosin Nominal Concentration (ng mL^{-1})			
	10	**100**	**1000**	**10000**
Trial 1	89.9	90.1	766.3	8623
Trial 2	132.4	143.5	1003.9	11684.9
Trial 3	87.6	115.8	741.9	8637.7
Mean	103.3	116.5	837.4	9648.5
SD	25.2	26.7	144.7	1763.6
%CV	24.4	22.9	17.3	18.3
%Bias	933.0	16.5	-16.3	-3.5

	Calibration Standards R^2=0.9917; weight: 1/x			
	Terfenadine Nominal Concentration (ng mL^{-1})			
	10	**100**	**1000**	**10000**
Trial 1	12	92.4	939.5	9148.1
Trial 2	17.1	74.2	787.2	10027.5
Trial 3	7.9	92.7	945.3	11171.6
Mean	12.3	86.4	890.7	10115.7
SD	4.6	10.6	89.7	1014.6
%CV	37.4	12.3	10.1	10.0
%Bias	23.3	-13.6	-10.9	1.2

	Calibration Standards R^2=0.9618; weight: 1/x			
	Prazosin Nominal Concentration (ng mL^{-1})			
	10	**100**	**1000**	**10000**
Trial 1	12	92.4	939.5	9148.1
Trial 2	17.1	74.2	787.2	10027.5
Trial 3	7.9	92.7	945.3	11171.6
Mean	12.3	86.4	890.7	10115.7
SD	4.6	10.6	89.7	1014.6
%CV	37.4	12.3	10.1	10.0
%Bias	23.3	-13.6	-10.9	1.2

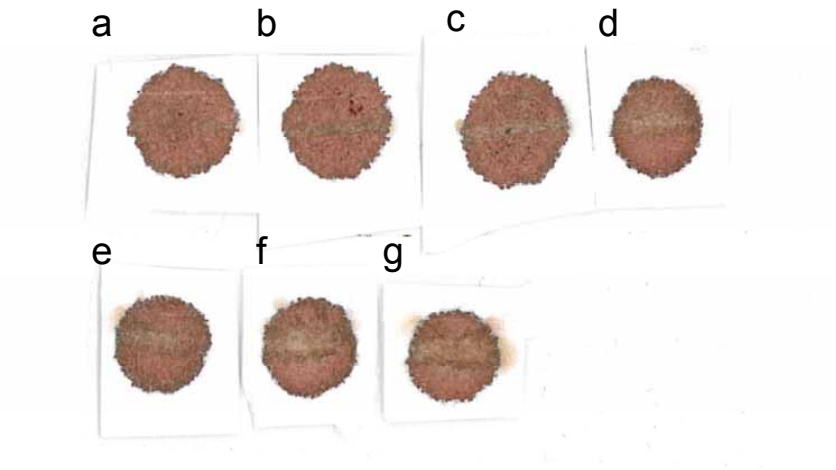

Fig. S1 Photograph of DBS on Whatman 31 ETF after analysis by DESI-MS/MS at (a) 3 μL min^{-1}, (b) 5 μL min^{-1} , (c) 10 μL min^{-1} , (d) 15 μL min^{-1} , (e) 20 μL min^{-1}, (f) 25μL min^{-1}, (g) 30 μL min^{-1}

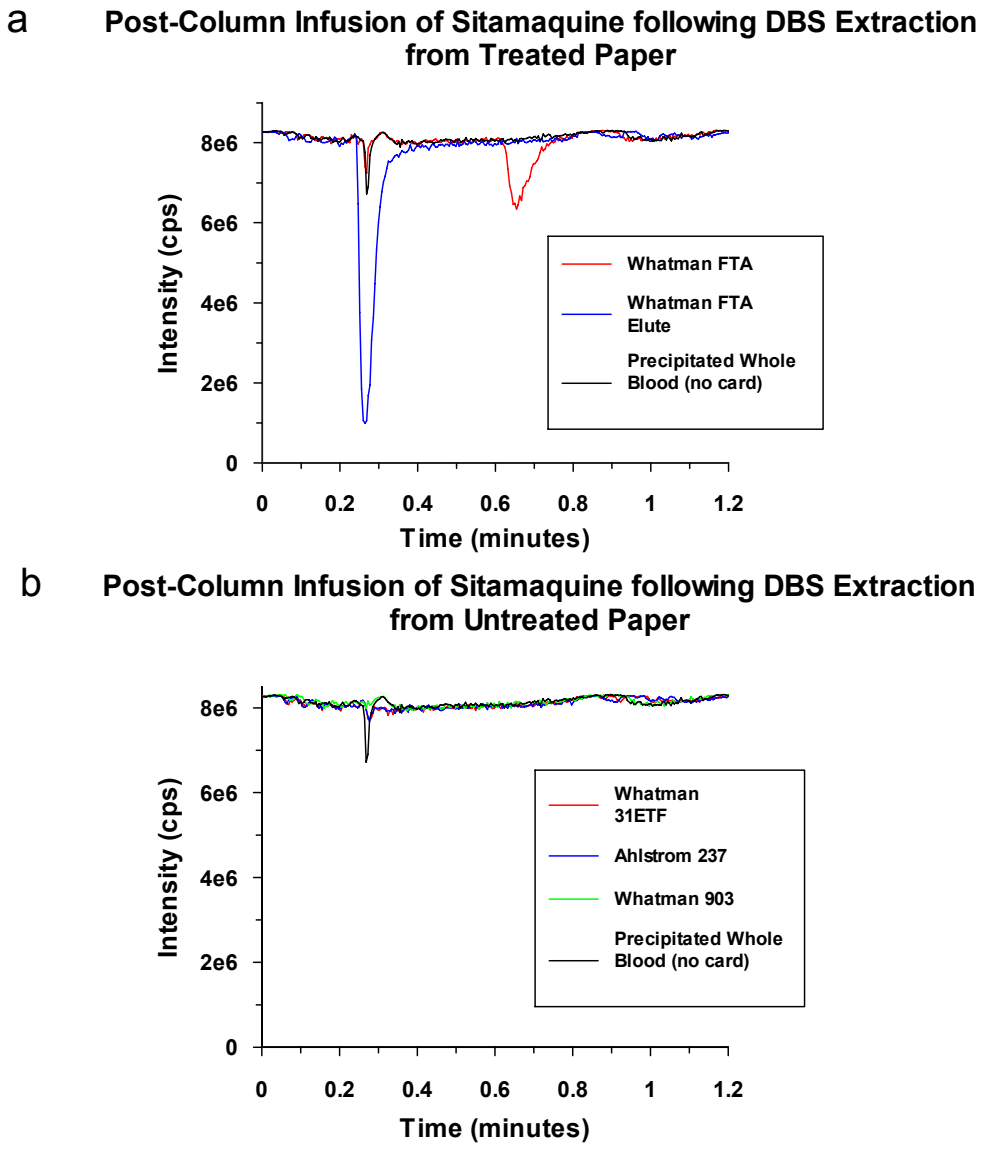

Fig. S2 Post-column infusion (PCI) experiment detailing UPLC-MS/MS suppression of sitamaquine response after extraction from untreated (a) and treated specialty card types. Note the varying suppression intensity in solvent front using all papers, and secondary area of suppression using FTA paper. Proper analyte peak chromatographic conditions and retention time are essential to minimize suppression from card and ensure reproducible results.