

The example data presented here represents typical expected performance and is provided for the purposes of illustration and user guidance only. All Waters analytical instruments are installed and tested in accordance with Waters Standard Performance Tests.

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Xevo TQ-XS UPLC / MRM

System Robustness – Positive ion UniSpray

1000 Injections of Protein Precipitated Plasma spiked with Caffeine

This document presents example data obtained using an ACQUITY UPLC / Xevo TQ-XS system when operating in the UniSpray positive MRM mode at short dwell times. The test is based on monitoring the UPLC MRM response for 1000 replicate injections (over a 65 hour period) of a protein precipitated human plasma sample spiked with Caffeine, demonstrating the reproducibility and robustness of this system configuration.

EXPERIMENTAL CONDITIONS

Samples

Test sample: 0.2pg/μL Caffeine (in protein precipitated human plasma diluted 10:1 in water prior to injection)

LC Conditions

Instrument: ACQUITY I-Class
Column: ACQUITY BEH C18, 50 mm x 2.1 mm, 1.7 μm
Flow Rate: 0.8 mL/min
Injection volume: 10 μL
Mobile phase A: 0.01% Formic acid + 0.05% Ammonia in Water
Mobile phase B: 0.01% Formic acid in Acetonitrile
Sample manager wash: 0.01% Formic acid in Acetonitrile
Sample manager purge: 90:10 Water : Acetonitrile +0.01% Formic acid
Seal wash: 90:10 Water : Acetonitrile +0.01% Formic acid
Column Temp: 40 °C
Sample Temp: 10 °C

UPLC Gradient

Time (min)	%A	%B	Curve
0.00	90	10	-
0.20	90	10	6
1.50	30	70	6
1.80	30	70	6
2.00	90	10	6
2.50	90	10	6

MS Conditions

Instrument: Xevo TQ-XS
Ionization mode: UniSpray positive
MS acquisition: MRM = m/z 195 – m/z 138, 20ms dwell. 0.2Da span
Resolution: Peak width at half-height of precursor and product ions 0.7 ± 0.1 Da

Software

MassLynx: V4.2, SCN943

RESULTS

Integrated chromatographic peak areas were measured for each of the sample injections made. The peak area results for all 1000 injections of the spiked protein precipitated plasma sample are presented in figure 1 demonstrating the robustness of this analytical system. The relative standard deviation of the measured peak areas for these injections was calculated to be <3%.

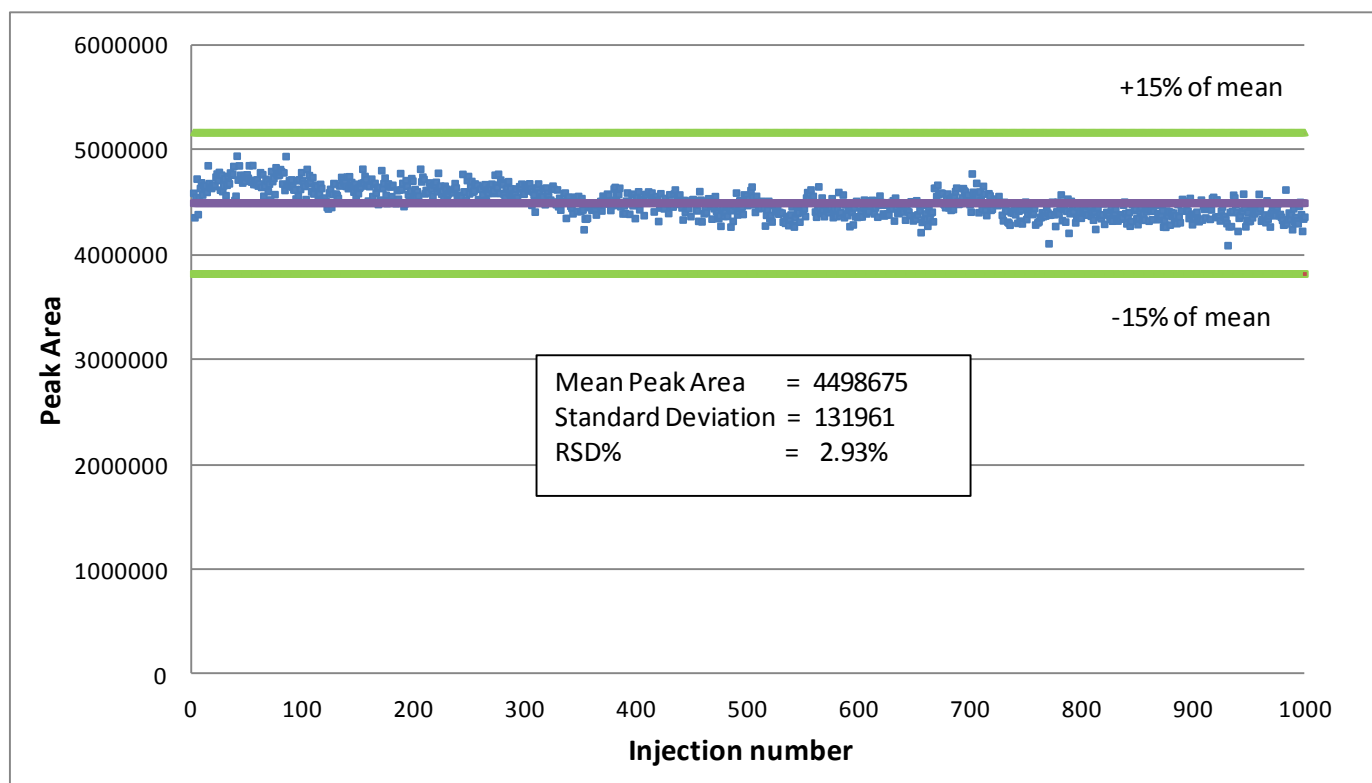


Figure 1.

Peak area response versus injection number
1000 injections of protein precipitated plasma spiked with Caffeine

Figure 2 shows the minimal variation between the UPLC MRM chromatograms obtained for injection 100, 173 and 1000

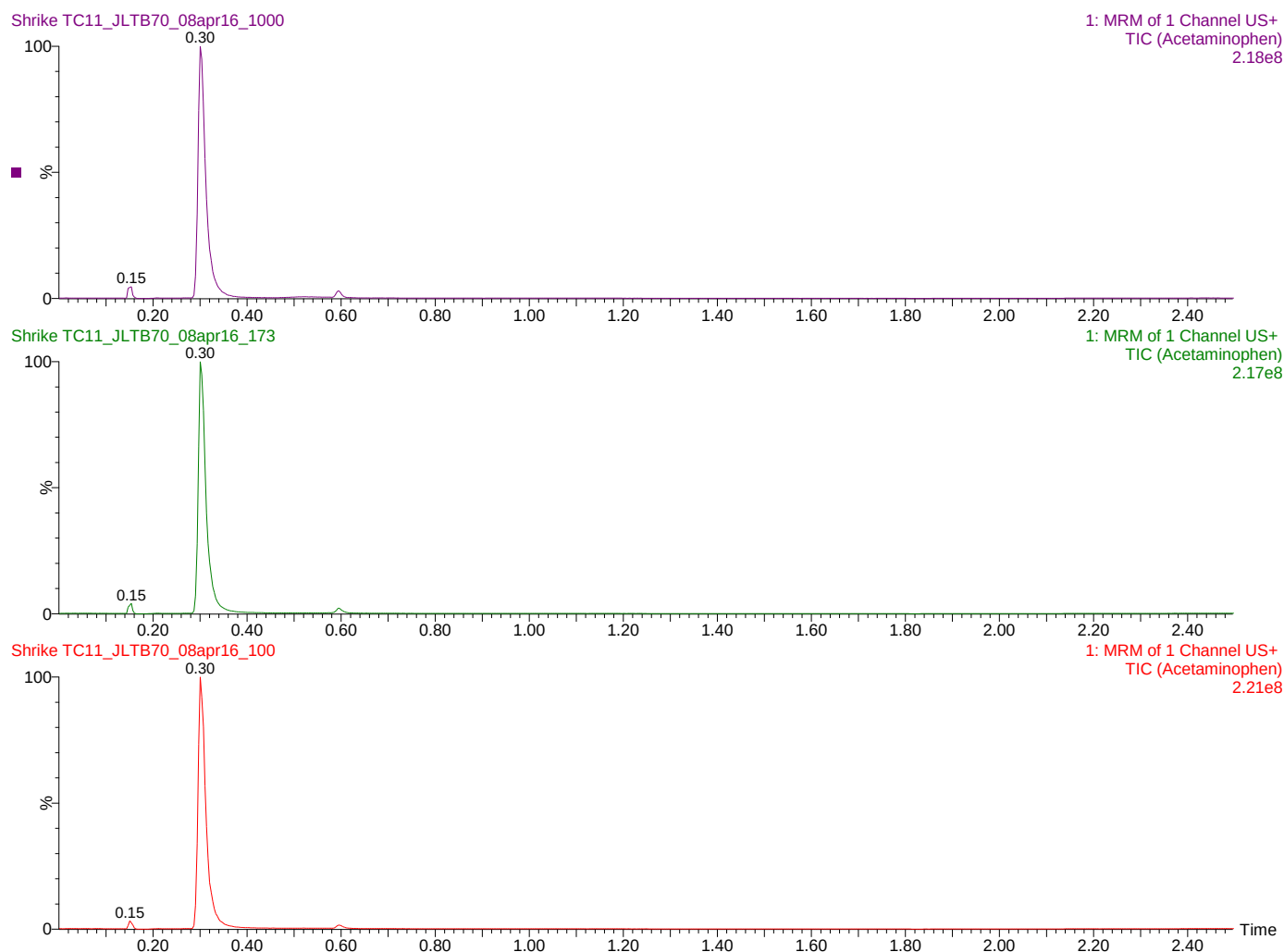


Figure 2.
UPLC MRM chromatograms for injection numbers 100, 173 and 1000



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Waters Corporation
34 Maple Street
Milford, MA 01757 U.S.A.
T: 1 508 478 2000
F: 1 508 872 1990
www.waters.com