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ACQUITY UPLC I-Class/Xevo TQ-S micro IVD System: Analytical Performance for a Mineralocorticoid

INTRODUCTION

The Waters ACQUITY™ UPLC™ I-Class/Xevo™ TQ-S micro IVD System enables the quantification of organic compounds in human biological liquid matrices.

This document describes a test of the analytical performance of the ACQUITY UPLC I-Class/Xevo TQ-S micro IVD System for the analysis of aldosterone in plasma.

EXPERIMENTAL DETAILS

The ACQUITY UPLC I-Class/Xevo TQ-S micro IVD System was controlled by MassLynx™ IVD Software (v4.1) and the data processed using the TargetLynx™ Application Manager. Calibrators and Quality Controls were prepared by spiking commercially available reference material in stripped serum and the samples were processed using the following conditions:

Sample preparation conditions

200 µL sample was processed with $ZnSO_4$/methanol, diluted, and centrifuged. Samples were loaded onto Oasis™ MAX µElution plates, washed, and eluted prior to analysis.

LC conditions

Column:	CORTECS™ UPLC C_{18} 1.6 µm, 2.1 mm × 100 mm
Mobile phase A:	Water
Mobile phase B:	Methanol
Flow rate:	0.4 mL/min
Gradient:	40% B over one minute, 40–60% B over one minute, 60% for 0.3 minutes, 95% B for 0.5 minutes

MS conditions

Resolution:	MS1 (0.75 FWHM), MS2 (0.5 FWHM)
Acquisition mode:	MRM
Polarity:	ESI (-)

ACQUITY UPLC I-Class/Xevo TQ-S micro IVD System.

RESULTS

Performance characteristics of aldosterone using the ACQUITY UPLC I-Class/Xevo TQ-S micro IVD System is shown in Table 1. Analytical sensitivity of the system for analyzing extracted aldosterone plasma samples is illustrated in Figure 1.

Compound	Range (pmol/L)	LLOQ (pmol/L)	S/N at LLOQ	Total precision	Repeatability
Aldosterone	42–4161	42	37	≤7.2%	≤7.0%

Table 1. Performance characteristics of aldosterone. Range defined by linear fit where r^2 >0.99. LLOQ defined by S/N (PtP) >10 and %RSD ≤20%. S/N at LLOQ determined using the mean S/N (PtP) at the low calibrator over five occasions. Total precision and repeatability of QCs performed over five occasions in plasma (n=25).

Note: To convert SI units to conventional mass units divide by 2.774 for aldosterone (pmol/L to pg/mL).

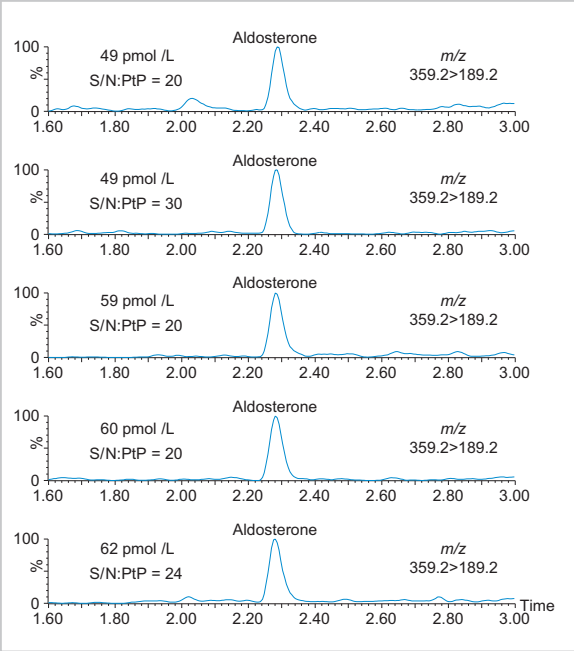

Figure 1. Performance characteristics of extracted plasma aldosterone samples using the ACQUITY UPLC I-Class/Xevo TQ-S micro IVD System.

CONCLUSIONS

The Waters ACQUITY UPLC I-Class/Xevo TQ-S micro IVD System has demonstrated the capability to deliver analytical sensitivity and precision for the analysis of aldosterone in plasma.

For *in vitro* diagnostic use. Not available in all countries.

Disclaimer

The analytical performance data presented here is for illustrative purposes only. Waters does not recommend or suggest analysis of the analytes described herein. These data are intended solely to demonstrate the performance capabilities of the system for analytes representative of those commonly analyzed using liquid chromatography and tandem mass spectrometry. Performance in an individual laboratory may differ due to a number of factors, including laboratory methods, materials used, intra-operator technique, and system conditions. This document does not constitute a warranty of merchantability or fitness for any particular purpose, express or implied, including for the testing of the analytes in this analysis.

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