Agilent Ultivo Triple Quadrupole LC/MS system

A new solution for clinical research testing

At Agilent, we recognize that clinical research labs are faced with daily challenges specific to their application. Agilent offers a solution to these diverse challenges with the introduction of the Agilent Ultivo Triple Quadrupole LC/MS system

Here, we show the benefits of rapid and analytically sensitive analysis of antiepileptic drugs in biological fluids using the exceptionally compact Ultivo system.

Clinical research laboratory challenge	Agilent Ultivo Triple Quadrupole LC/MS system solution
Increase in test volume	**Increase sample throughput**
A consistently rising number of samples, requiring new ways to increase throughput	The Vortex Collision Cell provides faster scanning, enabling you to do more, quickly.
Lower levels of analyte detection required	**Produce better results**
Clinical researchers who are looking to develop diagnostic tests of the future need robust analytical performance	The Cyclone Ion Guide gets more ions to the detector. More ions means better, more reproducible results.
Increased demand for lab efficiency	**Optimize lab technician productivity**
Must minimize downtime and find better tools for routine use	The VacShield enables lab personnel to quickly and seamlessly maintain the MS, freeing up valuable time to focus on science.
Accurate measurements the first time	**Reduce instrument downtime**
In-house instrument maintenance and troubleshooting to decrease cost and keep instruments running 24/7, without interruptions	Intelligent instrument diagnostics use intuitive readbacks to pinpoint issues quickly.
Instrument space constraints	**Maximize laboratory real estate**
Labs with limited bench space need to maximize throughput without increasing footprint.	The footprint of the Ultivo is 70 % smaller than similar systems, enabling you to triple your lab's capacity in the same space.

For more information, visit

www.agilent.com/chem/Ultivo

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Accuracy and reproducibility

Tests showed calibration curves for each of the 15 compounds within 20 % of each expected concentration at the lowest calibration level. Reproducibility across all other levels exhibited CVs of less than 15 %. Table 1 shows the accuracy and reproducibility.

Table 1. Accuracy and reproducibility for curves analyzed on the Agilent Ultivo LC/TQ (n = 3).

	10,11-Dihydro-10-hydroxy carbamazepine		Acetylretigabine		Carbamazepine		Carbamazepine 10,11 epoxide		Felbamate		Gabapentin		Lacosamide		Lamotrigine	
Level	Avg	CV	Avg	CV	Avg	CV	Avg	CV	Avg	CV	Avg	CV	Avg	CV	Avg	CV
1	87.6	4.2	96.2	6.7	83.8	1.6	101.6	1.7	84.6	2.5	83.2	8.0	88.6	2.4		
2	100.4	3.1	104.1	13.3	95.1	1.4	98.8	3.9	100.0	1.3	98.6	4.2	93.9	1.4	99.9	6.3
3	102.5	1.2	103.1	3.1	99.8	0.7	99.0	0.4	103.4	2.1	101.8	3.2	101.8	1.8	92.4	1.9
4	104.9	3.0	109.3	1.8	105.0	1.6	98.6	1.4	108.1	1.3	104.1	2.1	102.8	1.7	101.9	7.5
5	104.0	1.2	102.7	4.5	104.2	1.5	98.4	1.3	105.4	1.7	102.9	3.7	101.3	2.0	101.3	7.0
6	104.3	3.2	102.1	2.2	109.2	2.3	102.8	1.1	102.0	0.8	106.5	1.5	109.1	1.4	102.1	1.4
7	97.7	1.9	93.8	3.0	102.0	0.5	99.1	1.1	97.3	1.8	101.5	5.5	102.0	1.6	100.7	2.4
8	97.9	1.0	101.9	1.7	105.6	1.6	103.5	0.2	98.4	2.2	105.6	1.2	104.4	1.9	99.9	0.8
9	100.7	0.9	99.8	0.6	95.2	1.1	98.3	0.8	100.9	2.6	95.8	2.1	96.1	1.6	99.5	1.9

	Levetiracetam		Oxcarbazepine		Pregabalin		Retigabine		Rufinamide		Tiagabine		Vigabatrin	
Level	Average	CV	Average	CV	Average	CV	Average	CV	Average	CV	Average	CV	Average	CV
1	103.5	1.5	103.2	5.5	87.4	11.8	92.5	7.4	88.8	1.8	103.9	13.5		
2	99.6	1.4	97.2	1.3	95.9	8.8	94.5	9.8	101.2	2.2	92.4	6.2		
3	98.7	1.6	95.9	1.1	99.8	0.3	98.2	1.2	103.3	2.4	98.1	13.1	104.2	8.5
4	100.6	1.2	98.5	3.5	102.4	1.4	104.3	6.9	106.0	0.2	98.4	5.8	100.6	4.7
5	96.7	0.8	101.0	3.2	102.9	1.1	107.2	3.8	102.2	1.9	98.7	5.6	104.0	8.2
6	101.8	1.7	104.0	2.2	108.7	0.8	105.4	5.9	101.2	0.7	107.9	1.8	97.7	5.9
7	97.5	1.0	100.1	0.5	102.4	1.2	96.1	3.3	96.7	1.0	99.6	2.6	93.3	1.3
8	102.0	1.8	101.0	1.0	104.5	1.1	104.2	3.0	100.5	2.3	103.3	3.5	97.1	1.6
9	99.6	1.5	99.0	1.6	95.9	1.4	97.7	4.0	100.1	1.2	97.7	5.7	103.1	2.3

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