

Determination of Gabapentin in Urine Samples Using Solid Phase Extraction and LC-MS/MS



UCT Part Numbers

SLDAGDC21-5UM SELECTRA® DA (10 mm x 2.1 mm) Guard Column	SLDA100ID21-5UM Selectra® DA (100 mm x 2.1 mm, 5 µm) LC Column
CSDAU206 CLEAN SCREEN® DAU 200 mg / 6 mL SPE Tube	

Procedure:

1. Extraction

- To 0.5-1.0 mL of sample add appropriate internal standard*
- Add 3 mL of 0.1 M HCl
- Vortex mix and centrifuge as appropriate

2. Condition Clean Screen® Extraction Column

- 1 x 3 mL CH₃OH
- 1 x 3 mL D.I. H₂O.
- 1 x 1 mL 0.1 M HCl

Note: Aspirate at < 3 inches Hg to prevent sorbent drying.

3. Apply Sample

- Load sample at 1 to 2 mL/minute

4. Wash Column

- 1 x 3 mL DI H₂O
- 1 x 3 mL ethyl acetate
- 1 x 3 mL hexanes
- Dry column (5 minutes at > 10 inches Hg)

5. Elute Gabapentin

- Collect eluate at 1 to 2 mL / minute.
- 1 x 3 mL CH₃OH containing 2% NH₄OH.

6. Dry Eluate

- Evaporate to dryness under nitrogen < 40°C.
- Reconstitute in 100 µL of mobile phase



Instrument Conditions

Column	Selectra [®] DA
Dimensions	100 x 2.1 mm
Particle Size	5 µm
Column Temperature	40 °C
Instrument	Agilent 1100
Mobile phase	CH ₃ OH w/ 0.1% Formic acid : DI H ₂ O w/ 0.1% Formic acid (30:70)
Flowrate	0.4 mL/ minute
Injection volume	10 µL

Detector: API 4000 MS/MS

Ion Source	ESI
Ion Mode	Positive
Ion Spray Voltage	4500 V
Curtain Gas	10
Gas 1	40
Gas 2	40
CAD Gas	Medium
Source Temp	650 °C
Mode	Positive

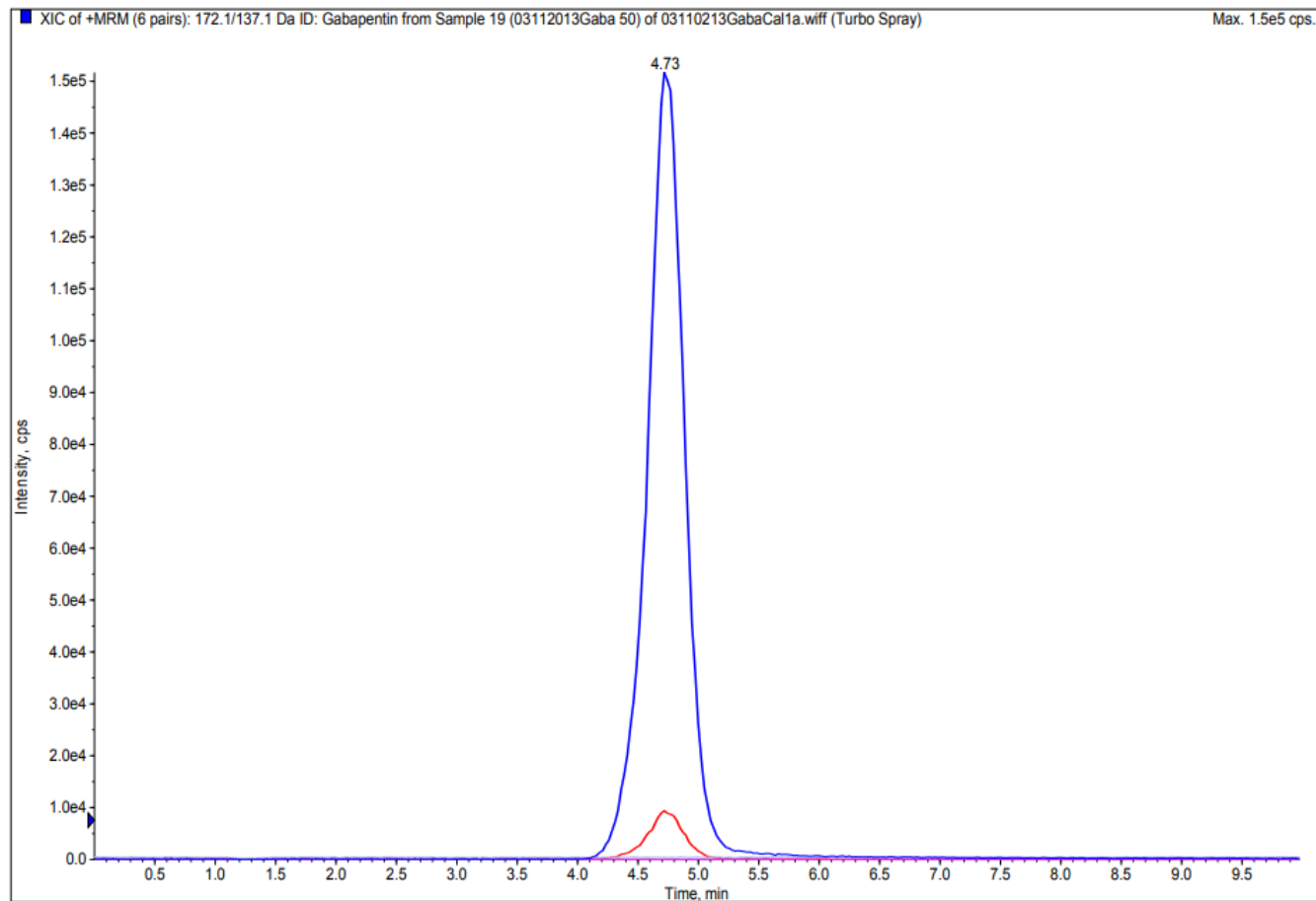
Mass Spec Table

Compound	RT (min)	Precursor Ion	Product Ion 1	CE 1	Product Ion 2	CE 2	DP	EP	CXP
Gabapentin	4.72	172.1	137.1	25	67.1	25	50	10	8
Gabapentin-D10	4.68	182.1	147.1	20	77.1	20	65	12	4

Note: Q1 = Precursor Ion; Q3= Product Ion; DP= Declustering Potential; EP= Entrance Potential; CEP= Collision Entrance Potential; CE= Collision Energy; CXP= Collision Exit Potential.



Chromatogram of Gabapentin



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