

Frontier BioPharm

LLC

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CERTIFICATE OF ANALYSIS

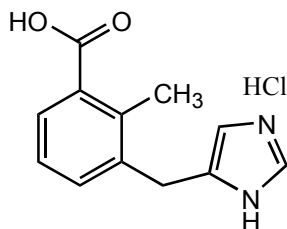
3-Carboxydetomidine HCl

0.103 mg/mL in Methanol

Sample Identity: C-1001
Lot No.: 1004106B
Formula weight (HCl salt) 252.7
Formula weight (Free base) 216.2

Chemical Identity: Chemical Name: 3-Carboxydetomidine HCl
Solvent: Methanol
Volume per Ampule 1 mL
Storage Condition: Protect from light, refrigerate or freeze
Chemical Purity: 99.7%
Elemental Analysis: Calc. C₁₂H₁₃ClN₂O₂ C% 57.04, H% 5.19, Cl% 14.03, N% 11.09
Found C% 56.96, H% 5.21, Cl% 13.91, N% 10.90

Loss on Drying (TGA) <0.1%
Residue on Ignition <0.1%
Isotopic Purity: N/A
Date of Solution Analysis: January 28, 2014
Expiration/Re-analysis Date: January 28, 2017




Purity	Prepared Concentration*	Analyzed Concentration**
99.7% (As the free base)	0.103 mg/mL (±0.003 mg/mL)	0.102 mg/mL (± 0.003 mg/mL)

Concentrations are reported as the free base.

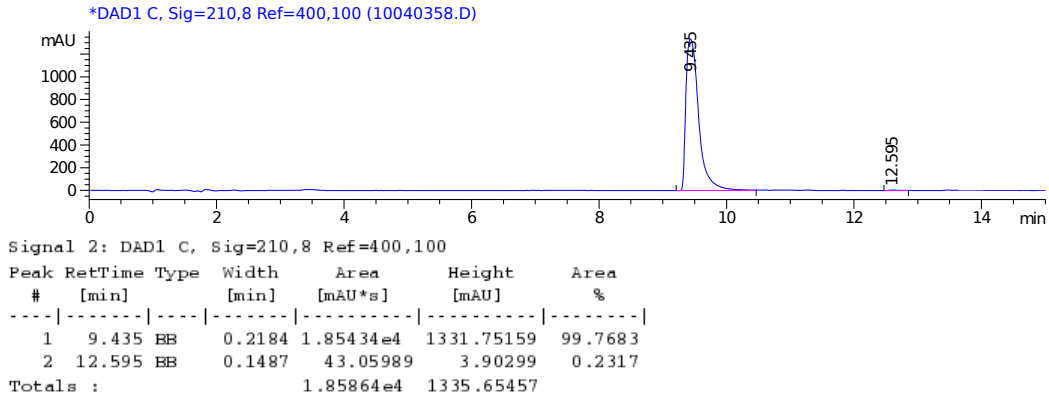
* Masses are determined using balances calibrated with NIST traceable weights. The prepared concentration is corrected for residual solvents, chromatographic purity, and the salt counterion mass, and is expressed as the free base concentration.

** Concentration values are determined by independent calibration curves. It is suggested that the prepared concentration value be used.

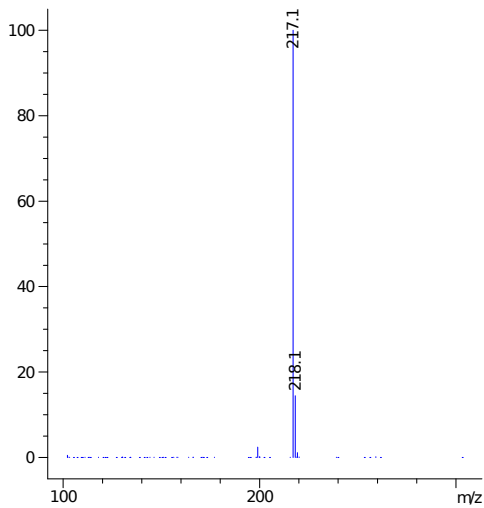
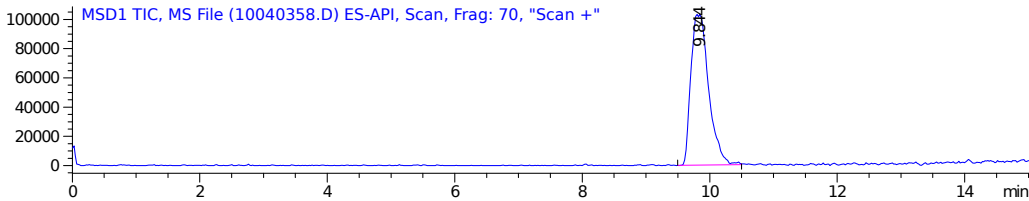
Approved: 
Rodney L. Eisenberg, Ph.D.
Director

01/29/2014
Date

Spectral and Physical Data
LC/UV (210 nm):

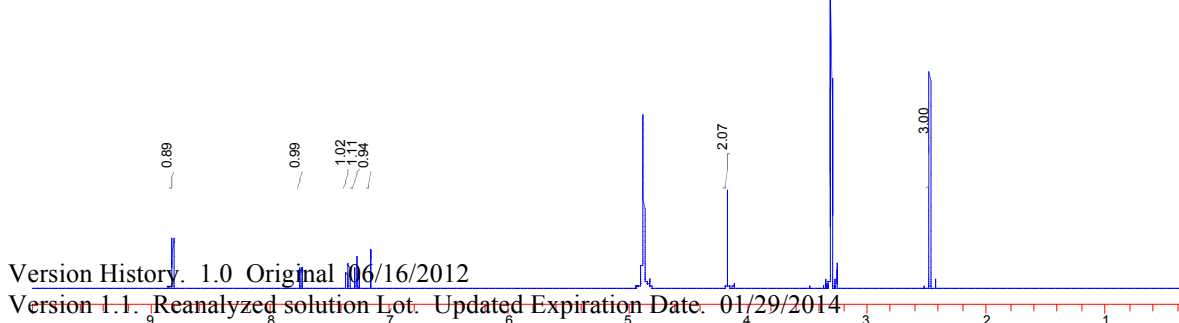


LCMS ESI positive ion mode



¹H-NMR (CD₃OD, 400 MHz)

NUMBER	FROM	TO	VALUE
1	8.85 PPM	8.81 PPM	0.89
2	7.78 PPM	7.72 PPM	0.99
3	7.39 PPM	7.33 PPM	1.02
4	7.33 PPM	7.24 PPM	1.11
5	7.19 PPM	7.14 PPM	0.94
6	4.21 PPM	4.15 PPM	2.07
7	2.51 PPM	2.45 PPM	3.00



Version History. 1.0 Original 06/16/2012

Version 1.1. Reanalyzed solution Lot. Updated Expiration Date. 01/29/2014.

Version 1.1