



Frontier BioPharm LLC

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CERTIFICATE OF ANALYSIS

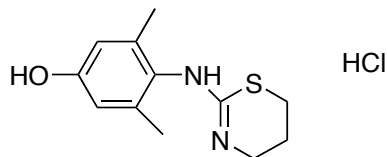
4'-Hydroxyxylazine HCl

0.101 mg/mL (free base concentration)

Product Number: H-3100
Lot No.: 10210020

Chemical Identity: 4'-Hydroxyxylazine HCl
Molecular weight HCl Salt: 272.79
Free Base: 236.33

Solvent: Methanol
Volume per Ampule: 1 mL
Storage Condition: Protect from light, refrigerate or freeze
Chemical Purity: 99.3%
Elemental Analysis
Calculated: Calc. C₁₂H₁₇ClN₂OS
C% 52.83, H% 6.28, Cl% 13.00, N% 10.27, S% 11.75
Found: C% 52.94, H% 6.36, Cl% 13.11, N% 10.29, S% 11.80
Loss on Drying (TGA) <0.1%
Micro Ash <0.1% residue on ignition
Melting point (DSC) 140.8 – 140.9
Isotopic Purity: N/A
Date of Analysis (solution): February 03, 2012
Expiration/Re-Analysis Date: February 03, 2014



Purity (HPLC)	Prepared Concentration*	Analyzed Concentration**
99.3%	0.101 mg/mL (±0.003 mg/mL)	0.102 mg/mL (± 0.003 mg/mL)

Concentrations are reported as the free base

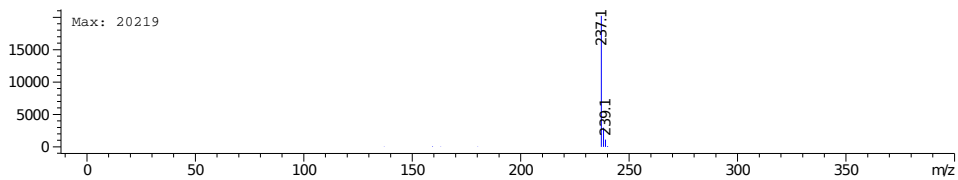
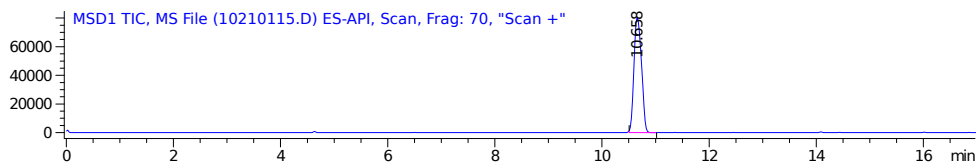
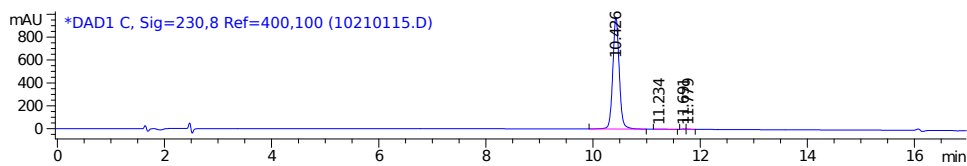
* Masses are determined using balances calibrated with NIST traceable weights. The prepared concentration is corrected for residual solvents, chromatographic purity, and the salt counterion mass, and is expressed as the free base concentration.

** 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
Date: 02-03-2012

Spectral and Physical Data

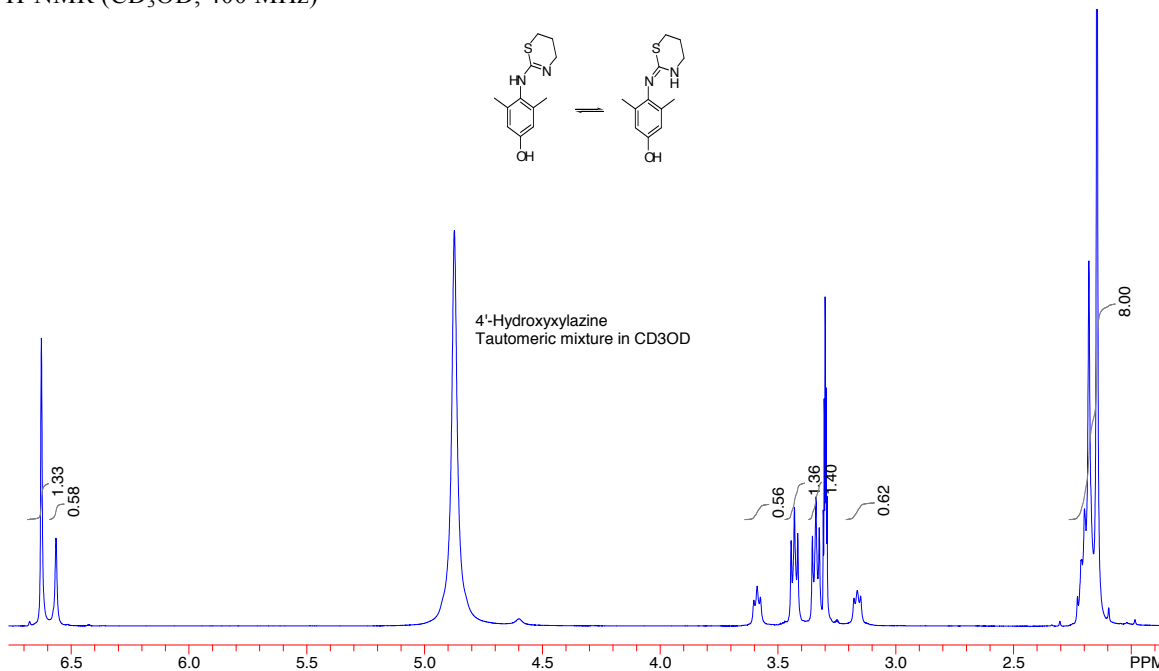
LC/UV and MS Data



Signal 3: DAD1 C, Sig=230,8 Ref=400,100

Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	10.426	BB	0.1281	8203.15039	975.65204	99.3772
2	11.234	BB	0.1780	20.35409	1.56274	0.2466
3	11.691	BV	0.0703	15.78539	3.38858	0.1912
4	11.779	VB	0.0723	15.27002	3.16603	0.1850
Totals :				8254.55989	983.76939	

¹H-NMR (CD₃OD, 400 MHz)



¹³C-NMR (CD₃OD, 100 MHz) Conforms to Structure.