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CERTIFICATE OF ANALYSIS

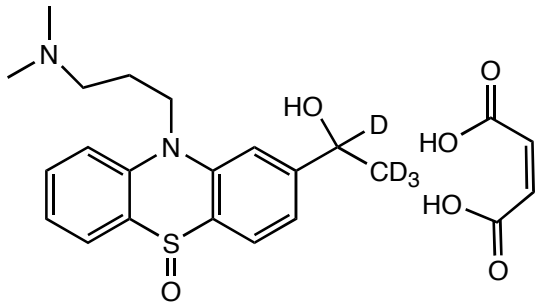
2-(1-Hydroxyethyl)promazine Sulfoxide-d_4 Maleate Salt
HEPS-d_4 Maleate (Mixture of Diastereomers)

0.1 mg/mL in Methanol

Sample Identity:	H-1002 Lot No.: 10210084

Chemical Name: 2-(1-Hydroxyethyl)promazine sulfoxide-d_4 Maleate Salt (Mixture of Diastereomers)

Solvent:	Methanol	
Volume per Ampule	1 mL	
Storage Condition:	Protect from light, 2-8 °C or freeze	
Chemical Purity:	99.3%	
Elemental Analysis	Calc. $C_{23}H_{24}D_4N_2O_6S$	C% 59.46, H+D% 6.94, N% 6.03, S% 6.90
	Found	C% 59.51, H+D% 6.89, N% 6.13, S% 6.94
Isotopic purity (Deuterium)	>99% d_4 <0.2% d_0	
Loss on Drying (TGA)	<0.1%	
Residual solvents (^{1}H-NMR)	(not detected)	
Date of Solution Analysis:	July 17, 2012	
Expiration/Re-analysis Date:	July 17, 2014	



Purity	Prepared Concentration*	Analyzed Concentration**
99.3%	0.104 mg/mL (± 0.004 mg/mL)	N/A

Concentrations are reported as the free base.
* Masses are determined using balances calibrated with NIST traceable weights Following ISO 17025 best weighing practices guidelines. 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.

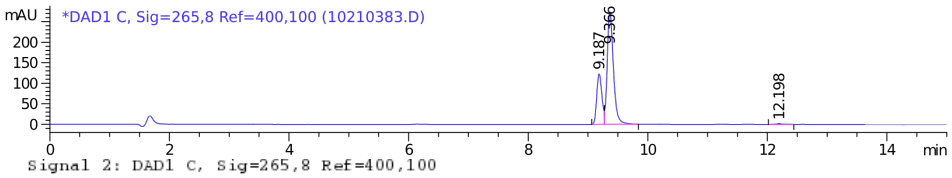
Approved: R. L. Eisenberg

Rodney L. Eisenberg, Ph.D.
Director

07-17-2012
Date

Spectral and Physical Data

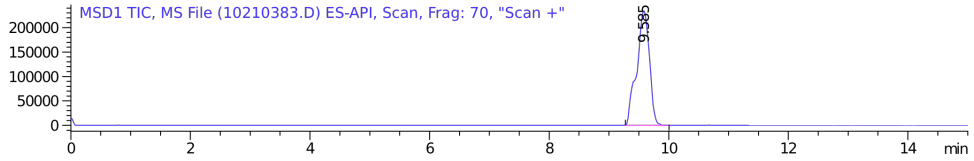
UV (265 nm, DAD)



Signal 2: DAD1 C, Sig=265,8 Ref=400,100

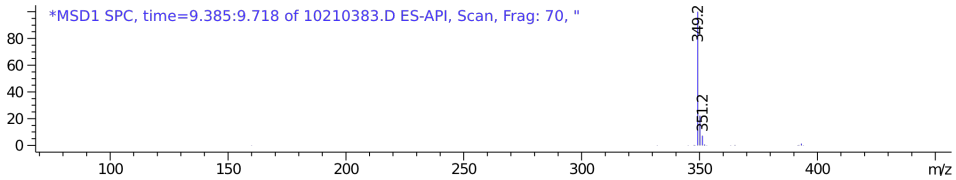
Peak #	RetTime [min]	Type	Width [min]	Area [mAU*s]	Height [mAU]	Area %
1	9.187	BV	0.0940	738.76611	123.13211	26.9715
2	9.366	VB	0.1105	1984.81995	274.07388	72.4636
3	12.198	BB	0.1166	15.47354	1.90852	0.5649
Totals :				2739.05960	399.11451	

ESI MS positive ion mode. (TIC)

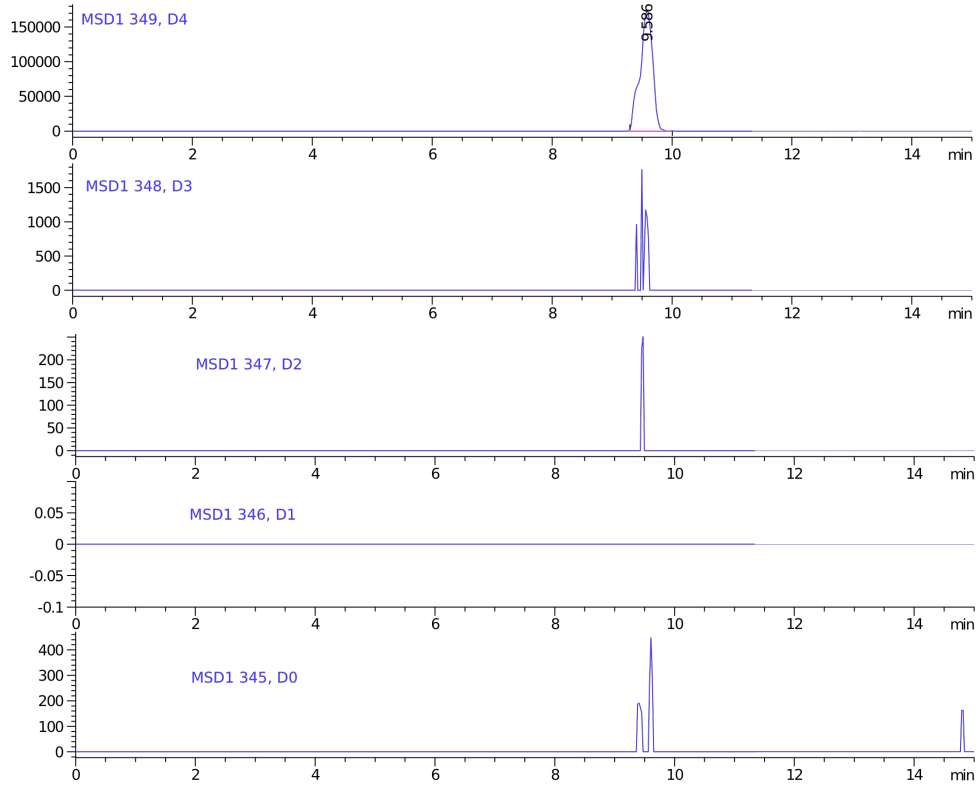


(M+1 ESI Pos Ion)

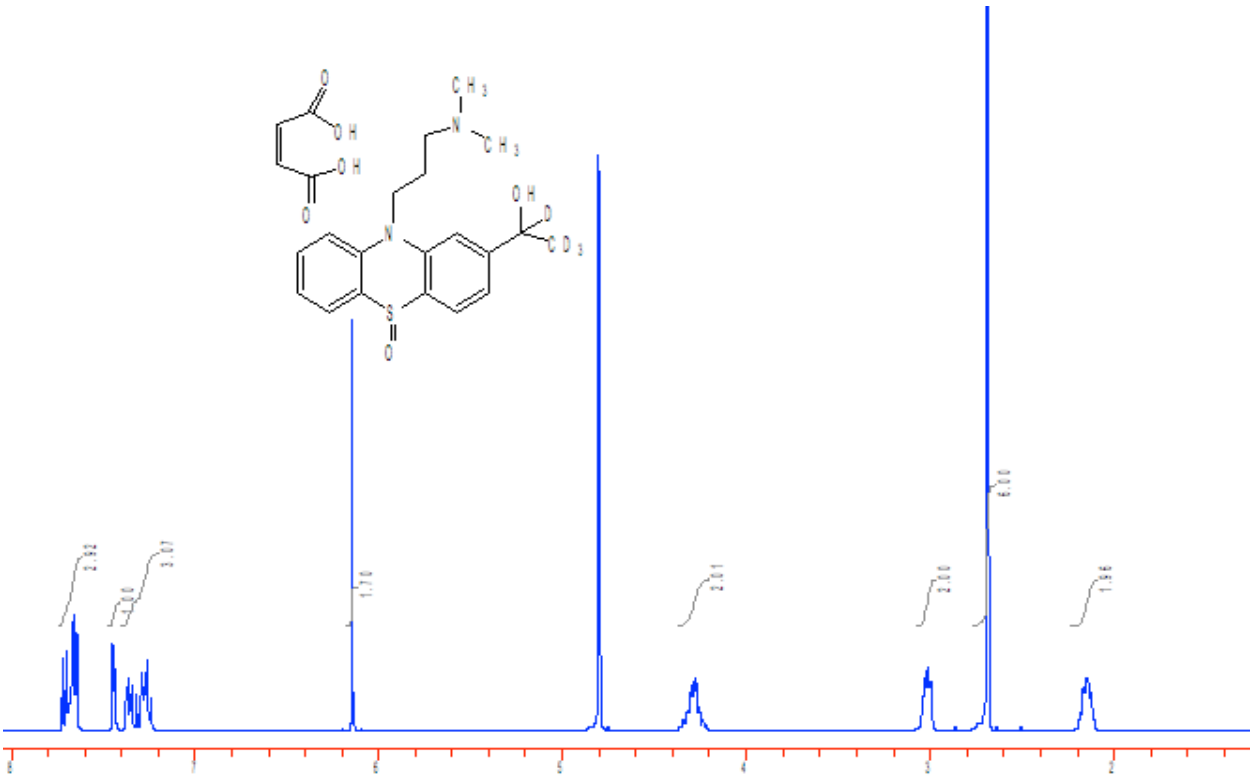
m/z	Abundance
345	170
346	36
347	0
348	82
349	98866
350	22135
351	6878



Extracted Ion Spectra



^{1}H- NMR (D_2O, 400 MHz)



Lot to lot analysis:

Lot	Concentration (mg/mL)
Lot 1004126	0.104
Lot 10210084	0.104