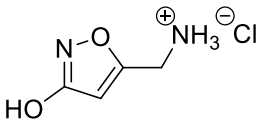
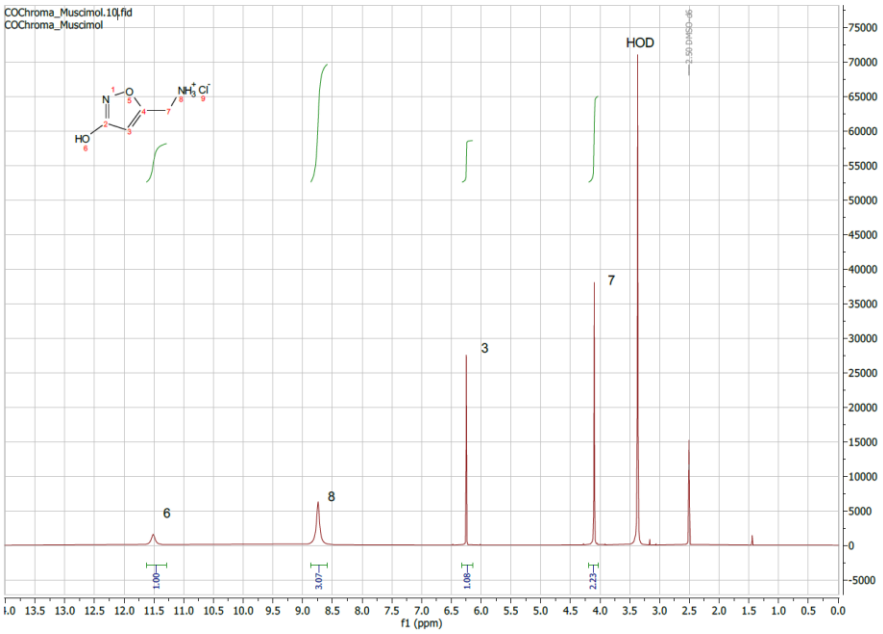
Muscimol * HCl



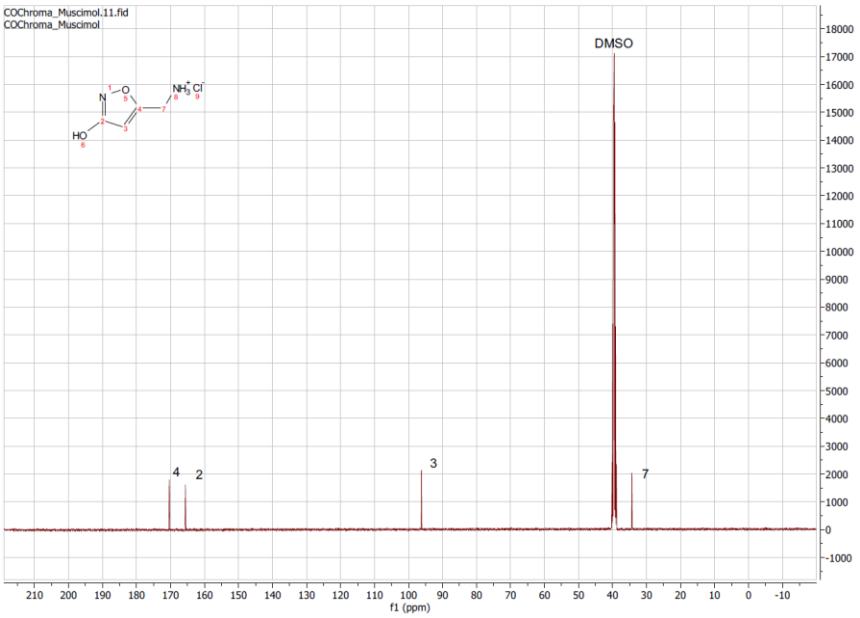
CAS # 3579-03-1

Muscimol, a psychedelic compound found in the species of mushroom named Amanita muscaria, has been widely studied as an agonist in the studies of ionotropic GABA receptors. Muscimol is a conformationally restricted analog of GABA where a hydroxyisoxazole moiety replaces a carboxyl group of GABA. Muscimol is a weak substrate for GABA uptake and is inactive in relation to GABA transaminase. Because of the effect on GABAc receptors, muscimol actions should not be interpreted solely based on its relation to GABAa receptors unless shown to be completely blocked by bicuculline and insensitive to TPMPA. [1]

1H NMR of Muscimol HCl

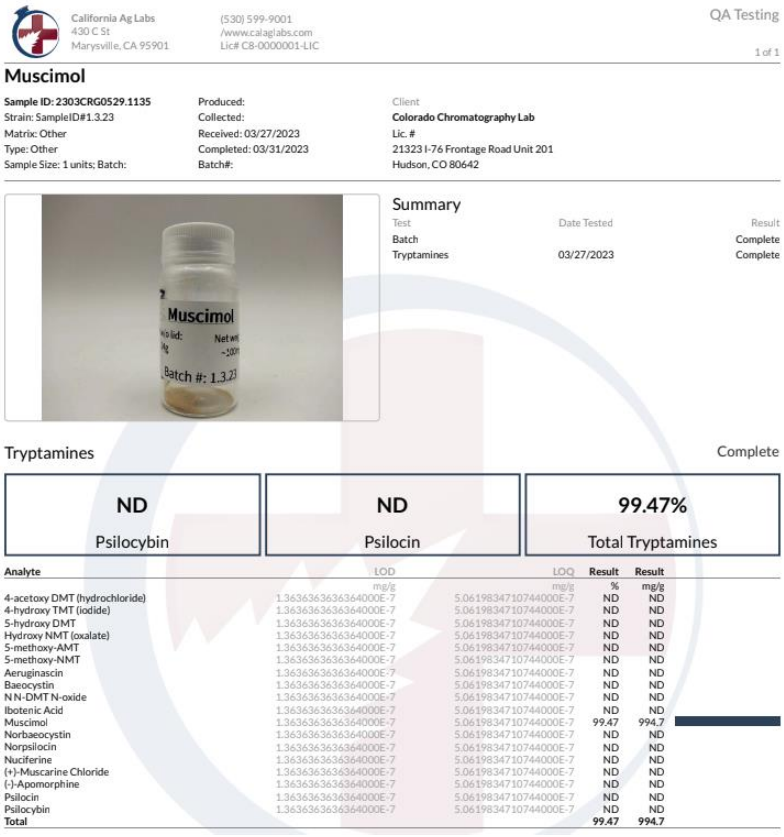


13C NMR of Muscimol HCl



Certificate of Analysis

COAs have been difficult to obtain since muscimol degrades rapidly and there are issues with testing labs being able to identify it. We have chosen California Ag Labs and Chemtos to provide us with COAs since they are able to properly identify our muscimol*HCl using HPLC, NMR, and Mass Spectrometry.



California Ag Labs
430 C St
Marysville, CA 95901

(530) 599-9001
/www.calaglabs.com
Lic# C8-0000001-LIC

QA Testing

1 of 1

Muscimol

Sample ID: 2303CRG0529.1135
Strain: SampleID#1.3.23
Matrix: Other
Type: Other
Sample Size: 1 units; Batch:

Produced:
Collected:
Received: 03/27/2023
Completed: 03/31/2023
Batch#:

Client
Colorado Chromatography Lab
Lic. #
21323 I-76 Frontage Road Unit 201
Hudson, CO 80642

Summary

Test	Date Tested	Result
Batch		Complete
Tryptamines	03/27/2023	Complete

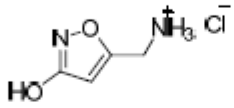
Tryptamines — Complete

ND	ND	99.47%
Psilocybin	Psilocin	Total Tryptamines

Analyte	LOD	LOQ	Result	Result
	mg/g	mg/g	%	mg/g
4-acetoxy DMT (hydrochloride)	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
4-hydroxy TMT (iodide)	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
5-hydroxy DMT	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
Hydroxy NMT (oxalate)	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
5-methoxy-AMT	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
5-methoxy-NMT	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
Aeruginascin	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
Baeocystin	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
N N-DMT N-oxide	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
Ibotenic Acid	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
Muscimol	1.3636363636364000E-7	5.0619834710744000E-7	99.47	994.7
Norbaeocystin	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
Norpsilocin	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
Nuciferine	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
(+)-Muscarine Chloride	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
(-)-Apomorphine	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
Psilocin	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
Psilocybin	1.3636363636364000E-7	5.0619834710744000E-7	ND	ND
Total			99.47	994.7

Certificate of Analysis

Issued: August 31st, 2023
Re-Test: August 31st, 2026

Compound Name	Muscimol HCl
Physical Description	White solid
Purchase Order	Muscimol1823
Client Sample ID	Muscimol1.8.23
Certificate Number	C3-175-177
Chemical Structure	
Empirical Formula	$C_4H_6N_2O_2 \cdot HCl$
Molecular Weight	114.10 as free base; 150.56 as HCl salt
Exact Mass	114.04
Mass Spectrometry	Electrospray MS(ES+): m/z 115.1 $(M+H)^+$ Data consistent to that of the title compound

HPLC Purity

The product was examined by analytical HPLC using a diode array detector. Column: Chromolith Performance C_{18} 4.6 mm X 100 mm; Flow Rate: 1 ml/min; Solvents: Water (0.1% TFA) and acetonitrile; Gradient: 0% acetonitrile over 10 min, 0% to 100% acetonitrile over 10 min, return to 100% water (0.1% TFA) over 10 minutes. The chromatogram used for purity and homogeneity assessment was the average integration of the summed absorbance between 210 nm and 230 nm. Purity was determined as the area percent of the major peak after integration of any impurities judged to be authentic by the analyst. Using this method the purity was determined at 99.9%.

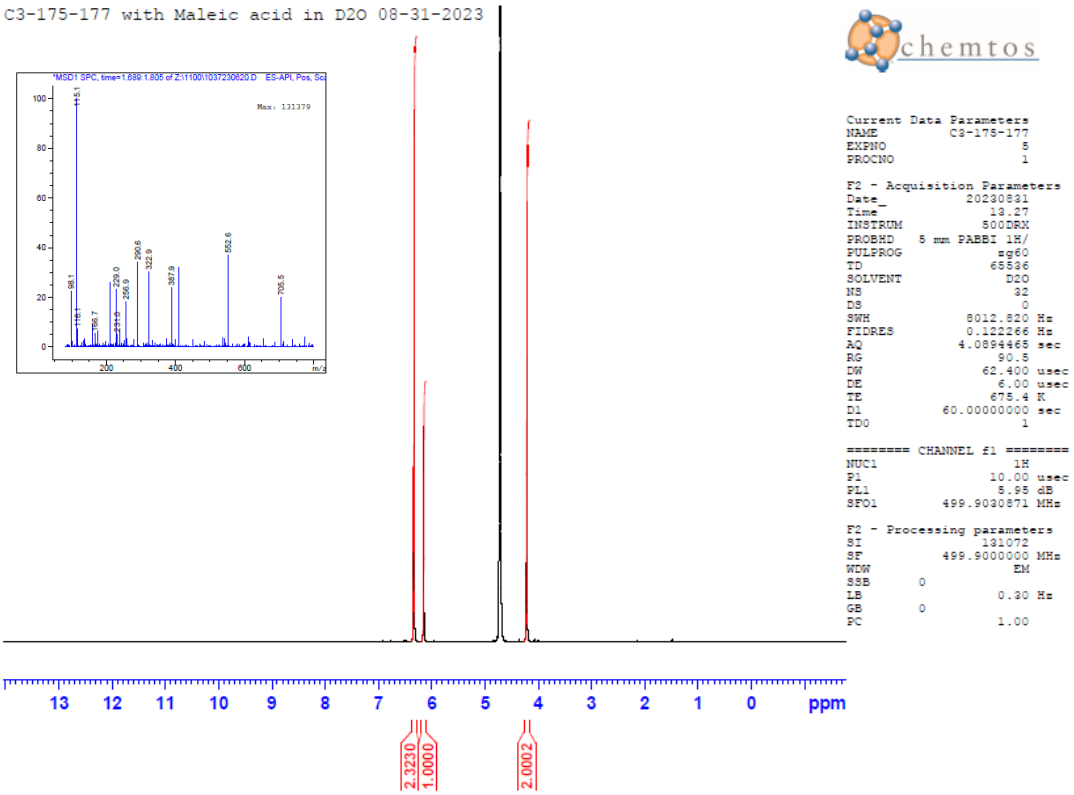
Quantitative ^{1}H NMR

Proton Nuclear magnetic resonance spectra were acquired in D_2O at 500 MHz. An internal reference standard Maleic acid was utilized to obtain a quantitative NMR potency value. A weighed quantity of Muscimol HCl and Maleic acid were dissolved in D_2O and the proton spectrum was obtained. The integration value of two proton resonances of Maleic acid at ^{1}H δ 6.3 ppm was compared to the integration value of Muscimol HCl proton resonances at ^{1}H δ 6.1 ppm and 4.2 ppm. The peaks were normalized based on calculated moles and predetermined purity value for Maleic acid. Using this method, the potency of Muscimol HCl was determined at **84.0%** (**63.7%** as it's free base). The NMR data appears to be consistent with the molecular structure expected for this compound.

Storage Conditions

Storage Conditions as per client's request:

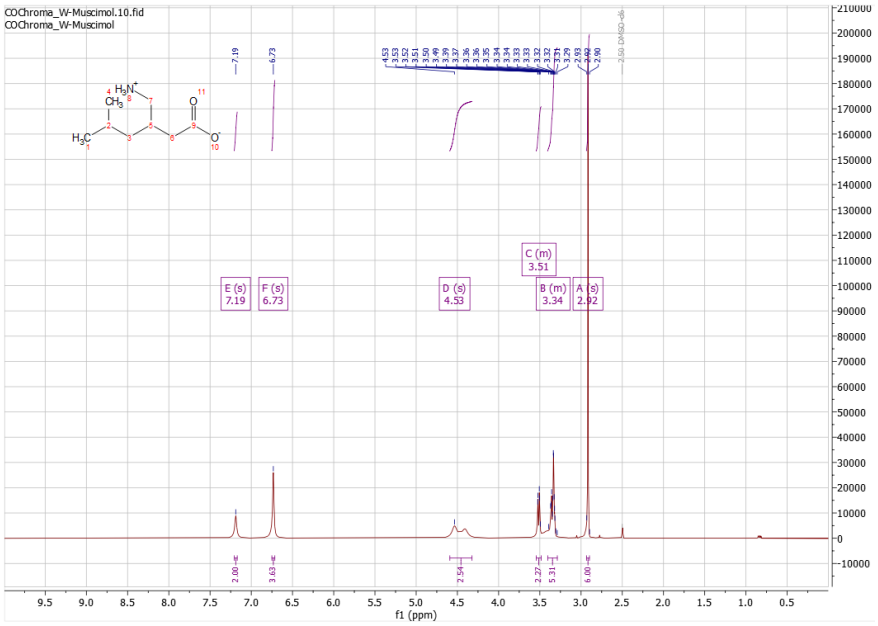
- Sample can be stored at room temperature.



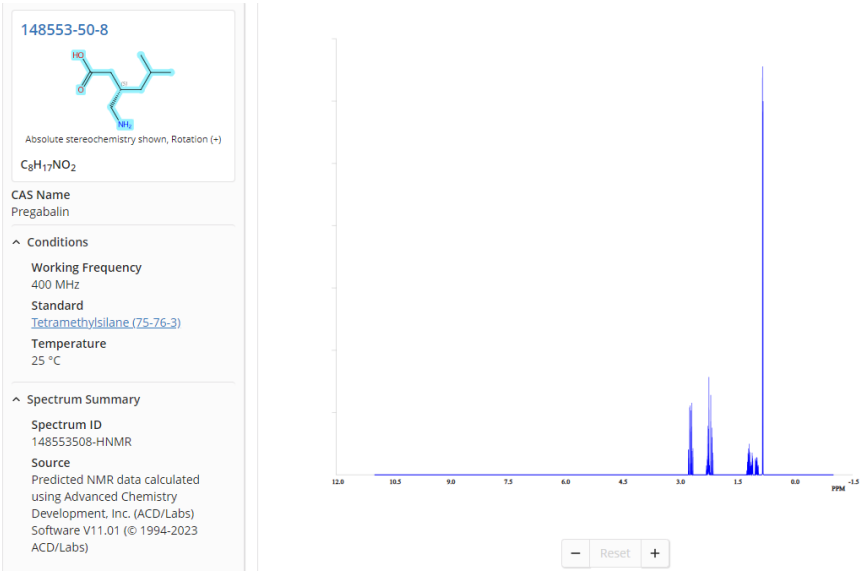
Competitors

Our biggest competitors in the muscimol isolate space have been selling what appears to be muscimol on HPLC but when NMR is used, we identified pregabalin as the isolate. The pregabalin is also a mixture of diastereomers hence why there are so many protons on the NMR spectra.

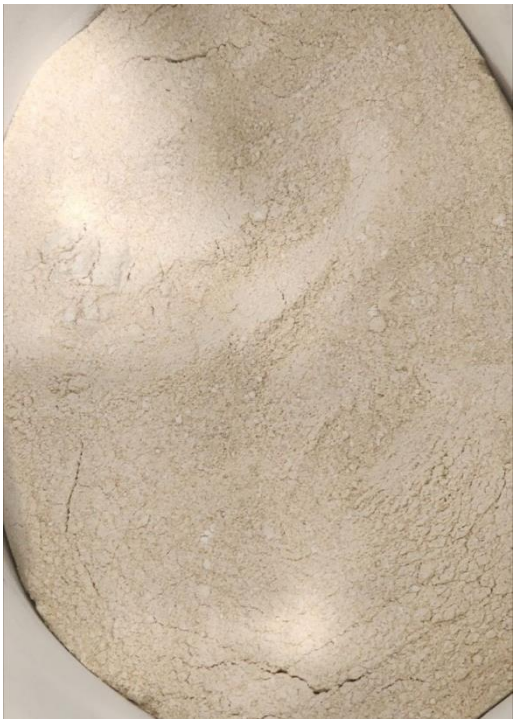
Competitor Muscimol 1H NMR



Predicted Pregabalin 1H NMR



Proof of life



Salt Explanation

There is a discussion on free base muscimol an muscimol HCl. We provide a muscimol HCl salt which is what most pharmaceuticals are stabilized as. So the COA states that its 99% muscimol HCl which is what we sent you, but then there is only 63.7% available muscimol.

References

[1] Okhovat, A., Cruces, W., Docampo-Palacios, M. L., Ray, K. P., Ramirez, G. A., Psychoactive Isoxazoles, Muscimol, and Isoxazole Derivatives from the Amanita (Agaricomycetes) Species: Review of New Trends in Synthesis, Dosage, and Biological Properties, *Int. J. Med. Mushrooms,* **2023,** 25(9) 1-10, https://doi.org/10.1615/IntJMedMushrooms.2023049458