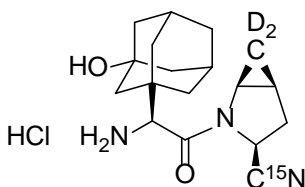


Certificate of Analysis

Issued: June 21st, 2017

Re-Test: June 21st, 2020

Compound Name	Labeled ¹⁵ N, ₂ -Saxagliptin Hydrochloride
Potency	873 µg of labeled ¹⁵ N, ₂ -Saxagliptin per mg
Physical Description	White Solid
Chemtos Lot Number	C5-121-181
Certificate Number	C3-146-017
Chemical Structure	



Empirical Formula	C ₁₈ H ₂₃ D ₂ N ₂ ¹⁵ NO ₂ • HCl
Molecular Weight	318.42 as the freebase; 354.88 as the hydrochloride salt
Exact Mass	318.20
Mass Spectrometry	Electrospray MS(ES+): m/z 319.1 (M+H) ⁺ Data consistent to that of the title compound
Isotopic Purity	The following table gives the normalized isotopic mass distribution, including the naturally occurring higher isotopic masses.

Abundance	m/z	Abundance	m/z
Undetected	316.1 (Unlabeled)	21.0	320.2 (+4)
Undetected	317.1 (+1)	2.2	321.1 (+5)
Undetected	318.1 (+2)	0.2	322.2 (+6)
100.0	319.1 (+3)		

HPLC Purity

The product was examined by analytical HPLC using a diode array detector. Column: Chromolith Performance C₁₈ 4.6 mm X 100 mm; Flow Rate: 1 ml/min; Solvents: Water (0.1% TFA) and acetonitrile; Gradient: 5% to 100% acetonitrile over 20 min, return to 95% water over 10 minutes.

The chromatogram used for purity and homogeneity assessment was 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 **97.3%**. HPLC analysis on January 26th, 2016 using a similar method determined the purity at **97.7%**.

¹H NMR

Proton magnetic resonance spectra were run in DMSO-d₆ at 300 MHz. The NMR data is consistent with the structure.

Storage Conditions

Individual variation in chemical stability profiles, do occur and for this reason we recommend adherence to the minimum recommended storage conditions. Because most compounds are custom made and shipped upon completion long-term stability data is not available in most cases. If data is available, a specific recommendation will be provided below. Chemtos cannot provide a guarantee of the long-term chemical stability of any compound.

Minimum Recommended Storage Conditions:

- Samples should be stored in an air tight vial
- Samples should be stored at ≤ -20° Celsius when not in use for a prolonged period of time.
- Samples should be stored in the dark or in an amber vial.

Caution

This information is provided as an indication of the quality of the underlying material when examined by a specific technique. The reported values are subject to normal experimental error and should be treated as estimates. The absence of undetected impurities cannot be guaranteed by this or any other general approach and this certificate does not certify the absence of such substances in the sample.

Intended Use

This product is intended for investigational use only and should not be used in humans. It is pharmaceutically unrefined, may contain uncharacterized toxic impurities, and is not intended for use in humans. Responsibility for its use and compliance with all federal laws rests solely with the purchaser.

Preparer		
Analytical Review and Approval		
QA Review		