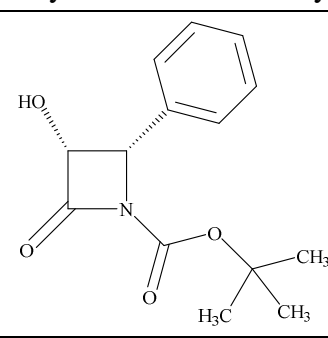


# Certificate of Analysis

Certificate No.: 20200312013

Date: March 12, 2020

Retest date: March 10, 2023

<b>Compound Name:</b>	<b>Cephalomannine Impurity 8</b>	
<b>Synonyms:</b>	<i>tert</i> -butyl (3R,4S)-3-hydroxy-2-oxo-4-phenylazetidine-1-carboxylate	
<b>TLC Catalogue Number:</b>	C-119018	
<b>CAS Number:</b>	155874-22-9	
<b>Molecular Weight:</b>	263.29	
<b>Molecular Formula:</b>	C <sub>14</sub> H <sub>17</sub> NO <sub>4</sub>	
<b>Source:</b>	TLC Pharmaceutical Standards	
<b>Source Lot No.:</b>	3773-056A3	
<b>Storage Conditions:</b>	Store at 2-8 °C	
<b>Solubility:</b>	Methanol, DMSO, Acetonitrile	

Test Description	Specifications	Results
<b>Visual Description</b>	White to off-white solid	<b>Conforms</b>
<b>Identification</b>		
IR	Conforms to structure	<b>Conforms</b>
MS	Conforms to structure	<b>Conforms</b>
<sup>1</sup> H NMR	Conforms to structure	<b>Conforms</b>
<b>Purity (HPLC)</b>	Not less than 95.0%	<b>99.4%</b>
<b>Impurity (HPLC)</b>	RT 12.78, 0.21%; RT 21.68, 0.35%	
<b>Water Content (KF)</b>	N/A	<b>0.3%</b>
<b>Optical Rotation</b>	N/A	[α] <sub>D</sub> <sup>25.0</sup> (c=0.65, CH <sub>3</sub> OH): <b>+176.7°</b>
<b>Residual Solvents (NMR)</b>	0.3% ethyl acetate	
<b>Assay (%)</b>	Not less than 90.0%	<b>98.8%</b>
<b>Recommendation:</b>	<b>Released.</b>	

Name	Department	Signature	Date
Reviewed and approved by:	Analytical Services		
Approved by:	Quality Assurance		

**Attachments:** HPLC, IR, MS and NMR spectra.