

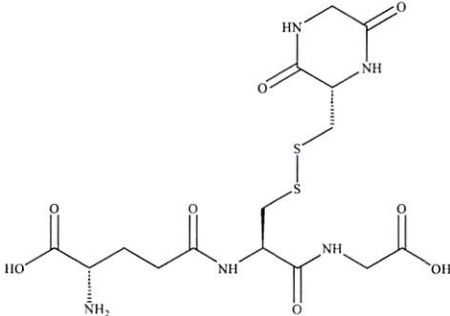
## Certificate of Analysis

Certificate No.: **20260615004**

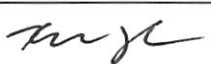

Date: June 15, 2026

Retest date: June 10, 2029

<b>Compound Name:</b> Glutathione Impurity 15	
<b>Synonyms:</b>	<i>N</i> <sup>5</sup> -((R)-1-((carboxymethyl)amino)-3-(((S)-3,6-dioxopiperazin-2-yl)methyl)disulfanyl)-1-oxopropan-2-yl)-L-glutamine
<b>TLC Catalogue Number:</b>	PG-2542
<b>CAS Number:</b>	N/A
<b>Alternate CAS Number:</b>	N/A
<b>Molecular Weight:</b>	465.50
<b>Molecular Formula:</b>	C <sub>15</sub> H <sub>23</sub> N <sub>5</sub> O <sub>8</sub> S <sub>2</sub>
<b>Source:</b>	TLC Pharmaceutical Standards
<b>Source Lot No.:</b>	7435-063A3
<b>Storage Conditions:</b>	Store at 2-8 °C
<b>Solubility:</b>	DMSO, Water



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>98.1%</b>
<b>Impurity (HPLC)</b>	RT 6.43, 0.15%; RT 7.21, 0.58%; RT 18.79, 1.14%	
<b>Water Content (KF)</b>	N/A	<b>5.8%</b>
<b>Optical Rotation</b>	N/A	$[\alpha]_D^{25.0}(c=0.65, H_2O): -50.7^\circ$
<b>Residual Solvents (NMR)</b>	0.1% acetonitrile	
<b>Assay (%)</b>	Not less than 90.0%	<b>92.3%</b>
<b>Recommendation:</b>	<b>Release.</b>	

Name	Department	Signature	Date
Reviewed and approved by:	Quality Control		06/15/2026
Approved by:	Quality Assurance		06/15/2026

**Attachments:** Peak Attribution Table, Assay Calculation, HPLC, IR, MS and NMR spectra.