

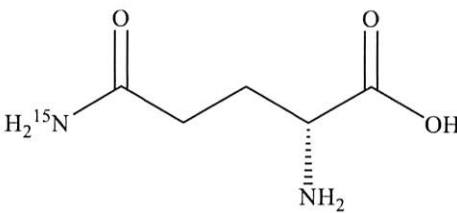
Certificate of Analysis

Certificate No.: **20260609018**



Date: June 9, 2026

Retest date: June 3, 2029

Compound Name: D-Glutamine- ¹⁵ N (Amide- ¹⁵ N)	
Synonyms:	D-glutamine-N- ¹⁵ N
TLC Catalogue Number:	G-3074
CAS Number:	1202063-60-2
Alternate CAS Number:	5959-95-5 (non-labelled)
Molecular Weight:	147.14
Molecular Formula:	C ₅ H ₁₀ N ¹⁵ NO ₃
Source:	TLC Pharmaceutical Standards
Source Lot No.:	7337-080A2
Storage Conditions:	Store at 2-8 °C
Solubility:	DMSO, Water



Test Description	Specifications	Results
Visual Description	Off-white solid	Conforms
Identification		
IR	Conforms to structure	Conforms
MS	Conforms to structure	Conforms
¹ H NMR	Conforms to structure	Conforms
Purity (HPLC)	Not less than 95.0%	99.9%
Impurity (HPLC)	N/A	
Isotopic Enrichment	Not less than 98.0%	99.7%
Optical Rotation	[α] _D ^{25.0} (c=2.00, H ₂ O): -6.9°	[α] _D ^{25.0} (c=0.68, H ₂ O): -5.3°
Residual Solvents (NMR)	No residual solvent	
Assay (qNMR)	Not less than 90.0%	95.9%
Recommendation:	Release.	

Name	Department	Signature	Date
Reviewed and approved by:	Quality Control		06/09/2026
Approved by:	Quality Assurance		06/09/2026

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