

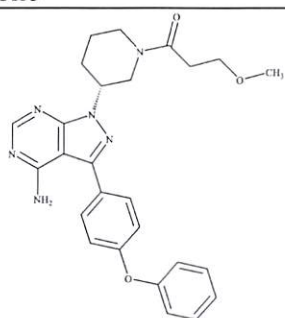
Certificate of Analysis

Certificate No.: **20230317010**

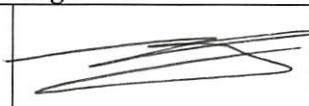

Date: March 17, 2023

Retest date: March 13, 2026

Compound Name: Ibrutinib Impurity 15	
Synonyms:	(R)-1-(3-(4-amino-3-(4-phenoxyphenyl)-1H-pyrazolo[3,4-d]pyrimidin-1-yl)piperidin-1-yl)-3-methoxypropan-1-one
TLC Catalogue Number:	I-061020
CAS Number:	2031255-26-0
Molecular Weight:	472.55
Molecular Formula:	C ₂₆ H ₂₈ N ₆ O ₃
Source:	TLC Pharmaceutical Standards
Source Lot No.:	5464-085A7
Storage Conditions:	Store at 2-8 °C
Solubility:	Methanol, Ethanol



Test Description	Specifications	Results
Visual Description	White to off-white solid	Conforms
Identification		
IR	Conforms to structure	Conforms
MS	Conforms to structure	Conforms
¹H NMR	Conforms to structure	Conforms
Purity (HPLC)	Not less than 95.0%	100.0%
Impurity (HPLC)	N/A	
Optical Rotation	N/A	$[\alpha]_D^{25.0}(c=0.45, \text{ethanol}): -101.6^\circ$
Residual Solvents (NMR)	0.6% acetonitrile	
Assay (qNMR)	Not less than 90.0%	96.9%
Recommendation:	Release.	

Name	Department	Signature	Date
Reviewed and approved by:	Quality Control		03 / 21 / 2023
Approved by:	Quality Assurance		03 / 21 / 2023

Attachments: HPLC, IR, MS and NMR spectra.