

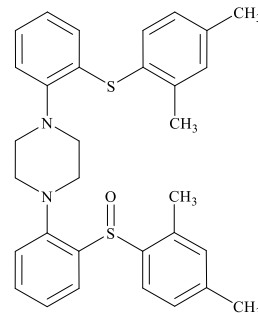
# Certificate of Analysis

Certificate No.: 20211223020

Date: December 23, 2021

Retest date: December 3, 2024

<b>Compound Name:</b> Vortioxetine Impurity 64	
<b>Synonyms:</b>	1-(2-((2,4-dimethylphenyl)sulfinyl)phenyl)-4-(2-((2,4-dimethylphenyl)thio)phenyl)piperazine
<b>TLC Catalogue Number:</b>	V-043074
<b>CAS Number:</b>	N/A
<b>Molecular Weight:</b>	526.76
<b>Molecular Formula:</b>	C <sub>32</sub> H <sub>34</sub> N <sub>2</sub> OS <sub>2</sub>
<b>Source:</b>	TLC Pharmaceutical Standards
<b>Source Lot No.:</b>	4779-045A8
<b>Storage Conditions:</b>	Store at 2-8 °C
<b>Solubility:</b>	THF



Test Description	Specifications	Results
<b>Visual Description</b>	Off-white solid	<b>Conforms</b>
<b>Identification</b>		
<b>IR</b>	Conforms to structure	<b>Conforms</b>
<b>MS</b>	Conforms to structure	<b>Conforms</b>
<b><sup>1</sup>H NMR</b>	Conforms to structure	<b>Conforms</b>
<b>Purity (HPLC)</b>	Not less than 95.0%	<b>97.8%</b>
<b>Impurity (HPLC)</b>	RT 2.46, 0.35%; RT 15.12, 1.74%	
<b>Water Content (KF)</b>	N/A	<b>0.1%</b>
<b>Residual Solvents (NMR)</b>	0.3% methanol and 0.3% dichloromethane	
<b>Assay (%)</b>	Not less than 90.0%	<b>97.1%</b>
<b>Recommendation:</b>	<b>Release.</b> The compound contains 0.4% Vortioxetine (RT 2.46, TLC No. V-043001) and 1.7% Vortioxetine Impurity 84 (RT 15.12, TLC No. V-043095) according to its HPLC and LC-MS.	

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

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