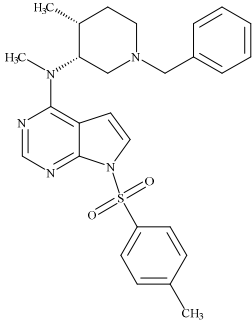


# Certificate of Analysis

 Certificate No.: **20200316031**

Date: March 16, 2020

Retest date: March 4, 2023

<b>Compound Name:</b>	<b>Tofacitinib Impurity 39</b>	
<b>Synonyms:</b>	<i>N</i> -((3 <i>R</i> ,4 <i>R</i> )-1-benzyl-4-methylpiperidin-3-yl)- <i>N</i> -methyl-7-tosyl-7 <i>H</i> -pyrrolo[2,3- <i>d</i> ]pyrimidin-4-amine	
<b>TLC Catalogue Number:</b>	T-117032	
<b>CAS Number:</b>	923036-30-0	
<b>Molecular Weight:</b>	489.64	
<b>Molecular Formula:</b>	C <sub>27</sub> H <sub>31</sub> N <sub>5</sub> O <sub>2</sub> S	
<b>Source:</b>	TLC Pharmaceutical Standards	
<b>Source Lot No.:</b>	3779-037A5	
<b>Storage Conditions:</b>	Store at 2-8 °C	
<b>Solubility:</b>	DMSO	

Test Description	Specifications	Results
<b>Visual Description</b>	White to 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>99.0%</b>
<b>Impurity (HPLC)</b>	RT 1.30, 0.23%; RT 1.38, 0.25%; RT 11.92, 0.17%	
<b>Purity (Chiral HPLC)</b>	Not less than 98.0%	<b>100.0%</b>
<b>Water Content (KF)</b>	N/A	<b>0.2%</b>
<b>Optical Rotation</b>	[α] <sub>D</sub> <sup>28.0</sup> (c=1.00, CHCl <sub>3</sub> ): +19.3°	[α] <sub>D</sub> <sup>25.0</sup> (c=0.48, CHCl <sub>3</sub> ): <b>+21.2°</b>
<b>Residual Solvents (NMR)</b>	1.0% ethyl acetate	
<b>Assay (%)</b>	Not less than 90.0%	<b>97.8%</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.