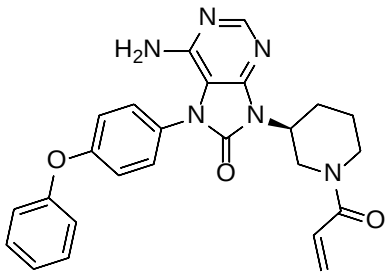
Product data sheet

MedKoo Cat#: 205914 Name: ONO4059-Analog CAS: 1351635-67-0 (ONO-4059-analog) Chemical Formula: $C_{25}H_{24}N_6O_3$ Exact Mass: 456.1910 Molecular Weight: 456.506	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
ONO4059-Analog, CAS#1351635-67-0, is a potent and selective BTK inhibitor, and is a structural analogue of ONO-4059. ONO4059 is currently under clinical trials. Note: ONO4059 HCl has CAS#1439901-97-9; ONO4059 free base has CAS#1351636-18-4.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	25.0	54.76
DMF:PBS (pH 7.2) (1:1)	0.5	1.10
DMSO	35.0	76.67

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.19 mL	10.95 mL	21.91 mL
5 mM	0.44 mL	2.19 mL	4.38 mL
10 mM	0.22 mL	1.10 mL	2.19 mL
50 mM	0.04 mL	0.22 mL	0.44 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Kozaki R, Yasuhiro T, Kato H, Murai J, Hotta S, Ariza Y, Sakai S, Fujikawa R, Yoshida T. Investigation of the anti-tumor mechanism of tirabrutinib, a highly selective Bruton's tyrosine kinase inhibitor, by phosphoproteomics and transcriptomics. PLoS One. 2023 Mar 10;18(3):e0282166. doi: 10.1371/journal.pone.0282166. PMID: 36897912; PMCID: PMC10004634.
2. Das S, Bar-Sagi D. BTK signaling drives CD1dhiCD5+ regulatory B-cell differentiation to promote pancreatic carcinogenesis. Oncogene. 2019 Apr;38(17):3316-3324. doi: 10.1038/s41388-018-0668-3. Epub 2019 Jan 11. PMID: 30635655; PMCID: PMC6486434.

In vivo study

1. Kozaki R, Yasuhiro T, Kato H, Murai J, Hotta S, Ariza Y, Sakai S, Fujikawa R, Yoshida T. Investigation of the anti-tumor mechanism of tirabrutinib, a highly selective Bruton's tyrosine kinase inhibitor, by phosphoproteomics and transcriptomics. PLoS One. 2023 Mar 10;18(3):e0282166. doi: 10.1371/journal.pone.0282166. PMID: 36897912; PMCID: PMC10004634.
2. Ariza Y, Murata M, Ueda Y, Yoshizawa T. Bruton's tyrosine kinase (Btk) inhibitor tirabrutinib suppresses osteoclastic bone resorption. Bone Rep. 2019 Mar 15;10:100201. doi: 10.1016/j.bonr.2019.100201. PMID: 30956999; PMCID: PMC6431727.

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7. Bioactivity

Biological target:

ONO-4059 analog is the analog of ONO-4059, ONO-4059 is a highly potent and selective Btk inhibitor.

In vitro activity

In vitro kinase assays showed that, compared with ibrutinib, tirabrutinib and other second-generation BTK inhibitors demonstrated a highly selective kinase profile. Data from in vitro cellular systems showed that tirabrutinib selectively affected B-cells. Tirabrutinib inhibited the cell growth of both TMD8 and U-2932 cells in correlation with the inhibition of BTK autophosphorylation.

Reference: PLoS One. 2023 Mar 10;18(3):e0282166. https://pubmed.ncbi.nlm.nih.gov/36897912/

In vivo activity

The RANKL model studies show that tirabrutinib significantly suppressed bone loss with the inhibition of serum TRAPCP5b and urinary CTX-1. Bone Mineral Density (BMD) loss in tirabrutinib-treated mice was 55% ($P < .05$), 87% ($P < .001$) and 88% ($P < .001$) for the 3, 10 and 30 mg/kg dose groups respectively. Btk and Tec are required for osteoclast differentiation and activation based on the genetic evidence obtained from Btk and Tec double deficient mice. Tirabrutinib may be a novel therapeutic target for bone diseases, such as osteoporosis and RA.

Reference: Bone Rep. 2019 Mar 15;10:100201. https://pubmed.ncbi.nlm.nih.gov/30956999/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.