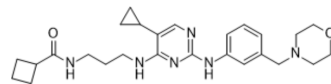


## MRT67307

Cat. No.:	HY-13018		
CAS No.:	1190378-57-4		
Molecular Formula:	C <sub>26</sub> H <sub>36</sub> N <sub>6</sub> O <sub>2</sub>		
Molecular Weight:	464.6		
Target:	IKK; ULK; Autophagy		
Pathway:	NF-κB; Autophagy		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 100 mg/mL (215.24 mM)  
 \* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	2.1524 mL	10.7619 mL	21.5239 mL
	5 mM	0.4305 mL	2.1524 mL	4.3048 mL
	10 mM	0.2152 mL	1.0762 mL	2.1524 mL

Please refer to the solubility information to select the appropriate solvent.

#### In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
 Solubility: ≥ 2.5 mg/mL (5.38 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
 Solubility: ≥ 2.5 mg/mL (5.38 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

MRT67307 is a dual inhibitor of the IKKε and TBK-1 with IC<sub>50</sub>s of 160 and 19 nM, respectively<sup>[1]</sup>. MRT67307 also inhibits ULK1 and ULK2 with IC<sub>50</sub>s of 45 and 38 nM, respectively. MRT67307 also blocks autophagy in cells<sup>[2]</sup>.

#### IC<sub>50</sub> & Target

TBK1 19 nM (IC <sub>50</sub> , at 0.1 mM ATP)	IKKε 160 nM (IC <sub>50</sub> , at 0.1 mM ATP)	ULK2 38 nM (IC <sub>50</sub> )	ULK1 45 nM (IC <sub>50</sub> )
Autophagy			

## In Vitro

MRT67307 inhibits IKK and TBK1 with IC<sub>50</sub> values of 160 and 19 nM when assayed at 0.1 mM ATP in vitro, but did not inhibit IKK $\alpha$  or IKK $\beta$  even at 10  $\mu$ M<sup>[1]</sup>.

MRT67307 (2  $\mu$ M) prevents the phosphorylation of IRF3 in bone-marrow-derived macrophages (BMDMs). MRT67307 (2  $\mu$ M) dose not suppress the activation of JNK or p38 MAPK by poly(I:C)<sup>[1]</sup>.

MRT67307 (1 nM-10  $\mu$ M) prevents the production of IFN $\beta$  in macrophages<sup>[1]</sup>.

MRT67307 (10  $\mu$ M) is sufficient to reduce phospho-ATG13 to control levels<sup>[2]</sup>.

MRT67307 (10  $\mu$ M) blocks autophagy in mouse embryonic fibroblasts (MEFs)<sup>[2]</sup>.

MRT67307 (5  $\mu$ M; 4 h) abrogates TBK1/IKK $\epsilon$ -induced CYLD phosphorylation in 293T cells<sup>[3]</sup>.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis<sup>[3]</sup>

Cell Line:	293T cells
Concentration:	5 $\mu$ M
Incubation Time:	4 hours
Result:	Abrogated TBK1/IKK $\epsilon$ -induced CYLD phosphorylation.

## CUSTOMER VALIDATION

- Nat Med. 2018 Aug;24(8):1143-1150.
- Nature. 2023 Mar;615(7950):158-167.
- Cell Res. 2019 Mar;29(3):193-205.
- Nat Commun. 2023 Sep 18;14(1):5666.
- Nat Commun. 2015 Jan 21;6:6074.

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## REFERENCES

[1]. Clark K, et al. Novel cross-talk within the IKK family controls innate immunity. Biochem J. 2011 Feb 15;434(1):93-104.

[2]. Petherick KJ, et al. Pharmacological inhibition of ULK1 kinase blocks mammalian target of rapamycin (mTOR)-dependent autophagy. J Biol Chem. 2015 May 1;290(18):11376-83.

[3]. Zhu Z, et al. Inhibition of KRAS-driven tumorigenicity by interruption of an autocrine cytokine circuit. Cancer Discov. 2014 Apr;4(4):452-65.

**Caution: Product has not been fully validated for medical applications. For research use only.**

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA