MRT67307 hydrochloride

Cat. No.: HY-13018A

CAS No.: 2095432-39-4

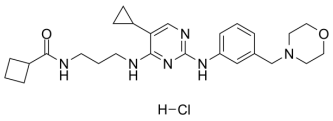
Molecular Formula: $C_{26}H_{37}ClN_6O_2$

Molecular Weight: 501.06

Target: IKK; ULK; Autophagy

Pathway: NF-κB; Autophagy

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

MRT67307 hydrochloride is a dual inhibitor of the IKKε and TBK-1 with IC_{50}s of 160 and 19 nM, respectively[1]. MRT67307 hydrochloride also inhibits ULK1 and ULK2 with IC_{50}s of 45 and 38 nM, respectively. MRT67307 hydrochloride also blocks autophagy in cells[2].

IC_{50} & Target

TBK1	IKKε	ULK2	ULK1
19 nM (IC_{50}, at 0.1 mM ATP)	160 nM (IC_{50}, at 0.1 mM ATP)	38 nM (IC_{50})	45 nM (IC_{50})

Autophagy

In Vitro

MRT67307 inhibits IKKⅧ and TBK1 with IC_{50} values of 160 and 19 nM when assayed at 0.1 mM ATP in vitro, but did not inhibit IKKα or IKKβ even at 10 μM[1].

MRT67307 (2 μM) prevents the phosphorylation of IRF3 in bone-marrow-derived macrophages (BMDMs). MRT67307 (2 μM) dose not suppresse the activation of JNK or p38 MAPK by poly(I:C)[1].

MRT67307 (1 nM-10 μM) prevents the production of IFNβ in macrophages[1].

MRT67307 (10 μM) is sufficient to reduce phospho-ATG13 to control levels[2].

MRT67307 (10 μM) blocks autophagy in mouse embryonic fibroblasts (MEFs)[2].

MRT67307 (5 μM; 4 h) abrogates TBK1/IKKε-induced CYLD phosphorylation in 293T cells[3].

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

Western Blot Analysis[3]

Cell Line:	293T cells
Concentration:	5 μM
Incubation Time:	4 hours
Result:	Abrogated TBK1/IKKε-induced CYLD phosphorylation.

CUSTOMER VALIDATION

- Nat Med. 2018 Aug;24(8):1143-1150.
- Cell Res. 2019 Mar;29(3):193-205.
- Mol Cell. 2020 Dec 3;80(5):810-827.e7.
- Nat Commun. 2015 Jan 21;6:6074.
- Theranostics. 2018 Sep 9;8(17):4633-4648.

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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. 26.37Cancer Discov. 2014 Apr;4(4):452-65.

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