

Product data sheet



MedKoo Cat#: 406458 Name: NMS-873 CAS#: 1418013-75-8 Chemical Formula: C ₂₇ H ₂₈ N ₄ O ₃ S ₂ Exact Mass: 520.16028 Molecular Weight: 520.67	
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:

NMS-873 is a potent, allosteric and specific VCP inhibitor (also known as p97 inhibitor) with IC₅₀ of 30 nM. NMS-873 activated the unfolded protein response, interfered with autophagy and induced cancer cell death. The consistent pattern of cancer cell killing by covalent and allosteric inhibitors provided critical validation of VCP as a cancer target.

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
DMSO	20.0	38.4

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.92 mL	9.60 mL	19.21 mL
5 mM	0.38 mL	1.92 mL	3.84 mL
10 mM	0.19 mL	0.96 mL	1.92 mL
50 mM	0.04 mL	0.19 mL	0.38 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

- Zhang J, Hu Y, Hau R, Musharrafieh R, Ma C, Zhou X, Chen Y, Wang J. Identification of NMS-873, an allosteric and specific p97 inhibitor, as a broad antiviral against both influenza A and B viruses. *Eur J Pharm Sci.* 2019 May 15;133:86-94. doi: 10.1016/j.ejps.2019.03.020. Epub 2019 Mar 28. PMID: 30930289; PMCID: PMC6482079.
- Bouwer MF, Hamilton KE, Jonker PB, Kuiper SR, Louters LL, Looyenga BD. NMS-873 functions as a dual inhibitor of mitochondrial oxidative phosphorylation. *Biochimie.* 2021 Jun;185:33-42. doi: 10.1016/j.biochi.2021.03.004. Epub 2021 Mar 13. PMID: 33727138; PMCID: PMC8119374.

In vivo study

TBD

7. Bioactivity

Biological target:

NMS-873 is a potent, selective allosteric VCP/p97 inhibitor with an IC₅₀ value of 30 nM.

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In vitro activity

As NMS-873 is a host-targeting antiviral, it is important to rule out the possibility that the antiviral activity of NMS-873 might be cell-type dependent. For this, the antiviral activity of NMS-873 was tested in two human lung epithelial cell lines, A549 and BEAS-2B, as well as in human lung epithelial primary cells (Fig. 3). When A549 cells were infected with A/WSN/33 (H1N1) virus at a MOI of 0.01, NMS-873 significantly inhibited the viral replication at both 12 h p.i. and 24 h p.i. in a dose-dependent manner (Fig. 3D). The viral titer was significantly reduced 1.3–1.4 and 2.2–3.1 log₁₀ units by 2 μM and 3 μM of NMS-873, respectively, while 2.1–2.5 log₁₀ units of reduction was observed for oseltamivir (Fig. 3D). Of note, the highest drug concentration tested (3 μM) was not cytotoxic to A549 cells (Fig. 3A). For BEAS-2B and primary cells, a similar potent antiviral effect was observed (Fig. 3E and 3F). Taken together, these results confirmed the antiviral activity of NMS-873 in both human cell lines and primary cells and thus ruled out the possibility that the antiviral activity of NMS-873 is cell-type dependent. In this study, it was reported that NMS-873, a host p97 inhibitor, inhibits both influenza A and B viruses with low-nanomolar efficacy (Fig. 1 and Table 1). In conclusion, the broad-spectrum antiviral activity and novel mechanism of action of NMS-873 render it a promising antiviral drug candidate

Reference: Eur J Pharm Sci. 2019 May 15; 133: 86–94. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6482079/>

In vivo activity

TBD

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.