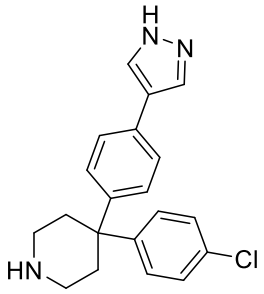
Product data sheet

MedKoo Cat#: 401100 Name: AT7867 CAS#: 857531-00-1 (free base) Chemical Formula: $C_{20}H_{20}ClN_3$ Exact Mass: 337.13458 Molecular Weight: 337.8459	
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:

AT7867 is a novel and potent inhibitor of both AKT and the downstream kinase p70 S6 kinase (p70S6K) and also of protein kinase A. This ATP-competitive small molecule potently inhibits both AKT and p70S6K activity at the cellular level, as measured by inhibition of GSK3beta and S6 ribosomal protein phosphorylation, and also causes growth inhibition in a range of human cancer cell lines as a single agent.

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	28.94	85.66
Ethanol	4.37	12.93

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.96 mL	14.80 mL	29.60 mL
5 mM	0.59 mL	2.96 mL	5.92 mL
10 mM	0.30 mL	1.48 mL	2.96 mL
50 mM	0.06 mL	0.30 mL	0.59 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. Kimura A, Toyoda T, Nishi Y, Nasu M, Ohta A, Osafune K. Small molecule AT7867 proliferates PDX1-expressing pancreatic progenitor cells derived from human pluripotent stem cells. Stem Cell Res. 2017 Oct;24:61-68. doi: 10.1016/j.scr.2017.08.010. Epub 2017 Aug 17. PMID: 28843156.

2. Grimshaw KM, Hunter LJ, Yap TA, Heaton SP, Walton MI, Woodhead SJ, Fazal L, Reule M, Davies TG, Seavers LC, Lock V, Lyons JF, Thompson NT, Workman P, Garrett MD. AT7867 is a potent and oral inhibitor of AKT and p70 S6 kinase that induces pharmacodynamic changes and inhibits human tumor xenograft growth. Mol Cancer Ther. 2010 May;9(5):1100-10. doi: 10.1158/1535-7163.MCT-09-0986. Epub 2010 Apr 27. PMID: 20423992; PMCID: PMC4825853.

In vivo study

1. Zhang S, Deng Z, Yao C, Huang P, Zhang Y, Cao S, Li X. AT7867 Inhibits Human Colorectal Cancer Cells via AKT-Dependent and AKT-Independent Mechanisms. PLoS One. 2017 Jan 12;12(1):e0169585. doi: 10.1371/journal.pone.0169585. PMID: 28081222; PMCID: PMC5231330.

2. Grimshaw KM, Hunter LJ, Yap TA, Heaton SP, Walton MI, Woodhead SJ, Fazal L, Reule M, Davies TG, Seavers LC, Lock V, Lyons JF, Thompson NT, Workman P, Garrett MD. AT7867 is a potent and oral inhibitor of AKT and p70 S6 kinase that induces

pharmacodynamic changes and inhibits human tumor xenograft growth. Mol Cancer Ther. 2010 May;9(5):1100-10. doi: 10.1158/1535-7163.MCT-09-0986. Epub 2010 Apr 27. PMID: 20423992; PMCID: PMC4825853.

7. Bioactivity

Biological target:

AT7867 is a potent ATP-competitive inhibitor of Akt1/Akt2/Akt3 and p70S6K/PKA with IC50s of 32 nM/17 nM/47 nM and 85 nM/20 nM, respectively.

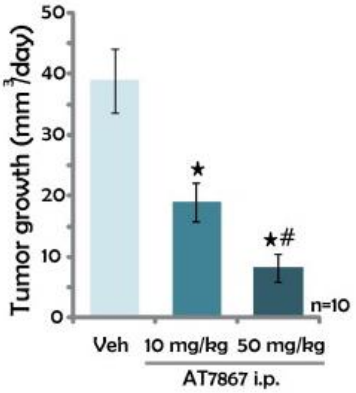
In vitro activity

$PDX1^-$ $Ki67^+$ cells were rarely found in control or AT7867-treated cells, further suggesting that AT7867 may have the potential to maintain cell proliferation activity only in PPCs (Fig. S2A). Moreover, the effect of AT7867 treatment was tested on two other hESC/iPSC lines (see Materials and methods). AT7867 also induced the proliferation of PPCs differentiated from these cell lines, which suggests versatility of the small molecule (Fig. S2B and C).

Reference: Stem Cell Res. 2017 Oct;24:61-68. https://pubmed.ncbi.nlm.nih.gov/28843156/

In vivo activity

Tumor growth curve results in Fig 5A displayed that i.p. injection of AT7867 (10 and 50 mg/kg) significantly inhibited HT-29 tumor growth in nude mice. Estimated daily tumor growth results in Fig 5B further confirmed the significant anti-HT-29 tumor activity byAT7867. Notably, the mice body weight was not significantly affected by the AT7867 administration. Neither did this study notice any signs of apparent toxicities. These results, consistent with reports from other studies, suggested that the AT7867 treatment regimens here were relatively safe to the mice. IHC staining assay results in Fig 5D demonstrated that pAKT level was significantly lower in the AT7867 (50 mg/kg)-treated HT-29 tumors. Together, these results show that i.p. injection ofAT7867efficiently inhibits HT-29 tumor growth in nude mice.



Reference: PLoS One. 2017 Jan 12;12(1):e0169585. https://pubmed.ncbi.nlm.nih.gov/28081222/

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.