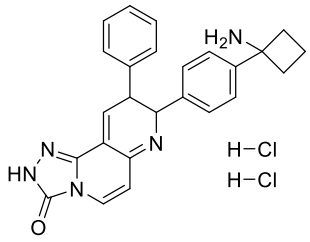
Product data sheet

MedKoo Cat#: 201913 Name: MK-2206 2HCl CAS#: 1032350-13-2 (2HCl) Chemical Formula: $C_{25}H_{25}Cl_2N_5O$ Molecular Weight: 409.48483	
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:
MK2206 is a Akt inhibitor, is also an orally bioavailable allosteric inhibitor of the serine/threonine protein kinase Akt (protein kinase B) with potential antineoplastic activity. Akt inhibitor MK2206 binds to and inhibits the activity of Akt in a non-ATP competitive manner, which may result in the inhibition of the PI3K/Akt signaling pathway and tumor cell proliferation and the induction of tumor cell apoptosis.

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	11.5	28.08
DMF	0.2	0.49
DMF:PBS (pH 7.2) (1:3)	0.2	0.49
Water	1.0	2.44

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.44 mL	12.21 mL	24.42 mL
5 mM	0.49 mL	2.44 mL	4.88 mL
10 mM	0.24 mL	1.22 mL	2.44 mL
50 mM	0.05 mL	0.24 mL	0.49 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. Wang Z, Luo G, Qiu Z. Akt inhibitor MK-2206 reduces pancreatic cancer cell viability and increases the efficacy of gemcitabine. Oncol Lett. 2020 Mar;19(3):1999-2004. doi: 10.3892/ol.2020.11300. Epub 2020 Jan 14. PMID: 32194695; PMCID: PMC7039141.
2. Djuzenova CS, Fiedler V, Memmel S, Katzer A, Sisario D, Brosch PK, Göhrung A, Frister S, Zimmermann H, Flentje M, Sukhorukov VL. Differential effects of the Akt inhibitor MK-2206 on migration and radiation sensitivity of glioblastoma cells. BMC Cancer. 2019 Apr 3;19(1):299. doi: 10.1186/s12885-019-5517-4. PMID: 30943918; PMCID: PMC6446411.

In vivo study

1. Cui H, Cheng Y, He Y, Cheng W, Zhao W, Zhao H, Zhou FH, Wang L, Dong J, Cai S. The AKT inhibitor MK2206 suppresses airway inflammation and the pro-remodeling pathway in a TDI-induced asthma mouse model. Mol Med Rep. 2020 Nov;22(5):3723-3734. doi: 10.3892/mmr.2020.11450. Epub 2020 Aug 21. PMID: 33000187; PMCID: PMC7533517.
2. Al-Saffar NMS, Troy H, Wong Te Fong AC, Paravati R, Jackson LE, Gowan S, Boult JKR, Robinson SP, Eccles SA, Yap TA, Leach MO, Chung YL. Metabolic biomarkers of response to the AKT inhibitor MK-2206 in pre-clinical models of human colorectal

and prostate carcinoma. Br J Cancer. 2018 Oct;119(9):1118-1128. doi: 10.1038/s41416-018-0242-3. Epub 2018 Oct 31. PMID: 30377337; PMCID: PMC6219501.

7. Bioactivity

Biological target:

MK-2206 dihydrochloride (MK-2206 (2HCl)) is an allosteric AKT inhibitor with IC50s of 5 nM, 12 nM, and 65 nM for AKT1, AKT2, and AKT3, respectively.

In vitro activity

The effect of MK-2206 on Akt phosphorylation was subsequently examined. Treatment with MK-2206 was performed at 0.1 and 1 µM for 48 h. As presented in Fig. 1B, MK-2206 treatment reduced the expression p-Akt in all pancreatic cancer cell lines. No changes in the levels of total Akt protein were observed. These results demonstrated that MK-2206 inhibited Akt phosphorylation in pancreatic cancer cells.

Reference: Oncol Lett. 2020 Mar; 19(3): 1999–2004. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7039141/

In vivo activity

Consistent with previous reports, the results of the present study demonstrated that MK2206 inhibited the phosphorylation of AKT and production of cytokines (IL-4, −5, −6 and −13) in a mouse model of TDI-induced asthma. In addition, the present study also revealed that MK2206 inhibited the phosphorylation of AKT in vitro. These results indicated a potential role for MK2206 in a clinical setting for the management of TDI-induced asthma.

Reference: Mol Med Rep. 2020 Nov; 22(5): 3723–3734. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7533517/

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.