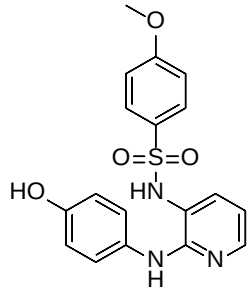
Product data sheet

MedKoo Cat#: 200050 Name: ABT-751 CAS#: 141430-65-1 (free base) Chemical Formula: $C_{18}H_{17}N_3O_4S$ Exact Mass: 371.0940 Molecular Weight: 371.41	
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:
ABT-751, also known as E7010, is an orally bioavailable antimitotic sulfonamide. ABT-751 binds to the colchicine-binding site on beta-tubulin and inhibits the polymerization of microtubules, thereby preventing tumor cell replication. This agent also disrupts tumor neovascularization, reducing tumor blood flow and so inducing a cytotoxic effect.

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	53.05	142.83
Ethanol	10.65	28.67

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.69 mL	13.46 mL	26.92 mL
5 mM	0.54 mL	2.69 mL	5.38 mL
10 mM	0.27 mL	1.35 mL	2.69 mL
50 mM	0.05 mL	0.27 mL	0.54 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. Wei RJ, Lin SS, Wu WR, Chen LR, Li CF, Chen HD, Chou CT, Chen YC, Liang SS, Chien ST, Shiue YL. A microtubule inhibitor, ABT-751, induces autophagy and delays apoptosis in Huh-7 cells. Toxicol Appl Pharmacol. 2016 Nov 15;311:88-98. doi: 10.1016/j.taap.2016.09.021. Epub 2016 Sep 24. PMID: 27678524.
2. Dehghanian SZ, Pan CT, Lee JM, Shiue YL. ABT-751 Induces Multiple Anticancer Effects in Urinary Bladder Urothelial Carcinoma-Derived Cells: Highlighting the Induction of Cytostasis through the Inhibition of SKP2 at Both Transcriptional and Post-Translational Levels. Int J Mol Sci. 2021 Jan 19;22(2):945. doi: 10.3390/ijms22020945. PMID: 33478005; PMCID: PMC7835924.

In vivo study

1. Luo Y, Hradil VP, Frost DJ, Rosenberg SH, Gordon GB, Morgan SJ, Gagne GD, Cox BF, Tahir SK, Fox GB. ABT-751, a novel tubulin-binding agent, decreases tumor perfusion and disrupts tumor vasculature. Anticancer Drugs. 2009 Jul;20(6):483-92. doi: 10.1097/CAD.0b013e32832c0acf. PMID: 19398903.

7. Bioactivity
Biological target: ABT-751 (E7010) is a tubulin-binding and antimitotic sulfonamide agent with IC50s of ~ 1.5 and 3.4 μM in neuroblastoma and non-neuroblastoma cell lines, respectively.

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In vitro activity

The upstream mechanisms of apoptosis which were triggered by a novel anti-microtubule drug, ABT-751, were investigated in hepatocellular carcinoma-derived Huh-7 cells. ABT-751 caused dysregulation of microtubule, collapse of mitochondrial membrane potential, generation of reactive oxygen species (ROS), DNA damage, G2/M cell cycle arrest, inhibition of anchorage-independent cell growth and apoptosis in Huh-7 cells. ABT-751 also induced early autophagy via upregulation of nuclear TP53 and downregulation of the AKT serine/threonine kinase (AKT)/mechanistic target of rapamycin (MTOR) pathway. Through modulation of the expression levels of DNA damage checkpoint proteins and G2/M cell cycle regulators, ABT-751 induced G2/M cell cycle arrest. Subsequently, ABT-751 triggered apoptosis with marked downregulation of B-cell CLL/lymphoma 2, upregulation of mitochondrial BCL2 antagonist/killer 1 and BCL2 like 11 protein levels, and cleavages of caspase 8 (CASP8), CASP9, CASP3 and DNA fragmentation factor subunit alpha proteins.

Reference: Toxicol Appl Pharmacol. 2016 Nov 15;311:88-98.
https://www.sciencedirect.com/science/article/abs/pii/S0041008X16302873?via%3Dihub

In vivo activity

The antivascular properties of ABT-751 were investigated in a rat subcutaneous tumor model using dynamic contrast-enhanced magnetic resonance imaging. A single dose of ABT-751 (30 mg/kg, intravenously) induced a rapid, transient reduction in tumor perfusion. After 1 h, tumor perfusion decreased by 57% before recovering to near pretreatment levels within 6 h. In contrast, ABT-751 produced little change in muscle perfusion at either time point.

Reference: Anticancer Drugs. 2009 Jul;20(6):483-92. https://journals.lww.com/anti-cancerdrugs/Abstract/2009/07000/ABT_751,_a_novel_tubulin_binding_agent,_decreases.10.aspx

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.