

# Product data sheet



MedKoo Cat#: 205790 Name: SB-743921 HCl CAS#: 940929-33-9 (HCl) Chemical Formula: C <sub>31</sub> H <sub>34</sub> Cl <sub>2</sub> N <sub>2</sub> O <sub>3</sub> Molecular Weight: 553.52		
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:

SB-743921 is a synthetic small molecule with potential antineoplastic properties. SB-743921 selectively inhibits kinesin spindle protein (KSP), an important protein involved in the early stages of mitosis that is expressed in proliferating cells. Inhibition of KSP results in inhibition of mitotic spindle assembly and interrupts cell division, thereby causing cell cycle arrest and induction of 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
Water	10	18.07

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.81 mL	9.03 mL	18.07 mL
5 mM	0.36 mL	1.81 mL	3.61 mL
10 mM	0.18 mL	0.90 mL	1.81 mL
50 mM	0.04 mL	0.18 mL	0.36 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

- Zhu L, Xiao F, Yu Y, Wang H, Fang M, Yang Y, Sun H, Wang L, Sheng Y. KSP inhibitor SB743921 inhibits growth and induces apoptosis of breast cancer cells by regulating p53, Bcl-2, and DTL. *Anticancer Drugs*. 2016 Oct;27(9):863-72. doi: 10.1097/CAD.0000000000000402. PMID: 27379929; PMCID: PMC5010280.
- Song IS, Jeong YJ, Nyamaa B, Jeong SH, Kim HK, Kim N, Ko KS, Rhee BD, Han J. KSP inhibitor SB743921 induces death of multiple myeloma cells via inhibition of the NF-κB signaling pathway. *BMB Rep*. 2015 Oct;48(10):571-6. doi: 10.5483/bmbrep.2015.48.10.015. PMID: 25772758; PMCID: PMC4911184.

### In vivo study

- Turaga SM, Vishwakarma V, Hembruff SL, Gibbs BK, Sabu P, Puri RV, Pathak HB, Samuel G, Godwin AK. Inducing Mitotic Catastrophe as a Therapeutic Approach to Improve Outcomes in Ewing Sarcoma. *Cancers (Basel)*. 2023 Oct 10;15(20):4911. doi: 10.3390/cancers15204911. PMID: 37894278; PMCID: PMC10605681.
- Shi Y, Cui X, Jiang T, Pan Y, Lin Y, Feng X, Ding Z, Yang C, Tan Y, Wang H, Dong L. The therapeutic effect of KSP inhibitors in preclinical models of cholangiocarcinoma. *Cell Death Dis*. 2022 Sep 19;13(9):799. doi: 10.1038/s41419-022-05247-0. PMID: 36123339; PMCID: PMC9485230.

## 7. Bioactivity

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## Biological target:

SB-743921 HCl is an inhibitor of the mitotic kinesin KSP (Eg5) with a  $K_i$  of 0.1 nM.

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## In vitro activity

SB-743921 showed promising antitumor activity in breast cancer cell lines by reducing proliferation, inducing cell-cycle arrest, and promoting apoptosis. SB-743921 reduced colony formation ability and altered the expression of key proteins associated with cell arrest and apoptosis, suggesting its potential in breast cancer treatment.

Reference: Anticancer Drugs. 2016 Oct;27(9):863-72. <https://pubmed.ncbi.nlm.nih.gov/27379929/>

## In vivo activity

In Ewing sarcoma xenograft mouse models, the treatment combination of SB-743921 and VIC-1911 led to a significant reduction in tumor size and showed superior overall survival compared to vehicle or monotherapy arms.

Reference: Cancers (Basel). 2023 Oct 10;15(20):4911. <https://pubmed.ncbi.nlm.nih.gov/37894278/>

*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.*