

Product Data Sheet

Avanbulin

Cat. No.: HY-106008

CAS No.: 798577-91-0 Molecular Formula: $C_{20}H_{17}N_{7}O_{2}$ 387.39 Molecular Weight:

Target: Microtubule/Tubulin

Pathway: Cell Cycle/DNA Damage; Cytoskeleton

Powder -20°C Storage: 3 years

2 years

-80°C In solvent 6 months

> -20°C 1 month

SOLVENT & SOLUBILITY

In Vitro

DMSO: 250 mg/mL (645.34 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Mass Concentration	1 mg	5 mg	10 mg
	1 mM	2.5814 mL	12.9069 mL	25.8138 mL
	5 mM	0.5163 mL	2.5814 mL	5.1628 mL
	10 mM	0.2581 mL	1.2907 mL	2.5814 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- 1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.08 mg/mL (5.37 mM); Clear solution
- 2. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.08 mg/mL (5.37 mM); Clear solution

BIOLOGICAL ACTIVITY

Description Avanbulin (BAL27862) is a potent, Colchicine site-binding, tubulin assembly inhibitor. Avanbulin inhibits tubulin assembly at

37 °C with an IC $_{50}$ of 1.4 μ M. Avanbulin binds to tubulin with an apparent K_d value of 244 nM. Avanbulin can be used for the

research of cancer and cell division $^{[1][2][3][4]}$.

Avanbulin (0-4 µM) binds to tubulin in the site as Colchicine with an apparent K_d value of 244 nM.^[1]. In Vitro

Avanbulin (50 μ M; 0, 10, 20, 30, 60 min) induces the proteolysis of tubulin [1].

Avanbulin (33 nM; 0, 10, 20, 30, 60 min; HeLa-tubGFP cells) collapses the mitotic spindle and forms the tiny tubulin

aggregates^[1].

Avanbulin does not induce the formation of tubulin oligomers [1].

Avanbulin induces growth inhibition of 23 tumor cell lines with a median relative IC₅₀ of 13.8 nM (96 hours) [2]. Avanbulin (6

nM and 20 nM) inhibits the migration of GBM6 and GBM9 cells^[3].

Avanbulin (6 nM and 20 nM; GBM6-shEB1 and GBM6-sh0 cells) triggers astrocytic differentiation of GBM6 in an EB1-dependent manner^[3].

Avanbulin (12 nM; 4 h) reduces kinetochore-microtubule (KT–MT) occupancy of MG132(10 μ M; 2h) treated hTert-RPE1 eGFP- α -tubulin cells^[4].

Avanbulin (12 nM; 4 h) reduces average inter-KT distances of cells, shows intact spindle morphology, and lacks obvious chromosome alignment defects^[4].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Cytotoxicity Assay^[2]

Cell Line:	23 cell lines, including RD, TC-71, SJ-GBM2, NB-1643.	
Concentration:	0.1 nM-1.0 μM	
Incubation Time:	96 hours	
Result:	Induced growth inhibition of cells with a median relative IC ₅₀ of 13.8 nM.	

REFERENCES

- [1]. Prota AE, et al. The novel microtubule-destabilizing drug avanbulin binds to the colchicine site of tubulin with distinct effects on microtubule organization. J Mol Biol. 2014 Apr 17;426(8):1848-60.
- [2]. Kolb EA, et al. Initial testing (stage 1) of BAL101553, a novel tubulin binding agent, by the pediatric preclinical testing program. Pediatr Blood Cancer. 2015 Jun;62(6):1106-9.
- [3]. Bergès R, et al. The Novel Tubulin-Binding Checkpoint Activator BAL101553 Inhibits EB1-Dependent Migration and Invasion and Promotes Differentiation of Glioblastoma Stem-like Cells. Mol Cancer Ther. 2016 Nov;15(11):2740-2749.
- [4]. Dudka D, et al. Complete microtubule-kinetochore occupancy favours the segregation of merotelic attachments. Nat Commun. 2018;9(1):2042. Published 2018 May 23.

Caution: Product has not been fully validated for medical applications. For research use only.

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