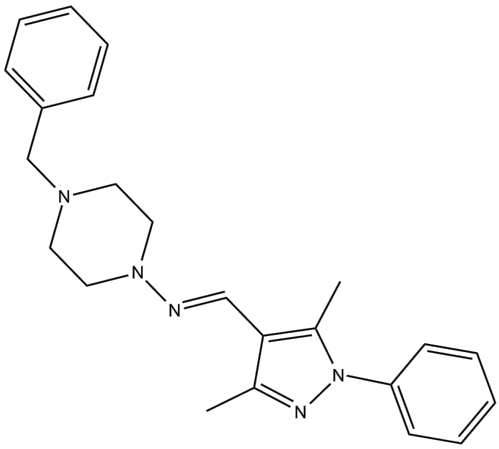
Product Data Sheet

Product Name: SANT-1
Cat. No.: GC15889

Chemical Properties

Cas. No.	304909-07-7		
Chemical Name	(E)-N-(4-benzylpiperazin-1-yl)-1-(3,5-dimethyl-1-phenylpyrazol-4-yl)methanimine		
SMILES	CC1=C(C(=NN1C2=CC=CC=C2)C)C=NN3CCN(CC3)CC4=CC=CC=C4		
Formula	$C_{23}H_{27}N_5$	M.Wt	373.5
Solubility	≥ 18.75mg/mL in DMSO	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Protocol

Cell experiment [1]:	
Cell lines	AGS cells (human gastric cancer cell line)

Product Data Sheet

Preparation Method	AGS cells were maintained in RPMI-1640 medium supplemented with 10% FBS and 1% penicillin/streptomycin at 37°C, 5% CO_2. AGS cells were transfected with IKZF3 overexpression vector and treated with SANT-1 for 24h, then assessed by CCK8, colony formation, wound healing and Transwell assays.
Reaction Conditions	2mM; 24h
Applications	SANT-1 decreased cell proliferation, migration and invasion in IKZF3-overexpressing AGS cells. SANT-1 also downregulated the expressions of SMO, p-AKT, CDK4 and p-Cofilin.
References:[1] Ali M, Baral S, Ren J, et al. IKZF3 promotes gastric cancer progression via Hedgehog signaling activation and is targetable by SANT-1. Acta Biochim Biophys Sin. 2026;58(2):369-382.	

Background

SANT-1 is a cell-permeable Smoothened antagonist that inhibits the Hedgehog pathway. SANT-1 downregulates Hh target gene expressions such as Gli1 and Ptch1 to suppress tumor cell proliferation and reduces Gli-mediated transcription by blocking the Smo downstream pathway. SANT-1 can be used for research on medulloblastoma, basal cell carcinoma, glioma, pancreatic cancer, and non-small cell lung cancer[1-4].

In vitro, treatment of ASZ001 cells with 10μM SANT-1 for 48 hours inhibited hedgehog signaling activity in the cells[5]. Treatment of A172, U87MG, and T98G cells, SVG-p12 cells, and U87MG-derived cells with 10-70μM SANT-1 for 24-48 hours decreased Gli1, Nestin, IQGAP-1, and cyclin D1 expressions, reduced the number and size of glioma stem-like spheres, and lowered proliferation ability[6]. Treatment of ammonium ferric citrate-induced HEI-OC1 cells with 10-20μM SANT-1 for 24 hours protected HEI-OC1 cells from ammonium ferric citrate-induced damage and restored intracellular iron overaccumulation after ammonium ferric citrate treatment[7].

References:

Product Data Sheet

[1] Stanton BZ, Peng LF. Small-molecule modulators of the Sonic Hedgehog signaling pathway. Mol Biosyst. 2010 Jan;6(1):44-54.
[2] McGaugh EC, Nostro MC. Efficient Differentiation of Pluripotent Stem Cells to NKX6-1+ Pancreatic Progenitors. J Vis Exp. 2017 Mar 7;(121):55265.
[3] Okolowsky N, Furth PA, Hamel PA. Oestrogen receptor-alpha regulates non-canonical Hedgehog-signalling in the mammary gland. Dev Biol. 2014 Jul 15;391(2):219-29.
[4] Chun SG, Zhou W, Yee NS. Combined targeting of histone deacetylases and hedgehog signaling enhances cytoxicity in pancreatic cancer. Cancer Biol Ther. 2009 Jul;8(14):1328-39.
[5] Dheeraj A, Rigby CM, O'Bryant CL, et al. Silibinin Treatment Inhibits the Growth of Hedgehog Inhibitor Resistant Basal Cell Carcinoma Cells via Targeting EGFR-MAPK-Akt and Hedgehog Signaling. Photochem Photobiol. 2017 Jul;93(4):999-1007.
[6] Dixit D, Ghildiyal R, Anto NP, et al. Guggulsterone sensitizes glioblastoma cells to Sonic hedgehog inhibitor SANT-1 induced apoptosis in a Ras/NFkB dependent manner. Cancer Lett. 2013;336(2):347-358.
[7] Mao H, Li X, Liao Y, et al. Restoring Iron Homeostasis via Smoothened Inhibition: A Novel Strategy Against Hearing Loss. Adv Sci. 2026;13:e20749.

Caution: Product has not been fully validated for medical applications. For research use only.
Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA