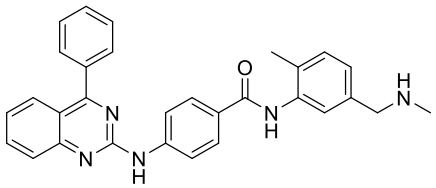
Product data sheet

MedKoo Cat#: 200535 Name: BMS-833923 (XL-139) CAS#: 1059734-66-5 Chemical Formula: $C_{30}H_{27}N_5O$ Exact Mass: 473.22156 Molecular Weight: 473.57	
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:

BMS-833923, also known as XL-139, is an orally bioavailable small-molecule SMO (Smoothened) inhibitor with potential antineoplastic activity. SMO antagonist BMS-833923 inhibits the sonic hedgehog (SHH) pathway protein SMO, which may result in a suppression of the SHH signaling pathway. SMO is a G-protein coupled receptor that lies just downstream of the SHH ligand cell surface receptor Patched-1 in the SHH pathway; in the absence of ligand Patched-1 inhibits SMO and ligand binding to Patched-1 results in increased levels of SMO. The SHH signaling pathway plays an important role in cellular growth, differentiation and repair; constitutive activation of this pathway is associated with uncontrolled cellular proliferation and has been observed in a variety of cancers.

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	56.67	119.67
DMF	30.0	63.35
Ethanol	30.0	63.35
Ethanol:PBS (pH 7.2) (1:7)	0.1	0.21

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.11 mL	10.56 mL	21.12 mL
5 mM	0.42 mL	2.11 mL	4.22 mL
10 mM	0.21 mL	1.06 mL	2.11 mL
50 mM	0.04 mL	0.21 mL	0.42 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. AlMuraikhi N, Almasoud N, Binhamdan S, Younis G, Ali D, Manikandan M, Vishnubalaji R, Atteya M, Siyal A, Alfayez M, Aldahmash A, Kassem M, Alajez NM. Hedgehog Signaling Inhibition by Smoothened Antagonist BMS-833923 Reduces Osteoblast Differentiation and Ectopic Bone Formation of Human Skeletal (Mesenchymal) Stem Cells. Stem Cells Int. 2019 Nov 21;2019:3435901. doi: 10.1155/2019/3435901. PMID: 31871467; PMCID: PMC6907053.

2. Zaidi AH, Komatsu Y, Kelly LA, Malhotra U, Rotoloni C, Kosovec JE, Zahoor H, Makielski R, Bhatt A, Hoppo T, Jobe BA. Smoothened inhibition leads to decreased proliferation and induces apoptosis in esophageal adenocarcinoma cells. Cancer Invest. 2013 Aug;31(7):480-9. doi: 10.3109/07357907.2013.820317. PMID: 23915072.

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In vivo study

1. AlMuraikhi N, Almasoud N, Binhamdan S, Younis G, Ali D, Manikandan M, Vishnubalaji R, Atteya M, Siyal A, Alfayez M, Aldahmash A, Kassem M, Alajez NM. Hedgehog Signaling Inhibition by Smoothened Antagonist BMS-833923 Reduces Osteoblast Differentiation and Ectopic Bone Formation of Human Skeletal (Mesenchymal) Stem Cells. Stem Cells Int. 2019 Nov 21;2019:3435901. doi: 10.1155/2019/3435901. PMID: 31871467; PMCID: PMC6907053.
2. Riedlinger D, Bahra M, Boas-Knoop S, Lippert S, Bradtmöller M, Guse K, Seehofer D, Bova R, Sauer IM, Neuhaus P, Koch A, Kamphues C. Hedgehog pathway as a potential treatment target in human cholangiocarcinoma. J Hepatobiliary Pancreat Sci. 2014 Aug;21(8):607-15. doi: 10.1002/jhbp.107. Epub 2014 Apr 15. PMID: 24733827.

7. Bioactivity

Biological target:

BMS-833923 (XL-139) is an inhibitor of Smoothened with potential antineoplastic activity; inhibits BODIPY cyclopamine binding to SMO in a dose-dependent manner with an IC50 of 21 nM.

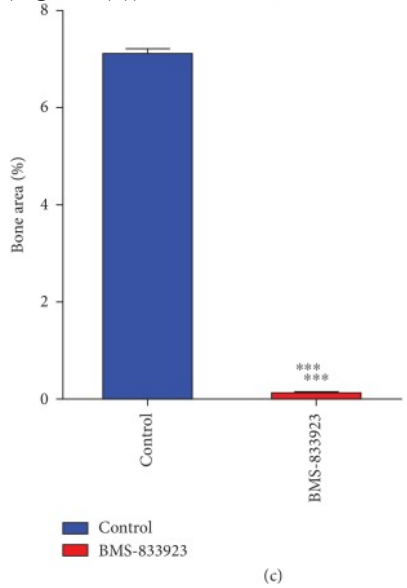
In vitro activity

To identify if the growth inhibitory effect of the Smoothened antagonist BMS-833923 on EGI-1 cells is Hh dependent, this study measured the expression of the Hh target genes PTCH1 and GLI1 in the treated EGI-1 cells. Evaluation with the ΔΔCt method revealed a slight decrease in pathway gene expression levels in cell probes treated with BMS-833923. Forty-eight hours after incubation, expression levels of both pathway components were reduced compared to the control group (GLI1: RQ-value = 0.89; PTCH1: RQ-value = 0.76). The suppression of the Hh-signaling pathway components was even more pronounced in the samples that were collected after 96 h (GLI1: RQ-value = 0.71; PTCH1: RQ-value = 0.66) (Fig. 4).

Reference: Stem Cells Int. 2019 Nov 21;2019:3435901. https://pubmed.ncbi.nlm.nih.gov/31871467/

In vivo activity

To further study the role of BMS-833923 in regulating osteoblast differentiation in vivo, this study determined the amount of bone formed in vivo by hMSCs treated with BMS-833923 or DMSO vehicle-treated control, following subcutaneous implantation into immune deficient mice. BMS-833923-treated hMSCs exhibited a significant reduction in ectopic bone formation capacity (Figures 5(a)–5(b)). Quantitative histological analysis revealed 90% (n = 3, P < 0.0001) reduction of bone area (Figure 5(c)) and 30% reduction in collagen matrix formation (n = 3, P < 0.001) (Figure 5(d)).



Reference: Stem Cells Int. 2019; 2019: 3435901. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6907053/

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.