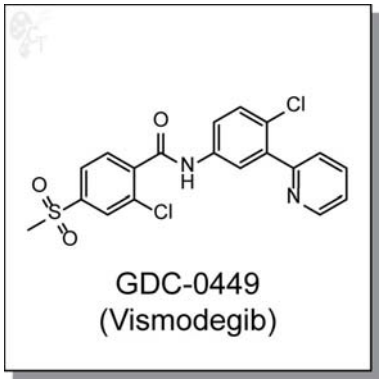
Product Specification Sheet

Product Name: GDC-0449 (Vismodegib)

Catalog Number: C4044



GDC-0449
(Vismodegib)

Technical information:

Chemical Formula:	$C_{19}H_{14}Cl_2N_2O_3S$
CAS #:	879085-55-9
Molecular Weight:	421.3
Purity:	> 98%
Appearance:	White
Solubility:	Soluble in DMSO up to 100 mM
Chemical Name:	2-chloro-N-(4-chloro-3-(pyridin-2-yl)phenyl)-4-(methylsulfonyl)benzamide
Storage:	Store solid powder at 4°C desiccated; Store DMSO solution at -20°C.
Shelf Life:	In the unopened package, powder is stable for 1 year and DMSO solution is stable for 6 months under proper storage condition.

Handling:

- To make 10 mM stock solution, add 0.237mL of DMSO for each mg of GDC-0449 (Vismodegib)
- For DMSO solution, briefly spin the vial at 500 rpm in a 50 mL conical tube to ensure maximum sample recovery.

Biological Activity:

GDC-0449 (Vismodegib) is a potent, orally bioavailable, specific hedgehog pathway small-molecule inhibitor with IC50 of 3 nM. It blocks the activities of the Hedgehog-ligand cell surface receptor SMO and suppresses Hedgehog signaling [1].

The hedgehog (HH) pathway, a key signaling pathway in embryological development, is normally inactive in differentiated cells, with the exception of roles in tissue maintenance and repair. Constitutive reactivation of the HH pathway via mutations and aberrant autocrine/paracrine HH ligand stimulation has been linked to a number of cancers5. GDC-0449 has been shown to target SMO with an EC50 of 2.8nmol/L on a human palatal mesenchymal cell line (HEPM) stably expressing a GLI-responsive luciferase reporter gene, and to induce rapid regression of the tumor and suppression of the hedgehog pathway in the Ptc1+/− murine medulloblastoma model. Furthermore, GDC-0449 inhibits the growth of primary pancreatic xenografts without non-specifically inhibiting pancreatic cell proliferation in vitro [1-3]. GDC-0449 is also an inhibitor of two multiple ATP-binding cassette (ABC) transporters, ABCG2/BCRP and ABCB1/Pgp, and is a mild inhibitor of ABCC1/MRP1. The overexpression of ABC transporters is associated with multidrug resistance. The IC50 values for inhibition of ABCG2 and Pgp were approximately 1.4 and 3.0 μM, respectively [4].

Reference:

1. Robarge KD, et al. GDC-0449-a potent inhibitor of the hedgehog pathway. Bioorg Med Chem Lett. 2009. 19(19):5576-81. Pubmed ID: 19716296
2. Wong H, et al. Pharmacokinetic-pharmacodynamic analysis of vismodegib in preclinical models of mutational and ligand-dependent Hedgehog pathway activation. Clin Cancer Res. 2011.17(14):4682-92. Pubmed ID: 21610148
3. Rudin CM, et al. Treatment of medulloblastoma with hedgehog pathway inhibitor GDC-0449. N Engl J Med. 2009. 361(12):1173-8. Pubmed ID: 19726761
4. Zhang Y, Hedgehog pathway inhibitor HhAntag691 is a potent inhibitor of ABCG2/BCRP and ABCB1/Pgp. Neoplasia. 2009. 11(1):96-101. Pubmed ID: 19107236

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