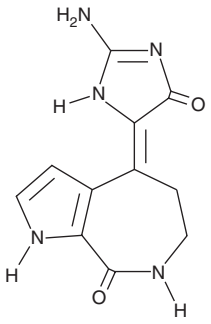
PRODUCT INFORMATION

Debromohymenialdisine

Item No. 14873

CAS Registry No.: 75593-17-8
Formal Name: (4Z)-4-(2-amino-1,5-dihydro-5-oxo-4H-imidazol-4-ylidene)-4,5,6,7-tetrahydro-pyrrolo[2,3-c]azepin-8(1H)-one
Synonyms: DBH, SKF 108753
MF: $C_{11}H_{11}N_5O_2$
FW: 245.2
Purity: ≥90%
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years
Item Origin: Sponge/*Axinella carteri*



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Debromohymenialdisine (DBH) is supplied as a solid. A stock solution may be made by dissolving the DBH in the solvent of choice, which should be purged with an inert gas. DBH is soluble in ethanol, methanol, and DMSO.

Description

Damaged DNA in humans is detected by sensor proteins that transmit a signal through checkpoint kinases (Chks) Chk1 and Chk2.[1] DBH is a marine sponge alkaloid that inhibits Chk1 and Chk2 (IC_{50} = 3 and 3.5 µM, respectively), blocking G_2 arrest.[2,3] Because it does not significantly affect the activity of ataxia-telangiectasia mutated (ATM) or ATM-Tad2-related protein, DBH is a useful tool for studying the roles of Chk1 and Chk2 in DNA repair and cell cycle regulation.[2] DBH also inhibits MAP kinase kinase 1 (IC_{50} = 881 nM), glycogen synthase kinase 3β (IC_{50} = 1.39 µM), cyclin-dependent kinase 5/p25 (IC_{50} = 9.12 µM), protein tyrosine kinase 6 (IC_{50} = 0.6 µM), and other kinases largely unrelated to DNA damage/repair and cell cycling.[4-7]

References

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3. Saleem, R.S.Z., Lansdell, T.A., and Tepe, J.J. Synthesis and evaluation of debromohymenialdisine-derived Chk2 inhibitors. *Bioorg. Med. Chem.* **20(4)**, 1475-1481 (2012).
4. Tasdemir, D., Mallon, R., Greenstein, M., *et al.* Aldisine alkaloids from the Philippine sponge *Stylissa massa* are potent inhibitors of mitogen-activated protein kinase kinase-1 (MEK-1). *J. Med. Chem.* **45(2)**, 529-532 (2002).
5. Wan, Y., Hur, W., Cho, C.Y., *et al.* Synthesis and target identification of hymenialdisine analogs. *Chem. Biol.* **11(2)**, 247-259 (2004).
6. Jobson, A.G., Cardellina, J.H.II., Scudiero, D., *et al.* Identification of a *bis*-guanylhydrazone [4,4'-diacetyldiphenylurea-*bis*(guanylhydrazone); NSC 109555] as a novel chemotype for inhibition of Chk2 kinase. *Mol. Pharmacol.* **72(4)**, 876-884 (2007).
7. Foloppe, N., Fisher, L.M., Francis, G., *et al.* Identification of a buried pocket for potent and selective inhibition of Chk1: Prediction and verification. *Bioorg. Med. Chem.* **14(6)**, 1792-1804 (2006).

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