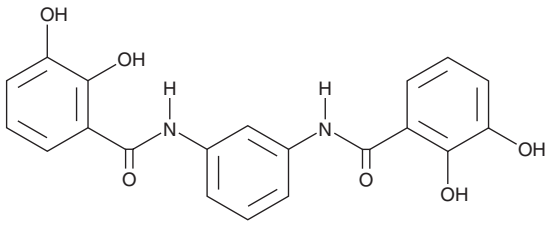
PRODUCT INFORMATION

MST-312

Item No. 24301

CAS Registry No.:	368449-04-1
Formal Name:	N,N'-1,3-phenylenebis[2,3-dihydroxy-benzamide
Synonym:	Telomerase Inhibitor IX
MF:	$C_{20}H_{16}N_2O_6$
FW:	380.4
Purity:	≥98%
UV/Vis.:	λ_{max}: 213, 274 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



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

Laboratory Procedures

MST-312 is supplied as a crystalline solid. A stock solution may be made by dissolving the MST-312 in the solvent of choice, which should be purged with an inert gas. MST-312 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of MST-312 in ethanol is approximately 0.2 mg/ml and 30 mg/ml in DMSO and DMF.

MST-312 is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, MST-312 should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. MST-312 has a solubility of approximately 0.025 mg/ml in a 1:40 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

MST-312 is a telomerase inhibitor (IC_{50} = 0.67 µM in a TRAP assay).[1] It is selective for telomerase over DNA polymerase when used at concentrations up to 3 µM. MST-312 inhibits growth of U937 cells *via* telomere shortening (GI_{50} = 1.7 µM). It reduces cell number and expression of the proliferation marker MIB-1 as well as increases DNA damage in primary pediatric ependymoma tumor cells.[2] MST-312 decreases survival of H460 and H1299 non-small cell lung cancer (NSCLC) cells in a dose-dependent manner with a greater effect on the aldehyde dehydrogenase positive ($ALDH^+$) cancer stem cell population.[3] *In vivo*, MST-312 (40 mg/kg) reduces tumor size by 70% in an H460 mouse xenograft model. MST-312 also inhibits replication of herpes simplex virus 2 (HSV-2) and a clinical isolate of HSV-1 and decreases accumulation of early and late viral proteins in HEp-2 cells infected with HSV-1.[4]

References

1. Seimiya, H., Oh-hara, T., Suzuki, T., *et al.* Telomere shortening and growth inhibition of human cancer cells by novel synthetic telomerase inhibitors MST-312, MST-295, and MST-1991. *Mol. Cancer Ther.* **1(9)**, 657-665 (2002).
2. Wong, V.C.H., Morrison, A., Tabori, U., *et al.* Telomerase inhibition as a novel therapy for pediatric ependymoma. *Brain Pathol.* **20(4)**, 780-786 (2010).
3. Serrano, D., Bleau, A.-M., Fernandez-Garcia, I., *et al.* Inhibition of telomerase activity preferentially targets aldehyde dehydrogenase-positive cancer stem-like cells in lung cancer. *Mol. Cancer* **10(96)**, (2011).
4. Haberichter, J., Roberts, S., Abbasi, I., *et al.* The telomerase inhibitor MST-312 interferes with multiple steps in the herpes simplex virus life cycle. *J. Virol.* **89(19)**, 9804-9816 (2015).

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