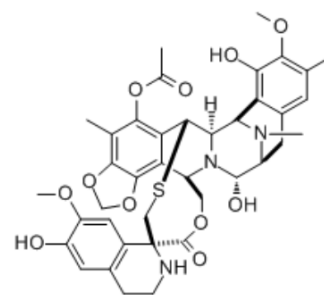


Trabectedin

Cat. No.:	HY-50936
CAS No.:	114899-77-3
Molecular Formula:	C ₃₉ H ₄₃ N ₃ O ₁₁ S
Molecular Weight:	761.84
Target:	Reactive Oxygen Species; Apoptosis
Pathway:	Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB; Apoptosis
Storage:	-20°C, protect from light, stored under nitrogen



* The compound is unstable in solutions, freshly prepared is recommended.

SOLVENT & SOLUBILITY

In Vitro	DMSO : 33.33 mg/mL (43.75 mM; Need ultrasonic)						
	Preparing Stock Solutions	Solvent Concentration	Mass	1 mg	5 mg	10 mg	
				1 mM	1.3126 mL	6.5631 mL	13.1261 mL
				5 mM	0.2625 mL	1.3126 mL	2.6252 mL
10 mM				0.1313 mL	0.6563 mL	1.3126 mL	
Please refer to the solubility information to select the appropriate solvent.							
In Vivo	1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (3.28 mM); Clear solution						
	2. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (3.28 mM); Clear solution						

BIOLOGICAL ACTIVITY

Description	Trabectedin (Ecteinascidin 743; ET-743) a tetrahydroisoquinoline alkaloid with potent antitumor activity isolated from Ecteinascidia turbinata. Trabectedin binds to the minor groove of DNA, blocks transcription of stress-induced proteins, induces DNA backbone cleavage and cancer cells apoptosis , and increases the generation of ROS in MCF-7 and MDA-MB-453 cells. Trabectedin has the potential for soft tissue sarcoma and ovarian cancer treatment ^{[1][2][3]} .
IC ₅₀ & Target	IC ₅₀ : 0.1 nM (MX-1 cells), 1.5 nM (MCF7 cells) and 3.7 nM (MCF7/DXR cells) ^[1] Reactive oxygen species (ROS) ^[2] Apoptosis ^[2]
In Vitro	Trabectedin (ET-743; 10 nM; 24-72 hours; MCF7 cells) treatment cells accumulate in late S to G2 phase ^[1] .

Trabectedin (Ecteinascidin 743) inhibits cell growth of MX-1, MCF7 and MCF7/DXR cells with IC₅₀ values of 0.1 nM, 1.5 nM and 3.7 nM, respectively^[1].

Trabectedin induces cytotoxicity and apoptosis in both breast cancer cells in a time and concentration-dependent manner. The expression levels of the death receptor pathway molecules, TRAIL-R1/DR4, TRAIL-R2/DR5, FAS/TNFRSF6, TNF RI/TNFRSF1A, and FADD are significantly increased by 2.6-, 3.1-, 1.7-, 11.2- and 4.0-fold by Trabectedin treatment in MCF-7 cells. In MDA-MB-453 cells, the mitochondrial pathway related pro-apoptotic proteins Bax, Bad, Cytochrome c, Smac/DIABLO, and Cleaved Caspase-3 expressions are induced by 4.2-, 3.6-, 4.8-, 4.5-, and 4.4-fold, and the expression levels of anti-apoptotic proteins Bcl-2 and Bcl-XL are reduced by 4.8- and 5.2-fold in MDA-MB-453 cells^[2].

In vitro treatment with noncytotoxic concentrations of Trabectedin selectively inhibits the production of CCL2, CXCL8, IL-6, VEGF, and PTX3 by myxoid liposarcoma (MLS) primary tumor cultures and/or cell lines^[3].

Cell Cycle Analysis^[1]

Cell Line:	MCF7 cells
Concentration:	10 nM
Incubation Time:	24 hours, 48 hours, 72 hours
Result:	Led to pronounced S-G2-M accumulation.

In Vivo

Trabectedin (ET-743; 30-50 µg/kg; intravenous injection; every three days; female athymic nude mice) treatment increases the antitumor effects in nude mice bearing MX-1 mammary carcinoma xenografts without increasing toxicity^[1].

A xenograft mouse model of human myxoid liposarcoma (MLS) shows marked reduction of CCL2, CXCL8, CD68+ infiltrating macrophages, CD31+ tumor vessels, and partial decrease of PTX3 after Trabectedin treatment^[3].

Animal Model:	Female athymic nude mice bearing the nu/nu gene (5-6 weeks old, 18-20 g) injected with MX-1 cells ^[1]
Dosage:	30 µg/kg, 40 µg/kg, 50 µg/kg
Administration:	Intravenous injection; every three days
Result:	Increased the antitumor effects in nude mice bearing MX-1 mammary carcinoma xenografts without increasing toxicity.

REFERENCES

[1]. Takahashi N, et al. Sequence-dependent synergistic cytotoxicity of ecteinascidin-743 and NSC 125973 in human breast cancer cell lines in vitro and in vivo. *Cancer Res.* 2002 Dec 1;62(23):6909-15.

[2]. Germano G, et al. Antitumor and anti-inflammatory effects of trabectedin on human myxoid liposarcoma cells. *Cancer Res.* 2010 Mar 15;70(6):2235-44.

[3]. Atmaca H, et al. A diverse induction of apoptosis by trabectedin in MCF-7 (HER2-/ER+) and MDA-MB-453 (HER2+/ER-) breast cancer cells. *Toxicol Lett.* 2013 Jun 20;221(2):128-136.

Caution: Product has not been fully validated for medical applications. For research use only.

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