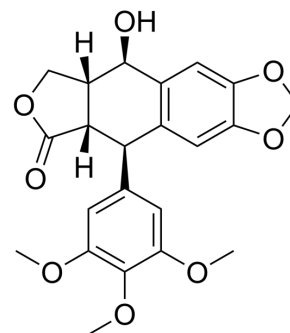


Picropodophyllin

Cat. No.:	HY-15494		
CAS No.:	477-47-4		
Molecular Formula:	C ₂₂ H ₂₂ O ₈		
Molecular Weight:	414.41		
Target:	IGF-1R; Apoptosis		
Pathway:	Protein Tyrosine Kinase/RTK; Apoptosis		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	1 year
		-20°C	6 months



SOLVENT & SOLUBILITY

In Vitro	DMSO : 50 mg/mL (120.65 mM; Need ultrasonic)					
		Solvent Concentration	Mass	1 mg	5 mg	10 mg
	Preparing Stock Solutions	1 mM		2.4131 mL	12.0653 mL	24.1307 mL
		5 mM		0.4826 mL	2.4131 mL	4.8261 mL
10 mM			0.2413 mL	1.2065 mL	2.4131 mL	
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	<ol style="list-style-type: none"> Add each solvent one by one: 0.5% CMC-Na/saline water Solubility: 3 mg/mL (7.24 mM); Suspended solution; Need ultrasonic and warming and heat to 60°C Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (6.03 mM); Clear solution Add each solvent one by one: 15% Cremophor EL >> 85% Saline Solubility: 2 mg/mL (4.83 mM); Suspended solution; Need ultrasonic 					

BIOLOGICAL ACTIVITY

Description	Picropodophyllin (AXL1717) is a selective insulin-like growth factor-1 receptor (IGF-1R) inhibitor with an IC ₅₀ of 1 nM.
IC₅₀ & Target	IC ₅₀ : 1 nM (IGF-1R)
In Vitro	Picropodophyllin (AXL1717) (0.5, 2.5, 10 μM) potently inhibits IGF-1-stimulated IGF-1R, Akt (Ser 473) and Erk1/2 phosphorylation in intact cells. Picropodophyllin (AXL1717) also inhibits cell growth, and induces apoptosis in cultured IGF-1R-positive tumor cells ^[1] .

Picropodophyllin (AXL1717) synergistically sensitizes HMCL, primary human MM and murine 5T33MM cells to ABT-737 and ABT-199 via further decreasing cell viability and enhancing apoptosis^[3].
Picropodophyllin and sorafenib synergistically suppress the proliferation and motility of hepatocellular carcinoma cells^[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Picropodophyllin (AXL1717) (20 mg/kg/12 h, i.p.) causes complete tumor regression in SCID mice xenografted with human ES-1, BE, and PC3^[1].
Picropodophyllin (AXL1717) shows a potent antitumor activity, increases survival in the 5T33MM mouse model^[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration ^[1]

Four to 5-week-old pathogen-free SCID mice are used and housed within plastic isolators in a sterile facility. ES-1, BE, and PC3 cells (all proved to express IGF-1R), or R-v-src (IGF-1R negative) and P12 (overexpressing IGF-1 and IGF-1R), are injected s.c. at 10^7 cells/mice in a 0.2 mL volume of sterile saline solution. Immunocompetent Balb-c mice are injected with 107JC murine breast cancer cells per mouse in 0.15 mL volume of sterile saline solution. Experimental treatments with Picropodophyllin (AXL1717) (20 mg/kg/12 h) are performed by daily i.p. injections of the compound in 10 μ L volume of DMSO: vegetable oil, 10:1 (v/v). Control mice are treated with the vehicle only. Three animals are treated in each group. Tumor growth is measured every second day using vernier calipers, and the tumor volumes are calculated. The mice are carefully observed for the presence of side effects and are sacrificed at the end of the experiments for histological analysis of the lesions. A separate experiment on Picropodophyllin (AXL1717)-treated (systemically and locally) tumor-free mice, including histological analyses of various organs, confirms previous observations that Picropodophyllin (AXL1717) appears to be nontoxic.
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Science. 2017 Dec 1;358(6367):eaan4368.
- Nat Nanotechnol. 2021 Jul;16(7):830-839.
- Nat Commun. 2023 Sep 30;14(1):6117.
- Adv Sci (Weinh). 2023 Dec 7:e2305913.
- Transl Neurodegener. 2019 Mar 5;8:8.

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REFERENCES

- [1]. Girnita A, et al. Cyclolignans as inhibitors of the insulin-like growth factor-1 receptor and malignant cell growth. *Cancer Res.* 2004 Jan 1;64(1):236-42.
- [2]. Menu E, et al. Inhibiting the IGF-1 receptor tyrosine kinase with the cyclolignan PPP: an in vitro and in vivo study in the 5T33MM mouse model. *Blood.* 2006 Jan 15;107(2):655-60. Epub 2005 Jul 26.
- [3]. Bieghs L, et al. The IGF-1 receptor inhibitor picropodophyllin potentiates the anti-myeloma activity of a BH3-mimetic. *Oncotarget.* 2014 Nov 30;5(22):11193-208.
- [4]. Tomizawa M, et al. Picropodophyllin and sorafenib synergistically suppress the proliferation and motility of hepatocellular carcinoma cells. *Oncol Lett.* 2014 Nov;8(5):2023-2026. Epub 2014 Aug 27.
- [5]. Stromberg T, et al. IGF-1 receptor tyrosine kinase inhibition by the cyclolignan PPP induces G2/M-phase accumulation and apoptosis in multiple myeloma cells. *Blood.* 2006 Jan 15;107(2):669-78. Epub 2005 Sep 15.

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

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