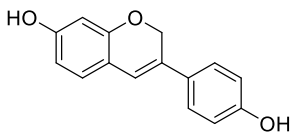
Product data sheet

MedKoo Cat#: 202180 Name: Idronoxil CAS#: 81267-65-4 Chemical Formula: $C_{15}H_{12}O_3$ Exact Mass: 240.07864 Molecular Weight: 240.25398	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

Idronoxil, also known as Phenoxodiol, is a synthetic flavonoid derivative. Phenoxodiol activates the mitochondrial caspase system, inhibits X-linked inhibitor of apoptosis (XIAP), and disrupts FLICE inhibitory protein (FLIP) expression, resulting in tumor cell apoptosis. This agent also inhibits DNA topoisomerase II by stabilizing the cleavable complex, thereby preventing DNA replication and resulting in tumor cell death.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	74.0	308.01
Ethanol	48.0	199.79
Water	1.0	4.16

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	4.16 mL	20.81 mL	41.62 mL
5 mM	0.83 mL	4.16 mL	8.32 mL
10 mM	0.42 mL	2.08 mL	4.16 mL
50 mM	0.08 mL	0.42 mL	0.83 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Mahoney S, Arfuso F, Millward M, Dharmarajan A. The effects of phenoxodiol on the cell cycle of prostate cancer cell lines. Cancer Cell Int. 2014 Nov 8;14(1):110. doi: 10.1186/s12935-014-0110-z. PMID: 25400509; PMCID: PMC4231195.
2. Herst PM, Davis JE, Neeson P, Berridge MV, Ritchie DS. The anti-cancer drug, phenoxodiol, kills primary myeloid and lymphoid leukemic blasts and rapidly proliferating T cells. Haematologica. 2009 Jul;94(7):928-34. doi: 10.3324/haematol.2008.003996. Epub 2009 Jun 16. PMID: 19535345; PMCID: PMC2704303.

In vivo study

1. Georgaki S, Skopeliti M, Tsiatas M, Nicolaou KA, Ioannou K, Husband A, Bamias A, Dimopoulos MA, Constantinou AI, Tsitsilonis OE. Phenoxodiol, an anticancer isoflavene, induces immunomodulatory effects in vitro and in vivo. J Cell Mol Med. 2009 Sep;13(9B):3929-38. doi: 10.1111/j.1582-4934.2009.00695.x. Epub 2009 Feb 11. PMID: 19220577; PMCID: PMC4516540.
2. Gamble JR, Xia P, Hahn CN, Drew JJ, Drogemuller CJ, Brown D, Vadas MA. Phenoxodiol, an experimental anticancer drug, shows potent antiangiogenic properties in addition to its antitumour effects. Int J Cancer. 2006 May 15;118(10):2412-20. doi: 10.1002/ijc.21682. PMID: 16353157.

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7. Bioactivity

Biological target:

Phenoxodiol activates the mitochondrial caspase system, inhibits XIAP (an apoptosis inhibitor), and sensitizes the cancer cells to Fas-mediated apoptosis.

In vitro activity

Here phenoxodiol induces cell cycle arrest in the G1/S phase of the cell cycle, with the resultant arrest due to the up regulation of $p21^{WAF1}$. The cytotoxicity may be due to downstream signalling of molecules such as Akt and ASK1. c-Myc is a potent oncogene and expression was found to alter in PC3 cells in response to phenoxodiol. The expression of Ki-67 and Cyclin-D1 was altered after phenoxodiol treatment.

Reference: Cancer Cell Int. 2014; 14: 110. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4231195/

In vivo activity

Interestingly, the lower PXD (Phenoxodiol) dose (10 mg/kg) was the most effective (Fig. 4A, PXD_{10}), as it restricted tumour size to 1.6 cm^3 by day 33. The mean tumour volume measured with these animals did not increase by the end of the monitoring period (day 38), suggesting the in vivo activation of antitumour mechanisms capable of efficiently eliminating progressive cancer cell growth. Tumour growth results paralleled overall survival (Fig. 4B); 30% of mice (i.e. 3 of 10 animals) administered GEN (genistein) or PXD^{20} survived until day 38, whereas 40% of mice receiving 10 mg/kg PXD (PXD^{10}) were still alive at the end of the 38-day monitoring period.

Reference: J Cell Mol Med. 2009 Sep; 13(9b): 3929–3938. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4516540/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.