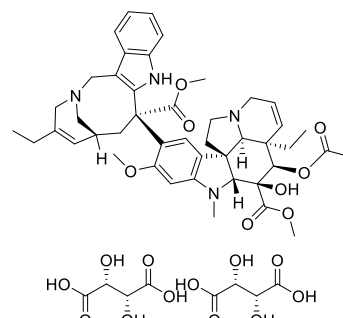


Product data sheet



MedKoo Cat#: 100930 Name: Vinorelbine tartrate CAS#: 125317-39-7 (tartrate) Chemical Formula: C ₅₃ H ₆₆ N ₄ O ₂₀ Exact Mass: 1078.42704 Molecular Weight: 1079.1		
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:

Vinorelbine is a semisynthetic vinca alkaloid derived from the leaves of the periwinkle plant (*Vinca rosea*) with antineoplastic activity. Vinorelbine binds to tubulin, thereby inhibiting tubulin polymerization into microtubules and spindle formation and resulting in apoptosis of susceptible cancer cells. Inhibition of mitotic microtubules correlates with antitumor activity, whereas inhibition of axonal microtubules seems to correlate with vinorelbine's neurotoxicity. Compared to related vinca alkaloids, vinorelbine is more selective against mitotic than axonal microtubules in vitro, which may account for its decreased neurotoxicity. This agent is also a radiation-sensitizing agent.

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	100.0	92.67
Ethanol	100.0	92.67
Water	100.0	92.67

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	0.93 mL	4.63 mL	9.27 mL
5 mM	0.19 mL	0.93 mL	1.85 mL
10 mM	0.09 mL	0.46 mL	0.93 mL
50 mM	0.02 mL	0.09 mL	0.19 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

- Mavroeidis L, Sheldon H, Briasoulis E, Marselos M, Pappas P, Harris AL. Metronomic vinorelbine: Anti-angiogenic activity in vitro in normoxic and severe hypoxic conditions, and severe hypoxia-induced resistance to its anti-proliferative effect with reversal by Akt inhibition. *Int J Oncol.* 2015 Aug;47(2):455-64. doi: 10.3892/ijo.2015.3059. Epub 2015 Jun 19. PMID: 26095084; PMCID: PMC4501653.
- Thomas-Schoemann A, Lemare F, Mongaret C, Bermudez E, Chéreau C, Nicco C, Dauphin A, Weill B, Goldwasser F, Batteux F, Alexandre J. Bystander effect of vinorelbine alters antitumor immune response. *Int J Cancer.* 2011 Sep 15;129(6):1511-8. doi: 10.1002/ijc.25813. Epub 2011 Apr 1. PMID: 21128224.

In vivo study

Product data sheet



1. Hastie R, Lim E, Sluka P, Campbell L, Horne AW, Ellett L, Hannan NJ, Brownfoot F, Kaitu'u-Lino TJ, Tong S. Vinorelbine Potently Induces Placental Cell Death, Does Not Harm Fertility and is a Potential Treatment for Ectopic Pregnancy. EBioMedicine. 2018 Mar;29:166-176. doi: 10.1016/j.ebiom.2018.01.041. Epub 2018 Feb 2. PMID: 29429891; PMCID: PMC5925452.
2. Cui R, Yoshioka M, Takahashi F, Ishida H, Iwakami S, Takahashi K. Vinorelbine is effective for the malignant pleural effusion associated with lung cancer in mice. Anticancer Res. 2008 May-Jun;28(3A):1633-9. PMID: 18630520.

7. Bioactivity

Biological target:

Vinorelbine (ditartrate) inhibits the proliferation of Hela cells with IC50 of 1.25 nM.

In vitro activity

To determine the mechanism of protection from the pro-apoptotic action of metronomic vinorelbine the balance of the anti-apoptotic Bcl-2 and pro-apoptotic protein Bax (Fig. 6A) was investigated. Bcl-2 and Bax are players of the intrinsic mitochondrial apoptotic pathway and a low Bcl-2/Bax ratio leads to apoptotic cell death through mitochondrial outer membrane permeabilization (MOMP). Moreover, Bcl-2 downregulation has previously been implicated in the cell death caused by vinorelbine. Ten nanomolar vinorelbine downregulated the anti-apoptotic protein Bcl-2 in normoxia by 32% ($P < 0.01$) at 24 h. Severe hypoxia also decreased Bcl-2 protein by 46% ($P < 0.001$) but 10 nM vinorelbine did not further reduce Bcl-2 under these conditions (Fig. 6B). Similar changes were seen in the Bcl-2/Bax ratio (Fig. 6C). In particular, 10 nM vinorelbine decreased the Bcl-2/Bax ratio by 30% ($P < 0.05$) in normoxia at 24 h, which is consistent with induction of apoptosis. Severe hypoxia decreased the Bcl-2/Bax ratio by 42% ($P < 0.01$) while 10 nM vinorelbine did not have an additional effect.

Reference: Int J Oncol. 2015 Aug; 47(2): 455–464. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4501653/>

In vivo activity

This study used a model previously described where JEG3 cells are xenografted subcutaneously into immune deficient (SCID) female mice and placental tumors allowed to form. Mice were then treated intravenously (via tail vein) with 1.25, 2.5 or 5 mg/kg vinorelbine, or vehicle control on days 6, 9 and 12 after xenograft inoculation. Compared to vehicle controls, vinorelbine at all doses significantly reduced xenograft volume 4 days after treatment (10 days after JEG3 inoculation) and each measured time point thereafter (12 and 14 days after inoculation) (Fig. 2A, B). Furthermore, vinorelbine treatment caused a significant, dose dependent reduction in xenograft tumor weight (harvested at the time of euthanasia) (Fig. 2C). There was a concordant dose dependent reduction in serum hCG from blood taken at the time of euthanasia. Significantly, at the top dose of vinorelbine (5 mg/kg) 6 out of 8 mice had a resolution of the tumor to the extent that no tumor could be found (Fig. 2C). Of these 6 mice, 5 had serum hCG levels below the detectable range of the assay (Fig. 2D). This suggests the possible complete absence of placental xenograft tumors in 5 mice.

Reference: EBioMedicine. 2018 Mar; 29: 166–176. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5925452/>

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.