产品名称：常山酮
产品别名：**Halofuginone**

生物活性：		
Description	Halofuginone (RU-19110) is a less-toxic form of Febrifugine, which is isolated from the plant Dichroa febrifuga[1]. Halofuginone inhibits prolyl-tRNA synthetase in an ATP-dependent manner with a Ki of 18.3 nM[2]. Halofuginone attenuates osteoarthritis (OA) by inhibition of TGF-β activity[3].	
IC_{50} & Target	Ki: 18.3±0.5 nM (prolyl-tRNA synthetase)[2]	
In Vitro	Halofuginone competitively inhibits prolyl-tRNA synthetase by occupying both the prolineand tRNA-binding pockets of prolyl-tRNA synthetase[1]. The IC50s of Halofuginone (1, 10, 100, 1000, 10000 nM; 48 hours) are 114.6 and 58.9 nM in KYSE70 and A549 cells, respectively. The IC50s of Halofuginone (1, 10, 100, 1000 nM; 24 hours) for NRF2 protein are 22.3 and 37.2 nM in KYSE70 and A549 cells, respectively. The IC50 of Halofuginone for global protein synthesis is 22.6 and 45.7 nM in KYSE70 and A549 cells, respectively[1].	
	Cell Viability Assay[1]	
	Cell Line:	KYSE70 cells from human oesophageal cancer harbouring a mutation in the *NRF2* gene and A549 cells harbouring the*KEAP1* gene mutation
	Concentration:	1, 10, 100, 1000, 10000 nM
	Incubation Time:	48 hours
	Result:	The IC_{50}s were 114.6 and 58.9 nM in KYSE70 and A549 cells, respectively.
	Western Blot Analysis[1]	
	Cell Line:	KYSE70 cells from human oesophageal cancer harbouring a mutation in the *NRF2* gene and A549 cells harbouring the*KEAP1* gene mutation.
	Concentration:	1, 10, 100, 1000 nM
	Incubation Time:	24 hours
	Result:	The IC_{50}s for NRF2 protein were 22.3 and 37.2 nM in KYSE70 and A549 cells, respectively.
In Vivo	Halofuginone (0.2, 0.5, 1 or 2.5 mg/kg; injected intraperitoneally every other day for 1 month) attenuates progression of OA in anterior cruciate ligament transection (ACLT) mice. Lower concentration (0.2 or 0.5 mg/kg) has minimal effects on subchondral bone and higher concentration (2.5 mg/kg) induces proteoglycan loss in articular cartilage[3]. Halofuginone (0.25 mg/kg; intraperitoneally injected; every day; 16 days) decreases NRF2 protein levels in tumors. While the tumor volumes do not change substantially between treatments with the vehicle, Halofuginone (0.25 mg/kg, intraperitoneally injected, every day) or cisplatin alone. Combined treatment with Halofuginone and Cisplatin significantly suppresses the tumor volume compared to treatment with Halofuginone or cisplatin alone[1].	
	Animal Model:	3-month-old male C57BL/6J (WT) mice[3]
	Dosage:	0.2, 0.5, 1 or 2.5 mg/kg
	Administration:	Injected intraperitoneally every other day for 1 month
	Result:	Attenuated progression of OA in ACLT mice.
	Animal Model:	Male nude mice (BALB/C nu/nu mice) (6-8-week)[1]

<table>
<tr><td rowspan="3"></td><td>Dosage:</td><td>0.25 mg/kg</td></tr>
<tr><td>Administration:</td><td>Intraperitoneally injected; every day; 16 days</td></tr>
<tr><td>Result:</td><td>The combined treatment with Cisplatin significantly suppressed the tumor volume. NRF2 protein levels in tumors were indeed decreased.</td></tr>
<tr><td>Solvent&Solubility</td><td colspan="2">In Vitro:
DMSO : 9 mg/mL (21.70 mM; Need ultrasonic and warming)
<table>
<tr><td rowspan="4">Preparing Stock Solutions</td><td>Solvent / Mass / Concentration</td><td>1 mg</td><td>5 mg</td><td>10 mg</td></tr>
<tr><td>1 mM</td><td>2.4115 mL</td><td>12.0575 mL</td><td>24.1150 mL</td></tr>
<tr><td>5 mM</td><td>0.4823 mL</td><td>2.4115 mL</td><td>4.8230 mL</td></tr>
<tr><td>10 mM</td><td>0.2411 mL</td><td>1.2057 mL</td><td>2.4115 mL</td></tr>
</table>
*请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液；一旦配成溶液，请分装保存，避免反复冻融造成的产品失效。
储备液的保存方式和期限：-80°C, 6 months; -20°C, 1 month。-80°C 储存时，请在 6 个月内使用，-20°C 储存时，请在 1 个月内使用。</td></tr>
<tr><td>References</td><td colspan="2">[1]. Tsuchida K, et al. Halofuginone enhances the chemo-sensitivity of cancer cells by suppressing NRF2 accumulation. Free Radic Biol Med. 2017 Feb;103:236-247.
[2]. Keller TL, et al. Halofuginone and other Febrifugine derivatives inhibit prolyl-tRNA synthetase. Nat Chem Biol. 2012 Feb 12;8(3):311-7.
[3]. Cui Z, et al. Halofuginone attenuates osteoarthritis by inhibition of TGF-β activity and H-type vessel formation in subchondral bone. Ann Rheum Dis. 2016 Sep;75(9):1714-21.</td></tr>
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