产品名称：Flavopiridol HCl
产品别名：Flavopiridol Hydrochloride；夫拉平度盐酸盐

生物活性：

Description

Flavopiridol Hydrochloride (Alvocidib Hydrochloride) is a broad inhibitor of **CDK**, competing with ATP to inhibit CDKs including CDK1, CDK2, CDK4 with **IC_{50}**s of 30, 170, 100 nM, respectively.

IC_{50} & Target

CDK1/Cyc B1	CDK2/Cyc E	CDK4/Cyc D1	MAP	PKC
30 nM (IC_{50})	170 nM (IC_{50})	100 nM (IC_{50})	19000 nM (IC_{50})	14000 nM (IC_{50})
EGFR				
22000 nM (IC_{50})				

In Vitro

Flavopiridol (2 μM) robustly induces a distinct pattern of ER stress in CLL cells that contributes to cell death through IRE1-mediated activation of ASK1 and possibly downstream caspases[1]. Flavopiridol results in potent upregulation of a number of PRGs in treatments lasting 4-24 h. Flavopiridol has and immediate and long-term effect on the expression of several PRGs. In serum starved cells re-stimulated with serum, flavopiridol also inhibits the expression of these genes, but subsequently, JUNB, GADD45B and EGR1 are upregulated in the presence of flavopiridol[2].

Solvent&Solubility

In Vitro:

H_2O : ≥ 20 mg/mL (45.63 mM)

DMF : 7.69 mg/mL (17.55 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.2815 mL	11.4077 mL	22.8154 mL
	5 mM	0.4563 mL	2.2815 mL	4.5631 mL
	10 mM	0.2282 mL	1.1408 mL	2.2815 mL

*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。

References

[1]. Mahoney E, et al. ER stress and autophagy: new discoveries in the mechanism of action and drug resistance of the cyclin-dependent kinase inhibitor flavopiridol.Blood. 2012 Aug 9;120(6):1262-1273.

[2]. Keskin H, et al. Complex effects of flavopiridol on the expression of primary response genes. Cell Div. 2012 Mar 29;7:11.

[3]. Kim KS, et al.Thio- and oxoflavopiridols, cyclin-dependent kinase 1-selective inhibitors: synthesis and biological effects. J Med Chem. 2000 Nov 2;43(22):4126-34.

实验参考：

Cell Assay

The cells treated with flavopiridol are washed after 4 hours with PBS and resuspended in regular growth medium (RPMI 1640) supplemented with 10% human serum and antibiotics for the remainder of the incubation time. In the case of flavopiridol/chloroquine samples, chloroquine is re-added in the fresh media after flavopiridol is washed at 4 hours. For all the other conditions, cells are incubated with the respective drugs for 24 hours continuously. [1]

Kinase Assay	Briefly, lysates containing approximately 3×10^6 cells are incubated with 50 μM LEVD-AFC (caspase 4 substrate) or LETD-AFC (caspase 8 substrate) containing 10 mM dithiothretiol (DTT). Caspase 4 activity is measured one hour after addition of substrate and caspase 8 activity is measured 30 minutes after addition of substrate. Release of free AFC is measured with a Beckman-Coulter DTX 880 multimode detector. [1]
References	[1]. Mahoney E, et al. ER stress and autophagy: new discoveries in the mechanism of action and drug resistance of the cyclin-dependent kinase inhibitor flavopiridol.Blood. 2012 Aug 9;120(6):1262-1273. [2]. Keskin H, et al. Complex effects of flavopiridol on the expression of primary response genes. Cell Div. 2012 Mar 29;7:11. [3]. Kim KS, et al.Thio- and oxoflavopiridols, cyclin-dependent kinase 1-selective inhibitors: synthesis and biological effects. J Med Chem. 2000 Nov 2;43(22):4126-34.