产品名称：Monastrol
产品别名： (±)-Monastrol

生物活性：

Description	Monastrol is a potent and cell-permeable inhibitor of the mitotic kinesin Eg5 with an IC_{50} value of 14 μM.
IC_{50} & Target	Eg5
	14 μM (IC_{50})
In Vitro	Monastrol is a small, cell-permeable molecule that arrests cells in mitosis by specifically inhibiting Eg5, a member of the Kinesin-5 family. Monastrol treatment of dividing cells results in spindle collapse and cell cycle arrest with a monoastral spindle, which is similar to the phenotype observed when Eg5 is inhibited by anti-Eg5 antibodies[1]. Monastrol is an allosteric inhibitor of the mitotic kinesin Eg5 that exhibits an antiproliferative effect against several cell lines. Monastrol treatment can decrease cell viability in MCF-7 tumor cells. Real-time cell growth kinetic analysis showed a decrease in the proliferation of MCF-7 cells exposed to monastrol[2].

Solvent&Solubility

In Vitro:

DMSO : ≥ 33 mg/mL (112.88 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.4206 mL	17.1028 mL	34.2056 mL
	5 mM	0.6841 mL	3.4206 mL	6.8411 mL
	10 mM	0.3421 mL	1.7103 mL	3.4206 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。

In Vivo:

请根据您的实验动物和给药方式选择适当的溶解方案。以下溶解方案都请先按照 **In Vitro** 方式配制澄清的储备液，再依次添加助溶剂：

——为保证实验结果的可靠性，澄清的储备液可以根据储存条件，适当保存；体内实验的工作液，建议您现用现配，当天使用； 以下溶剂前显示的百分比是指该溶剂在您配制终溶液中的体积占比；如在配制过程中出现沉淀、析出现象，可以通过加热和/或超声的方式助溶

1.请依序添加每种溶剂： 10% DMSO→40% PEG300 →5% Tween-80 → 45% saline

Solubility: ≥ 2.5 mg/mL (8.55 mM); Clear solution

此方案可获得 ≥ 2.5 mg/mL (8.55 mM，饱和度未知) 的澄清溶液。

以 1 mL 工作液为例，取 100 μL 25.0 mg/mL 的澄清 DMSO 储备液加到 400 μL PEG300 中，混合均匀；向上述体系中加入 50 μL Tween-80，混合均匀；然后继续加入 450 μL 生理盐水定容至 1 mL。

2.请依序添加每种溶剂： 10% DMSO→ 90% (20% SBE-β-CD in saline)

Solubility: ≥ 2.5 mg/mL (8.55 mM); Clear solution

此方案可获得 ≥ 2.5 mg/mL (8.55 mM，饱和度未知) 的澄清溶液。

以 1 mL 工作液为例，取 100 μL 25.0 mg/mL 的澄清 DMSO 储备液加到 900 μL 20% 的 SBE-β-CD 生理盐水水溶液中，混合均匀。

	3.请依序添加每种溶剂： 10% DMSO →90% corn oil Solubility: ≥ 2.5 mg/mL (8.55 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (8.55 mM，饱和度未知) 的澄清溶液，此方案不适用于实验周期在半个月以上的实验。 以 1 mL 工作液为例，取 100 μL 25.0 mg/mL 的澄清 DMSO 储备液加到 900 μL 玉米油中，混合均匀。
References	[1]. Cochran JC, et al. Monastrol inhibition of the mitotic kinesin Eg5. J BiolChem. 2005 Apr 1;280(13):12658-67. [2]. Mayer TU, et al. Small molecule inhibitor of mitotic spindle bipolarity identified in a phenotype-based screen. Science. 1999 Oct 29;286(5441):971-4. [3]. Marques LA, et al. Antiproliferative activity of monastrol in human adenocarcinoma (MCF-7) and non-tumor (HB4a) breast cells. Naunyn Schmiedebergs Arch Pharmacol. 2016 Dec;389(12):1279-1288.

实验参考：

Cell Assay	The cytotoxicity assay is performed with MTT. Cells are seeded in 96-well culture plates (5000 cells/well) and incubated for 24 h for stabilization. After this period, the following treatments are administered for 24 and 48 h: vehicle control (0.5 % DMSO); 1 μM doxorubicin and monastrol at 5, 25, 50, 75, and 100 μM. After each time of treatment, the medium is withdrawn, serum-free media containing 0.5 mg/mL MTT salt is added and incubated for 4 h, and formazan crystal products are diluted[2].
References	[1]. Cochran JC, et al. Monastrol inhibition of the mitotic kinesin Eg5. J BiolChem. 2005 Apr 1;280(13):12658-67. [2]. Mayer TU, et al. Small molecule inhibitor of mitotic spindle bipolarity identified in a phenotype-based screen. Science. 1999 Oct 29;286(5441):971-4. [3]. Marques LA, et al. Antiproliferative activity of monastrol in human adenocarcinoma (MCF-7) and non-tumor (HB4a) breast cells. Naunyn Schmiedebergs Arch Pharmacol. 2016 Dec;389(12):1279-1288.