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产品名称：LM 22A4
产品别名：LM22A-4

生物活性：

Description	LM22A-4 is a specific agonist of tyrosine kinase receptor B, used for neurological disease research.
In Vitro	LM22A-4 significantly up-regulates OPN and ALPase mRNA expression in a dose-dependent manner and OC mRNA level is significantly increased by 5 μM of LM22A-4. LM22A-4 significantly increases OPN, ALPase and OC mRNA expression in a time-dependent manner. LM22A-4 stimulated OPN and OC mRNA expression in HCEM cells cultured with mineralizing media[2].
In Vivo	LM22A-4 (10 mg/kg, i.p.) significantly reduces the degree of tissue injury and apoptosis (TUNEL staining and caspase-3 and Bcl-2 expression) compared with vehicle treated group. LM22A-4 also significantly ameliorates the recovery of limb function. LM22A-4 (10 mg/kg) treatment results in a significant increase in neuron number. LM22A-4 administration (10 mg/kg) significantly improves the neurological scores compared with those of the solvent-treated animals[1].

Solvent&Solubility

In Vitro:

H_2O : ≥ 50 mg/mL (147.34 mM)

DMSO : ≥ 29 mg/mL (85.46 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.9469 mL	14.7345 mL	29.4690 mL
	5 mM	0.5894 mL	2.9469 mL	5.8938 mL
	10 mM	0.2947 mL	1.4734 mL	2.9469 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 (7.37 mM); Clear solution

此方案可获得 ≥ 2.5 mg/mL (7.37 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 (7.37 mM); Clear solution

	此方案可获得 ≥ 2.5 mg/mL (7.37 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 (7.37 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (7.37 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]. Yu G, et al. Protective effects of LM22A-4 on injured spinal cord nerves. Int J Clin Exp Pathol. 2015 Jun 1;8(6):6526-32. eCollection 2015. [2]. Kajiya M, et al. BDNF mimetic compound LM22A-4 regulates cementoblast differentiation via the TrkB-ERK/Akt signaling cascade. Int Immunopharmacol. 2014 Apr;19(2):245-52.

实验参考：

Animal Administration	ICR mice are randomly divided into five groups: sham treatment, spinal cord injury, spinal cord injury combined with solvent treatment, spinal cord injury combined with LM22A-4 treatment (10 mg/kg), and spinal cord injury combined with LM22A-4 treatment (15 mg/kg), with each group containing 26 animals. Preparation of the mouse SCI model is based on a previous study and on a protocol employed by this group. Briefly, a mouse is anesthetized via the administration of chloral hydrate (4 mg/kg) before a 3-cm incision is introduced on its back. T7-T11 vertebrae are exposed under a surgical microscope before the laminae are removed with a vascular clip to fully expose the spinal cord. The spinal cord is clamped with the vascular clip for 1 minute with a force of 10 g. The animal is then subjected to complete staunching of the bleeding, and the incised dorsal muscle and skin are sutured. Mice from the control group undergo laminectomy, full exposure of the spinal cord, and subsequent suturing, but without aortic clamping. After the surgery, the mice are placed on a warm blanket until fully awake and are then housed in cages accommodating a normal diet. After the SCI treatment, 14 mice are sacrificed to enable molecular and histological examinations; the other 14 mice are allowed to live for 20 days for neurological scoring and are sacrificed on day 20 via cervical dislocation. [1]
References	[1]. Yu G, et al. Protective effects of LM22A-4 on injured spinal cord nerves. Int J Clin Exp Pathol. 2015 Jun 1;8(6):6526-32. eCollection 2015. [2]. Kajiya M, et al. BDNF mimetic compound LM22A-4 regulates cementoblast differentiation via the TrkB-ERK/Akt signaling cascade. Int Immunopharmacol. 2014 Apr;19(2):245-52.