产品名称：Necrostatin-1
产品别名：Necrostatin-1

生物活性：

Description	Necrostatin-1 (Nec-1) is a potent, selective and cell-permeable necroptosis inhibitor with an EC_{50} of 490 nM in Jurkat cells. Necrostatin-1 acts by inhibiting RIP1 kinase (EC_{50}=182 nM) in the necroptosis pathway. Necrostatin-1 is also a indoleamine-2,3-dioxygenase (IDO) inhibitor.
IC_{50} & Target	EC50: 182 nM (RIP1 kinase)[1]
In Vitro	Necrostatin-1 (Nec-1) efficiently inhibits the TNFα-induced necrotic death of L929 cells, which does not require exogenous caspase inhibitors[1]. Necrostatin-1 (Nec-1) prevents radiocontrast media (RCM)-induced dilation of peritubular capillaries, suggesting a novel role unrelated to cell death for the RIP1 kinase domain in the regulation of microvascular hemodynamics and pathophysiology of contrast-induced AKI (CIAKI)[2]. Necrostatin-1 (Nec-1) (30 μM) increases the survival of cardiomyocyte progenitor cell (CMPCs) by inhibiting necrotic cell death[4].
In Vivo	Necrostatin-1 (Nec-1) induces tubular bilation and affects the kinetics of the dilation of peritubular capillaries after RCM application. Upon a single intraperitoneal application of a single dose of Necrostatin-1 (1.65 mg/kg body weight, i.p.) 15 minutes before RCM, the return to baseline levels is prevented within the observation period[2].

Solvent&Solubility

In Vitro:

DMSO : ≥ 46 mg/mL (177.38 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.8561 mL	19.2805 mL	38.5609 mL
	5 mM	0.7712 mL	3.8561 mL	7.7122 mL
	10 mM	0.3856 mL	1.9280 mL	3.8561 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 (9.64 mM); Clear solution

此方案可获得 ≥ 2.5 mg/mL (9.64 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 (9.64 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (9.64 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。
References	[1]. Degterev A, et al. Chemical inhibitor of nonapoptotic cell death with therapeutic potential for ischemic brain injury. Nat Chem Biol. 2005 Jul;1(2):112-9. [2]. Linkermann A, et al. The RIP1-kinase inhibitor necrostatin-1 prevents osmotic nephrosis and contrast-induced AKI in mice. J Am Soc Nephrol. 2013 Oct;24(10):1545-57. [3]. Huang C, et al. Shikonin kills glioma cells through necroptosis mediated by RIP-1. PLoS One. 2013 Jun 28;8(6):e66326. [4]. Feyen D, et al. Increasing short-term cardiomyocyte progenitor cell (CMPC) survival by necrostatin-1 did not further preserve cardiac function. Cardiovasc Res. 2013 Jul 1;99(1):83-91. [5]. Zhou K, et al. RIP1-RIP3-DRP1 pathway regulates NLRP3 inflammasome activation following subarachnoid hemorrhage. Exp Neurol. 2017 Sep;295:116-124.

实验参考：

Cell Assay	C6 (3×10^5 cells/well) and U87 (1.5×10^5 cells/well) glioma cells are seeded onto 96-well microplate and cultured 24 h. PBS is added into the control group and Shikonin is added into experimental group to reach the final concentration. Cellular viability is assessed using an MTT assay after Shikonin treatment at indicated time point. The absorbance value (A) at 570 nm is read using an automatic multi-well spectrophotometer. Two groups of glioma cells from the same cell line are treated with Shikonin at lower or higher concentration, respectively; other two groups of glioma cells are treated 1 h with 100 μM Necrostatin-1 or 40 μM z-VAD-fmk prior to co-incubation with Shikonin at indicated concentration. Additionally, another two groups of glioma cells are treated only with 100 μM Necrostatin-1 or 40 μM Z-VAD-fmk at corresponding time point[3].
Animal Administration	Mice[2] 8-10 week old male C57BL/6 mice (average weight approx.23 g) are used. Mice receive intravenous application of 200 μL PBS or radiocontrast media (RCM) via the tail vein. A single dose of Z-VAD-fmk (10 mg/kg body weight) or Necrostatin-1 (1.65 mg/kg body weight) is applied intraperitoneally 15 min. before RCM-injection. Mice are harvested another 24 hours after RCM-application (48 hours after reperfusion). Blood samples are obtained from retroorbital bleeding and serum levels of urea and creatinine are determined.
References	[1]. Degterev A, et al. Chemical inhibitor of nonapoptotic cell death with therapeutic potential for ischemic brain injury. Nat Chem Biol. 2005 Jul;1(2):112-9. [2]. Linkermann A, et al. The RIP1-kinase inhibitor necrostatin-1 prevents osmotic nephrosis and contrast-induced AKI in mice. J Am Soc Nephrol. 2013 Oct;24(10):1545-57. [3]. Huang C, et al. Shikonin kills glioma cells through necroptosis mediated by RIP-1. PLoS One. 2013 Jun 28;8(6):e66326. [4]. Feyen D, et al. Increasing short-term cardiomyocyte progenitor cell (CMPC) survival by necrostatin-1 did not further preserve cardiac function. Cardiovasc Res. 2013 Jul 1;99(1):83-91. [5]. Zhou K, et al. RIP1-RIP3-DRP1 pathway regulates NLRP3 inflammasome activation following

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