

产品名称: **Kartogenin**
 产品别名: **Kartogenin**

生物活性:

Description	Kartogenin is an inducer of differentiation of human mesenchymal stem cells into chondrocytes.				
In Vitro	Kartogenin enhances cell proliferation in both cell types in a concentration-dependent manner and induces chondrogenic differentiation of stem cells, as demonstrated by high expression levels of chondrogenic markers aggrecan, collagen II and Sox-9. Besides, kartogenin induces the formation of cartilage-like tissues in cell cultures, as observed through the staining of abundant proteoglycans, collagen II and osteocalcin[1]. Kartogenin stimulates type-I collagen synthesis of fibroblasts at the mRNA and protein levels in a time-dependent manner without obvious influence on fibroblasts' apoptosis and viability. Smad4/smads of the TGF-β signaling pathway is activated by kartogenin while MAPK signaling pathway remains unchanged[2]. Kartogenin treatment enhances chondrocyte pericellular matrix assembly and retention in the presence of IL-1β. Kartogenin partially blocks the IL-1β-induced increased expression of ADAMTS-5. Additionally, kartogenin-treated articular chondrocytes exhibits a decrease in CD44 proteolytic fragmentation[3].				
In Vivo	hen injected into intact rat patellar tendons, kartogenin induces cartilage-like tissue formation in the injected area. When injected into experimentally injured rat Achilles TBJs, wound healing in the TBJs is enhanced, as evidenced by the formation of extensive cartilage-like tissues[1]. Kartogenin stimulates collagen synthesis in the mouse dermis. Dermis in the kartogenin (100 nM)-treated group exhibits increased dermal thickness and intense blue staining, which represents more collagen composition in the dermis[2].				
Solvent&Solubility	In Vitro: DMSO : ≥ 42 mg/mL (132.35 mM) * "≥" means soluble, but saturation unknown.				
	<div>Preparing Stock Solutions</div>	<div>Solvent / Mass / Concentration</div>	1 mg	5 mg	10 mg
		1 mM	3.1512 mL	15.7560 mL	31.5119 mL
		5 mM	0.6302 mL	3.1512 mL	6.3024 mL
		10 mM	0.3151 mL	1.5756 mL	3.1512 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℃, 6 months; -20℃, 1 month。 -80℃ 储存时，请在 6 个月内使用，-20℃ 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 (7.88 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (7.88 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。				

	<p>2.请依序添加每种溶剂： 10% DMSO→ 90% (20% SBE-β-CD in saline)</p> <p>Solubility: ≥ 2.5 mg/mL (7.88 mM); Clear solution</p> <p>此方案可获得 ≥ 2.5 mg/mL (7.88 mM, 饱和度未知) 的澄清溶液。</p> <p>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 生理盐水溶液中, 混合均匀。</p> <p>3.请依序添加每种溶剂： 10% DMSO →90% corn oil</p> <p>Solubility: ≥ 2.5 mg/mL (7.88 mM); Clear solution</p> <p>此方案可获得 ≥ 2.5 mg/mL (7.88 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。</p> <p>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。</p>
References	<p>[1]. Zhang J, et al. Kartogenin induces cartilage-like tissue formation in tendon-bone junction. <i>Bone Res.</i> 2014;2. pii: 14008.</p> <p>[2]. Wang J, et al. A heterocyclic molecule kartogenin induces collagen synthesis of human dermal fibroblasts by activating the smad4/smads pathway. <i>Biochem Biophys Res Commun.</i> 2014 Jul 18;450(1):568-74.</p> <p>[3]. Ono Y, et al. Chondroprotective Effect of Kartogenin on CD44-Mediated Functions in Articular Cartilage and Chondrocytes. <i>Cartilage.</i> 2014 Jul;5(3):172-80.</p>
实验参考:	
Cell Assay	<p>Rabbit BMSCs or PTSCs are treated with various concentrations (1 nM to 5 μM) of kartogenin. The medium is changed every 3 days and after 2 weeks, cell proliferation is measured by population doubling time[1].</p>
Animal Administration	<p>Rats: Then rats are divided into two groups based on the injections received: six rats are given 10 μL saline injections in each wound (wound-only group) and six rats receive 10 μL of 100 μM kartogenin solution each in the wounded areas (wound+kartogenin group). The injections are given immediately after wounding and repeated on days 2, 4, 7 and 12[1].</p>
References	<p>[1]. Zhang J, et al. Kartogenin induces cartilage-like tissue formation in tendon-bone junction. <i>Bone Res.</i> 2014;2. pii: 14008.</p> <p>[2]. Wang J, et al. A heterocyclic molecule kartogenin induces collagen synthesis of human dermal fibroblasts by activating the smad4/smads pathway. <i>Biochem Biophys Res Commun.</i> 2014 Jul 18;450(1):568-74.</p> <p>[3]. Ono Y, et al. Chondroprotective Effect of Kartogenin on CD44-Mediated Functions in Articular Cartilage and Chondrocytes. <i>Cartilage.</i> 2014 Jul;5(3):172-80.</p>