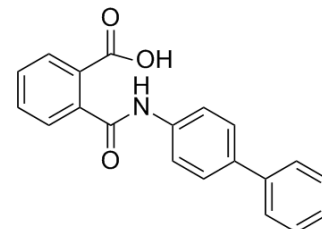


## Kartogenin

<b>Cat. No.:</b>	HY-16268		
<b>CAS No.:</b>	4727-31-5		
<b>Molecular Formula:</b>	C <sub>20</sub> H <sub>15</sub> NO <sub>3</sub>		
<b>Molecular Weight:</b>	317.34		
<b>Target:</b>	TGF-beta/Smad		
<b>Pathway:</b>	Stem Cell/Wnt; TGF-beta/Smad		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 42 mg/mL (132.35 mM)  
 \* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		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

Please refer to the solubility information to select the appropriate solvent.

#### In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
 Solubility: ≥ 2.5 mg/mL (7.88 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
 Solubility: ≥ 2.5 mg/mL (7.88 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
 Solubility: ≥ 2.08 mg/mL (6.55 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

Kartogenin (KGN) is an inducer of differentiation of human mesenchymal stem cells into chondrocytes, with an EC<sub>50</sub> of 100 nM. Kartogenin binds filamin A, disrupts its interaction with the transcription factor core-binding factor β subunit (CBFβ), and induces chondrogenesis by regulating the CBFβ-RUNX1 transcriptional program. Kartogenin can be used for the research of osteoarthritis (OA)<sup>[1][2]</sup>.

#### In Vitro

Kartogenin (50-5000 nM; 2 weeks) induces the chondrogenetic differentiation of the BMSCs in a concentration-dependent

	<p>manner<sup>[2]</sup>.</p> <p>Kartogenin (100 nM; 72 h) induces chondrocyte nodule formation in primary hMSCs<sup>[1]</sup>.</p> <p>Kartogenin (10 nM-10 μM; 72 h) increases chondrocyte-specific gene expression in hMSCs<sup>[1]</sup>.</p> <p>Kartogenin (0.12-10 μM; 48 h) inhibits nitric oxide (NO) and glycosaminoglycan (GAG) release induced by cytokines in primary bovine articular chondrocytes<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
<b>In Vivo</b>	<p>Kartogenin (10 μM in 4μL of saline; i.a. on days 7 and 21) promotes cartilage repair in collagenase VII-induced OA models in mice<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

## PROTOCOL

<b>Cell Assay</b> <sup>[1]</sup>	<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<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
<b>Animal Administration</b> <sup>[1]</sup>	<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<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

## CUSTOMER VALIDATION

- Chem Eng J. 400 (2020) 126004.
- Theranostics. 2019 Sep 21;9(24):7108-7121.
- Colloid Surface B. 2020 Apr 23;192:111059.
- J Orthop Surg Res. 2020 Jun;12(3):938-945.
- Patent. US20180263995A1.

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## REFERENCES

[1]. Johnson K, et, al. A stem cell-based approach to cartilage repair. Science. 2012 May 11;336(6082):717-21.

[2]. Liu F, et, al. A novel kartogenin-platelet-rich plasma gel enhances chondrogenesis of bone marrow mesenchymal stem cells in vitro and promotes wounded meniscus healing in vivo. Stem Cell Res Ther. 2019 Jul 8;10(1):201.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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