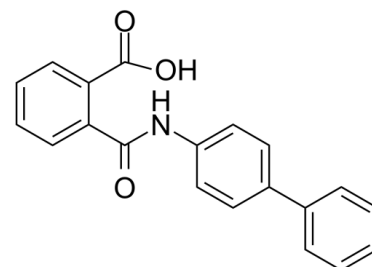


Data Sheet

Product Name:	Kartogenin
Cat. No.:	CS-3369
CAS No.:	4727-31-5
Molecular Formula:	C ₂₀ H ₁₅ NO ₃
Molecular Weight:	317.34
Target:	TGF-beta/Smad
Pathway:	Stem Cell/Wnt; TGF-beta/Smad
Solubility:	DMSO : ≥ 42 mg/mL (132.35 mM)



BIOLOGICAL ACTIVITY:

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/smad5 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-1 β . Kartogenin partially blocks the IL-1 β -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].

PROTOCOL (Extracted from published papers and Only for reference)

Cell Assay: ^[1]Rabbit BMSCs or PTSCs are treated with various concentrations (1 nM to 5 μ M) of kartogenin. The medium is changed every 3 days and after 2 weeks, cell proliferation is measured by population doubling time^[1]. **Animal Administration:** ^[1]Rat: Then rats are divided into two groups based on the injections received: six rats are given 10 μ L saline injections in each wound (wound-only group) and six rats receive 10 μ L of 100 μ M 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].

References:

[1]. Zhang J, et al. Kartogenin induces cartilage-like tissue formation in tendon-bone junction. Bone Res. 2014;2. pii: 14008.

[2]. Wang J, et al. A heterocyclic molecule kartogenin induces collagen synthesis of human dermal fibroblasts by activating the smad4/smad5 pathway. Biochem Biophys Res Commun. 2014 Jul 18;450(1):568-74.

[3]. Ono Y, et al. Chondroprotective Effect of Kartogenin on CD44-Mediated Functions in Articular Cartilage and Chondrocytes. Cartilage. 2014 Jul;5(3):172-80.

CAIndexNames:

Benzoic acid, 2-[[[1,1'-biphenyl]-4-ylamino]carbonyl]-

SMILES:

O=C(O)C1=CC=CC=C1C(NC2=CC=C(C3=CC=CC=C3)C=C2)=O

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

Tel: 732-484-9848 Fax: 888-484-5008 E-mail: sales@ChemScene.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA