Small Molecules

Kartogenin

RUNX1 transcriptional activator; Binds filamin A

Catalog # 72572

5 mg

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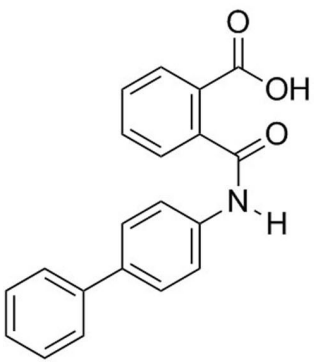
Product Description

Kartogenin induces chondrogenesis by binding the actin-binding protein filamin A, which disrupts its interaction with the transcription factor core-binding factor β subunit (CBFβ). When dissociated from filamin A, CBFβ translocates to the nucleus and forms a transcriptional complex with the runt-related transcription factor RUNX1, which enables chondrocyte differentiation (Johnson et al.).

Molecular Name:	Kartogenin
Alternative Names:	Not applicable
CAS Number:	4727-31-5
Chemical Formula:	$C_{20}H_{15}NO_3$
Molecular Weight:	317.3 g/mol
Purity:	≥ 98%
Chemical Name:	2-[(4-phenylphenyl)carbamoyl]benzoic acid
Structure:	



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.
Solubility:	· DMSO ≤ 90 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 315 µL of DMSO. Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application. Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

DIFFERENTIATION
· Promotes differentiation of human bone marrow mesenchymal stem cells into chondrocytes (Johnson et al.; Zhang et al.).
· Promotes cartilage formation/repair in mouse models of osteoarthritis or when injected into mouse tendon-bone junctions (Johnson et al.; Zhang et al.).
· Promotes type-I collagen synthesis in human dermal fibroblasts in vitro and in the dermis of mice through activation of the SMAD4/SMAD5 pathway (Wang et al.).

References

Johnson K et al. (2012) A stem cell-based approach to cartilage repair. Science 336(6082): 717–21.
Wang J et al. (2014) A heterocyclic molecule kartogenin induces collagen synthesis of human dermal fibroblasts by activating the smad4/smad5 pathway. Biochem Biophys Res Commun 450(1): 568–74.
Zhang J & Wang JH-C. (2014) Kartogenin induces cartilage-like tissue formation in tendon–bone junction. Bone Res 2: 14008.

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).