# 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.).

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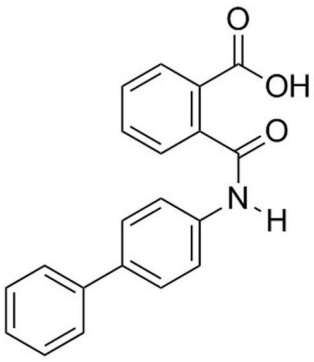
| Molecular Name: | Kartogenin |
| Alternative Names: | Not applicable |
| CAS Number: | 4727-31-5 |
| Chemical Formula: | $C_{20}H_{15}NO_3$ |
| Molecular Weight: | 317.3 g/mol |
| Purity: | ≥ 98% |
| Chemical Name: | 2-[(4-phenylphenyl)carbamoyl]benzoic acid |
| Structure: |  |

## Properties

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| Physical Appearance: | A crystalline solid |
| Storage: | Product stable at -20°C as supplied. Protect from prolonged exposure to light. For product expiry date, please contact techsupport@stemcell.com. |
| Solubility: | · DMSO ≤ 90 mM<br>For example, to prepare a 10 mM stock solution in DMSO, resuspend 1 mg in 315 µL of DMSO.<br><br>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.<br><br>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.

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