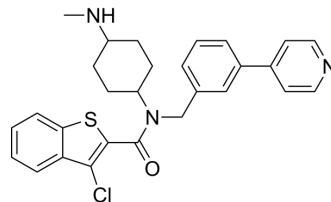


(Rac)-SAG

Cat. No.:	HY-12848A
CAS No.:	364590-63-6
Molecular Formula:	C ₂₈ H ₂₈ ClN ₃ OS
Molecular Weight:	490.06
Target:	Smo
Pathway:	Stem Cell/Wnt
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	(Rac)-SAG is an isoform of SAG (HY-12848). SAG is a potent Smoothened (Smo) receptor agonist (EC ₅₀ =3 nM; K _d =59 nM). SAG activates the Hedgehog signaling pathway and counteracts Cyclopamine (HY-17024) inhibition of Smo ^{[1][2][3]} .
IC₅₀ & Target	EC ₅₀ : 3 nM (Smo) ^[1]
In Vitro	<p>SAG (0.1 nM-100 μM; 30 h) induces firefly luciferase expression in Shh-LIGHT2 cells with an EC₅₀ of 3 nM and then inhibits expression at higher concentrations^[1].</p> <p>SAG (1-1000 nM; 1 h) competes for the binding of BODIPY-cyclopamine to Smo-expressing Cos-1 cells, yielding an apparent dissociation constant (K_d) of 59 nM for the SAG/Smo complex^[1].</p> <p>SAG (100 nM) inhibits the inhibitory effect of ShhN-induced pathway activation by Robotnikinin^[2].</p> <p>SAG (250 nM; 48 h) significantly increases SMO mRNA and protein expression in MDAMB231 cells^[3].</p> <p>SAG (250 nM; 24 and 48 h) increases CAXII mRNA expression in MDAMB231 cells at 24h in normoxic and hypoxic conditions in MDAMB231 cells^[3].</p> <p>SAG (250 nM; 24 h) increases MDAMB231 cells migration^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
In Vivo	<p>SAG (1.0 mM) induces more osteogenesis mainly at the defect borders and a significant increase in BV/TV at the eight-week timepoint in CD-1 mice^[4].</p> <p>SAG (15-20 mg/kg; i.p.) induces pre-axial polydactyly prevalently in a dose-dependent manner in mice^[5].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

REFERENCES

- [1]. Guerrini G, et al. Inhibition of smoothened in breast cancer cells reduces CAXII expression and cell migration. *J Cell Physiol*. 2018 Dec; 233(12): 9799-9811.
- [2]. Chen JK, et al. Small molecule modulation of Smoothened activity. *Proc Natl Acad Sci U S A*. 2002 Oct 29;99(22):14071-6.
- [3]. Stanton BZ, et al. A small molecule that binds Hedgehog and blocks its signaling in human cells. *Nat Chem Biol*. 2009 Mar;5(3):154-6.
- [4]. Lee S, et al. Combining Smoothened Agonist (SAG) and NEL-like protein-1 (NELL-1) Enhances Bone Healing. *Plast Reconstr Surg*. 2017 Feb 13
- [5]. Fish EW, et al. Preaxial polydactyly following early gestational exposure to the smoothened agonist, SAG, in C57BL/6J mice. *Birth Defects Res A Clin Mol Teratol*. 2016 Nov 1

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

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