Web: www.taiclone.com
Tel: +886-2-2735-9682
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Retinoic acid

Catalog No: tcsc1269

Available Sizes

Size: 100mg

Size: 500mg

Size: 1g

Size: 5g

Specifications

CAS No:
302-79-4

Formula:
$C_{20}H_{28}O_2$

Pathway:
Metabolic Enzyme/Protease;Cell Cycle/DNA Damage;Metabolic Enzyme/Protease

Target:
RAR/RXR;PPAR;Endogenous Metabolite

Form:
Light yellow to yellow (Solid)

Purity / Grade:
>98%

Solubility:
H2O :

Storage Instruction:
-20°C, sealed storage, away from moisture and light * In solvent : -80°C, for 6 months -20°C, 1 month (sealed storage, away from moisture and light)

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Alternative Names:
ATRA;Tretinoin;Vitamin A acid;all-trans-Retinoic acid

Observed Molecular Weight:
300.44

References

1]. Wu L, et al. Retinoid X Receptor Agonists Upregulate Genes Responsible for the Biosynthesis of All-Trans-Retinoic Acid in Human Epidermis. PLoS One. 2016 Apr 14;11(4):e0153556. [2]. Shaw N, et al. Retinoic acid is a high affinity selective ligand for the peroxisome proliferator-activated receptor beta/delta. J Biol Chem. 2003 Oct 24;278(43):41589-92. [3]. Yu S, et al. Retinoic acid induces neurogenesis by activating both retinoic acid receptors (RARs) and peroxisomeproliferator-activated receptor β/δ (PPARβ/δ). J Biol Chem. 2012 Dec 7;287(50):42195-205. [4]. Kam RK, et al. Retinoic acid synthesis and functions in early embryonic development. Cell Biosci. 2012 Mar 22;2(1):11. [5]. Apfel C, et al. A retinoic acid receptor alpha antagonist selectively counteracts retinoic acid effects. Proc Natl Acad Sci U S A. 1992 Aug 1;89(15):7129-33. [6]. Xiu Jun Wang, et al. Identification of retinoic acid as an inhibitor of transcription factor Nrf2 through activation of retinoic acid receptor alpha. Proc Natl Acad Sci U S A. 2007 Dec 4;104(49):19589-94

Notes

InVIVO: Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: 2.5 mg/mL (8.32 mM); Suspended solution; Need ultrasonic and warming 1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (8.32 mM); Suspended solution 2. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (8.32 mM); Clear solution 3. Add each solvent one by one: 5% DMSO >> 40% PEG300 >> 5% Tween-80 >> 50% saline Solubility: 2.5 mg/mL (8.32 mM); Suspended solution; Need ultrasonic 4. Add each solvent one by one: 5% DMSO >> 95% (20% SBE-β-CD in saline) Solubility: 2.5 mg/mL (8.32 mM); Suspended solution; Need ultrasonic InVitro: Retinoic acid (All-trans-retinoic acid, ATRA) is a highly potent derivative of vitamin A that is required for virtually all essential physiological processes and functions because of its involvement in transcriptional regulation of over 530 different genes. Retinoic acid exerts its actions by serving as an activating ligand of nuclear retinoic acid receptors (RARα-γ), which form heterodimers with retinoid X receptors (RXRα-γ) . Retinoic acid (RA) bound to PPARα and PPARγ with a low affinity demonstrated by Kd values of 100-200 nM. In contrast, Retinoic acid associates with PPARβ/δ with a Kd of 17 nM, revealing both high affinity and isotype selectivity . Undifferentiated P19 cells express the Retinoic acid (RA) receptors RARα, RARβ, RARγ, and PPARβ/δ, as well as the Retinoic acid -binding proteins CRABP-II and FABP5. Induction of differentiation by treatment of cells with Retinoic acid results in transient up-regulation of CRABP-II and down-regulation of FABP5 that are observed at the level of both the respective proteins and mRNAs. Following the initial decrease, the level of both FABP5 protein and mRNA increases to attain a 2-2.5- fold higher level in mature neurons as compared with undifferentiated P19 cells. Induction of differentiation does not markedly affect the levels of either RARα or PPARβ/δ. The level of RARγ mRNA decreases by about 5-fold by day 4 and remained low in mature neurons . Retinoic acid (RA) is a morphogen derived from retinol (vitamin A) that plays important roles in cell growth, differentiation, and organogenesis. The Retinoic acid interacts with retinoic acid receptor (RAR) and retinoic acid X receptor (RXR) which then regulate the target gene expression

Product Description

Retinoic acid is a natural agonist of **RAR** nuclear receptors, with **IC_{50}**s of 14 nM for RARα/β/γ. Retinoic acid also bind to **PPARβ/δ**, with **K_d** of 17 nM.

IC50 & Target: IC50: 14 nM (RARα/β/γ)

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[5]

Kd: 17 nM (PPARβ/δ), 103 nM (PPARα), 178 nM (PPARγ)[2]

In Vitro: Retinoic acid (All-trans-retinoic acid, ATRA) is a highly potent derivative of vitamin A that is required for virtually all essential physiological processes and functions because of its involvement in transcriptional regulation of over 530 different genes. Retinoic acid exerts its actions by serving as an activating ligand of nuclear retinoic acid receptors (RARα-γ), which form heterodimers with retinoid X receptors (RXRα-γ)[1]. Retinoic acid (RA) bound to PPARα and PPARγ with a low affinity demonstrated by K_d values of 100-200 nM. In contrast, Retinoic acid associates with PPARβ/δ with a K_d of 17 nM, revealing both high affinity and isotype selectivity[2]. Undifferentiated P19 cells express the Retinoic acid (RA) receptors RARα, RARβ, RARγ, and PPARβ/δ, as well as the Retinoic acid -binding proteins CRABP-II and FABP5. Induction of differentiation by treatment of cells with Retinoic acid results in transient up-regulation of CRABP-II and down-regulation of FABP5 that are observed at the level of both the respective proteins and mRNAs. Following the initial decrease, the level of both FABP5 protein and mRNA increases to attain a 2-2.5-fold higher level in mature neurons as compared with undifferentiated P19 cells. Induction of differentiation does not markedly affect the levels of either RARα or PPARβ/δ. The level of RARγ mRNA decreases by about 5-fold by day 4 and remained low in mature neurons[3]. Retinoic acid (RA) is a morphogen derived from retinol (vitamin A) that plays important roles in cell growth, differentiation, and organogenesis. The Retinoic acid interacts with retinoic acid receptor (RAR) and retinoic acid X receptor (RXR) which then regulate the target gene expression[4].