Product Datasheet

9-cis-Retinal

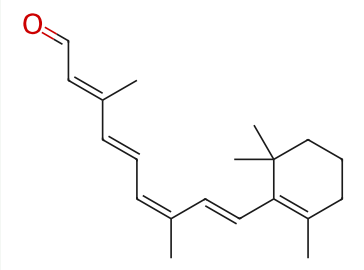
Catalog No. **BP-08873** · CAS **514-85-2** · Form **free base** · Physical state **solid** · Color **Light yellow to brown** · Version **1.0** · Revision **2026-11-16**

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Target	Research area
Endogenous Metabolite; Organoid	**Terpenoids; Other Diseases Diterpenoids; Endogenous metabolite; Disease Research Fields**

Molecular formula	$C_{20}H_{28}O$
Molecular weight	**284.4430**

STRUCTURE



DESCRIPTION

9-cis-Retinal is a natural retinoid. Dietary 9-cis-β-carotene generates 9-cis-retinoids via cleavage into 9-cis-retinal. 9-cis Retinal binds to cellular retinol-binding protein-I (CRBP-I) and CRBP-II with Kds of 8 nM and 5 nM, respectively. 9-cis-Retinal expedites differentiation and maturation of rod photoreceptors in retinal organoids .

BIOLOGICAL ACTIVITY

The addition of 9-cis-Retinal, instead of the widely used all-trans retinoic acid, accelerates rod photoreceptor differentiation in organoid cultures, with higher rhodopsin expression and more mature mitochondrial morphology evident by day. 9-cis-Retinal can bind opsin to form functioning rhodopsin
Treatment with 9-cis-retinal produced a significant recovery of the cone response in interphotoreceptor retinoid-binding protein (IRBP)-/- mice and shows that retinoid deficiency underlies cone dysfunction

SOLUBILITY

Soluble in DMSO : 100 mg/mL

In vitro	DMSO : 100 mg/mL

REFERENCES

[1]. Kane MA, et al. Binding affinities of CRBPI and CRBPII for 9-cis-retinoids.Biochim Biophys Acta. 2011 May;1810(5):514-8.

[2]. Mertz JR, et al. Identification and characterization of a stereospecific human enzyme that catalyzes 9-cis-retinol oxidation. A possible role in 9-cis-retinoic acid formation. J Biol Chem. 1997 May 2;272(18):11744-9.

[3]. Kaya KD, et al. Transcriptome-based molecular staging of human stem cell-derived retinal organoids uncovers accelerated photoreceptor differentiation by 9-cis retinal. Mol Vis. 2019 Nov 11;25:663-678.

[4]. Parker RO, et al. Normal cone function requires the interphotoreceptor retinoid binding protein. J Neurosci. 2009 Apr 8;29(14):4616-21.

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