

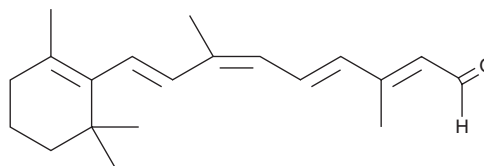
# PRODUCT INFORMATION



## 9-*cis* Retinal

Item No. 21692

**CAS Registry No.:** 514-85-2  
**Formal Name:** 9-*cis*-retinal  
**Synonyms:** 9-*cis* Retinaldehyde, 9-*cis* Vitamin A aldehyde  
**MF:** C<sub>20</sub>H<sub>28</sub>O  
**FW:** 284.4  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 373 nm  
**Supplied as:** A crystalline solid  
**Storage:** -80°C  
**Stability:** ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

9-*cis* Retinal is supplied as a crystalline solid. A stock solution may be made by dissolving the 9-*cis* retinal in the solvent of choice. 9-*cis* Retinal is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of 9-*cis* retinal in ethanol and DMF is approximately 25 mg/ml and approximately 16 mg/ml in DMSO.

9-*cis* Retinal is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 9-*cis* retinal should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. 9-*cis* Retinal has a solubility of approximately 0.3 mg/ml in a 1:2 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

### Description

9-*cis* Retinal is a natural retinoid that is produced by oxidation of 9-*cis* retinol by *cis*-retinol dehydrogenase (cRDH).<sup>1</sup> It binds to cellular retinol-binding protein-I (CRBP-I) and CRBP-II (K<sub>d</sub>s = 8 and 5 nM, respectively) and to cellular retinaldehyde-binding protein (CRALBP; K<sub>d</sub> = 53.3 nM).<sup>2,3</sup> *In vitro*, 9-*cis* retinal inhibits differentiation of RCJ C5.18 chondrogenic cells into cartilage (IC<sub>50</sub> = 8 nM).<sup>4</sup> *In vivo*, it rescues cone electroretinogram (ERG) responses in *lrpb*<sup>-/-</sup> mice, which lack interphotoreceptor retinoid-binding protein and have diminished cone responses, when administered at a dose of 0.375 mg.<sup>5</sup>

### References

1. Mertz, J.R., Shang, E., Piantedosi, R., *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.* **272**(18), 11744-11749 (1997).
2. Kane, M.A., Bright, F.V. and Napoli, J.L. Binding affinities of CRBPI and CRBP II for 9-*cis*-retinoids. *Biochim. Biophys. Acta* **1810**(5), 514-518 (2011).
3. Golovleva, I., Bhattacharya, S., Wu, Z., *et al.* Disease-causing mutations in the cellular retinaldehyde binding protein tighten and abolish ligand interactions. *J. Biol. Chem.* **278**(14), 12397-12402 (2003).
4. Von Schroeder, H.P., Hashimoto, Y. and Heerschie, J.N.M. The effects of natural and synthetic retinoids on the differentiation of RCJ C5.18 chondrogenic cells. *Teratology* **50**(1), 54-62 (1994).
5. Parker, R.O., Fan, J., Nickerson, J.M., *et al.* Normal cone function requires the interphotoreceptor retinoid binding protein. *J. Neurosci.* **29**(14), 4616-4621 (2009).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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