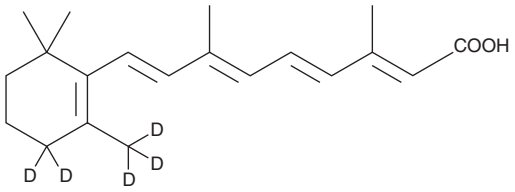
PRODUCT INFORMATION

all-*trans* Retinoic Acid-d_5

Item No. 25415

Formal Name: (2E,4E,6E,8E)-9-(6,6-dimethyl-2-(methyl-d_3)cyclohex-1-en-1-yl-3,3-d_2)-3,7-dimethylnona-2,4,6,8-tetraenoic acid
Synonyms: atRA-d_5, RA-d_5, Vitamin A Acid-d_5
MF: $C_{20}H_{23}D_5O_2$
FW: 305.5
Chemical Purity: ≥98% (all-*trans* Retinoic Acid)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_5); ≤1% d_0
Supplied as: A solid
Storage: -20°C
Stability: ≥2 years



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

Laboratory Procedures

all-*trans* Retinoic acid-d_5 is intended for use as an internal standard for the quantification of all-*trans* retinoic acid (Item No. 11017) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

all-*trans* Retinoic acid-d_5 is supplied as a solid. A stock solution may be made by dissolving the all-*trans* retinoic acid-d_5 in the solvent of choice. all-*trans* Retinoic acid-d_5 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of all-*trans* retinoic acid-d_5 in ethanol is approximately 0.5 mg/ml and approximately 20 mg/ml in DMSO and DMF.

Description

all-*trans* Retinoic acid is a metabolite of vitamin A and a ligand for retinoic acid receptors (RARs) with IC_{50} values of 9, 3, and 10 nM for RARα, RARβ, and RARγ, respectively, in radioligand binding assays.[1] It induces expression of a luciferase reporter in COS-7 cells expressing RARα, RARβ, or RARγ (EC_{50}s = 169, 9, and 2 nM, respectively). all-*trans* Retinoic acid (12 nmol) reduces papilloma formation induced by phorbol 12-myristate 13-acetate (TPA; Item No. 10008014) in mice.[2] It reduces bile duct proliferation, hydroxyproline levels, and liver inflammation in a rat model of α-naphthylisothiocyanate-induced chronic cholestasis and reduces plasma levels of alkaline phosphatase and bile salts in the *Mdr2*$^{-/-}$ mouse model of cholestasis.[3] all-*trans* Retinoic acid also reduces hepatic fat accumulation, triglycerides, body weight, and serum glucose levels in mice with Western diet-induced obesity.[4]

References

1. Idrest, N., Marill, J., Flexor, M.A., *et al. J. Biol. Chem.* **277(25)**, 31491-31498 (2002).
2. Verma, A.K., Slaga, T.J., Wertz, P.W., *et al. Cancer Res.* **40(7)**, 2367-2371 (1980).
3. Cai, S.Y., Mennone, A., Soroka, C.J., *et al. J. Pharmacol. Exp. Ther.* **349(1)**, 94-98 (2014).
4. Kim, S.C., Kim, C.K., Axe, D., *et al. Hepatology* **59(5)**, 1750-1760 (2014).

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