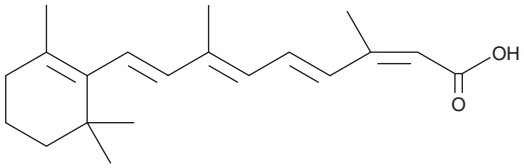
PRODUCT INFORMATION

Isotretinoin

Item No. 21648

CAS Registry No.: 4759-48-2
Formal Name: 13-*cis*-retinoic acid
Synonyms: AGN 190013, 13(Z)-Retinoic Acid, 13-*cis*-Vitamin A Acid
MF: $C_{20}H_{28}O_2$
FW: 300.4
Purity: ≥95%
UV/Vis.: λ_{max}: 242, 356 nm
Supplied as: A crystalline solid
Storage: -80°C
Stability: ≥4 years



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

Laboratory Procedures

Isotretinoin is supplied as a crystalline solid. A stock solution may be made by dissolving the isotretinoin in the solvent of choice, which should be purged with an inert gas. Isotretinoin is soluble in organic solvents such as DMSO and dimethyl formamide (DMF). The solubility of isotretinoin in these solvents is approximately 1 and 5 mg/ml, respectively.

Isotretinoin is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, isotretinoin should first be dissolved in DMF and then diluted with the aqueous buffer of choice. Isotretinoin has a solubility of approximately 0.2 mg/ml in a 1:4 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Isotretinoin is a retinoid that is converted *in vivo* into all-*trans* retinoic acid (Item No. 11017) and has diverse biological activities.[1-4] It increases the doubling time and transcription of retinoic acid receptor β (RARβ) mRNA in Hep2, FaDu, CCL-17, SCC-9, SCC-15, and SCC-25 human oral squamous cell carcinoma cells when used at a concentration of 1 µM.[2] Isotretinoin inhibits proliferation of primary human sebocytes (IC_{50} = 10 µM).[3] It also decreases triglyceride, stearyl ester, and free fatty acid synthesis and modulates keratin expression in primary human sebocytes at a concentration of 0.1 µM. Isotretinoin (2 mg/kg per day) reduces chronic rejection damage and decreases mRNA expression of IFN-γ and IL-10 in allografts in chronic Fisher344→Lewis transplant mice, an allograft nephropathy model.[4] It also slows rod and cone recovery and prevents light-induced photoreceptor damage in an albino rat model of photoreceptor degeneration when administered at a dose of 40 mg/kg.[5] Formulations containing isotretinoin have been used in the treatment of severe recalcitrant nodular acne.

References

1. Blaner, W.S. *J. Am. Acad. Dermatol.* **45(5)**, S129-S135 (2001).
2. Giannini, F., Maestro, R., Vukosavljevic, T., *et al. Int. J. Cancer.* **70(2)**, 194-200 (1997).
3. Zouboulis, C.C., Korge, B., Akamatsu, H., *et al. J. Invest. Dermatol.* **96(5)**, 792-797 (1991).
4. Adams, J., Kiss, E., Arroyo, A.B., *et al. Am. J. Pathol.* **167(1)**, 285-298 (2005).
5. Sieving, P.A., Chaudhry, P., Kondo, M., *et al. Proc. Natl. Acad. Sci. USA* **98(4)**, 1835-1840 (2001).

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