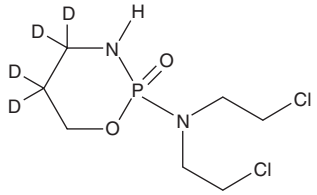
PRODUCT INFORMATION

Cyclophosphamide-d_4

Item No. 22114

CAS Registry No.: 173547-45-0
Formal Name: N,N-*bis*(2-chloroethyl)tetrahydro-4,5-d_2-2H-1,3,2-oxazaphosphorin-4,5-d_2-2-amine 2-oxide
MF: $C_7H_{11}Cl_2D_4N_2O_2P$
FW: 265.1
Chemical Purity: ≥98% (Cyclophosphamide)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_4); ≤1% d_0
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

Cyclophosphamide-d_4 is intended for use as an internal standard for the quantification of cyclophosphamide (Item No. 13849) 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).

Cyclophosphamide-d_4 is supplied as a solid. A stock solution may be made by dissolving the cyclophosphamide-d_4 in the solvent of choice, which should be purged with an inert gas. Cyclophosphamide-d_4 is slightly soluble in chloroform and methanol.

Description

Cyclophosphamide is a nitrogen mustard alkylating agent.[1] It acts as a prodrug and is converted to the active metabolite phosphoramide mustard (Item No. 34078) *via* 4-hydroxycyclophosphamide and aldophosphamide intermediates by cytochrome P450s (CYP450s) in the liver. Cyclophosphamide (50 mg/kg) induces the formation of DNA interstrand crosslinks in leukemia cells isolated from an L1210 leukemia mouse model.[2] It decreases the percentage of isolated peripheral blood lymphocytes expressing CD3, CD4, or CD19 when administered to mice at doses of 100 or 150 mg/kg.[3] Cyclophosphamide (200 mg/kg) induces nephrotoxicity and hepatotoxicity in rats.[4] It is teratogenic to embryos when administered to pregnant dams on day 11 of gestation at doses of 5, 10, or 20 mg/kg.[5] Formulations containing cyclophosphamide have been used in the treatment of cancer and autoimmune disorders.

References

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2. DeNeve, W., Valeriote, F., Edelstein, M., *et al. Cancer Res.* **49(13)**, 3452-3456 (1989).
3. Huyan, X.-H., Lin, Y.-P., Gao, T., *et al. Int. Immunopharmacol.* **11(9)**, 1293-1297 (2011).
4. Caglayan, C., Temel, Y., Kandemir, F.M., *et al. Environ. Sci. Pollut. Res. Int.* **25(21)**, 20968-20984 (2018).
5. Gibson, J.E. and Becker, B.A. Teratogenicity of structural truncates of cyclophosphamide in mice. *Teratology* **4(2)**, 141-150 (1971).

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