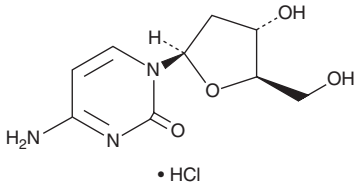
PRODUCT INFORMATION

2'-Deoxycytidine (hydrochloride)

Item No. 30125

CAS Registry No.:	3992-42-5
Formal Name:	2′-deoxy-cytidine, monohydrochloride
Synonyms:	dC, NSC 83251
MF:	$C_9H_{13}N_3O_4$ • HCl
FW:	263.7
Purity:	≥98%
UV/Vis.:	λ_{max}: 275 nm
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

2'-Deoxycytidine (hydrochloride) is supplied as a solid. A stock solution may be made by dissolving the 2'-deoxycytidine (hydrochloride) in the solvent of choice, which should be purged with an inert gas. 2'-Deoxycytidine (hydrochloride) is soluble in the organic solvent DMSO at a concentration of approximately 3 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of 2'-deoxycytidine (hydrochloride) can be prepared by directly dissolving the solid in aqueous buffers. The solubility of 2'-deoxycytidine (hydrochloride) in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

2'-Deoxycytidine is a deoxyribonucleoside composed of a deoxyribose sugar and a cytosine base.[1] It is phosphorylated by deoxycytidine kinase in the cytosol or thymidine kinase 2 (TK2) in mitochondria to form deoxycytidine monophosphate (dCMP; Item No. 29340).[2,3] Oral administration of 2'-deoxycytidine in combination with deoxythymidine delays disease onset and increases lifespan in a *Tk2 H126N* knock-in (*Tk2*$^{-/-}$) mouse model of TK2 deficiency.[2]

References

1. Berg, J.M., Tymoczko, J.L., and Stryer, L. Nucleotide biosynthesis. *Biochemistry.* 5th edition, *W.H. Freeman* (2002).
2. Lopez-Gomez, C., Levy, R.J., Sanchez-Quintero, M.J., *et al.* Deoxycytidine and deoxythymidine treatment for thymidine kinase 2 deficiency. *Ann. Neurol.* **81(5)**, 641-652 (2017).
3. Momparler, R.L. and Fischer, G.A. Mammalian deoxynucleoside kinases. I. Deoxycytidine kinase: Purification, properties, and kinetic studies with cytosine arabinoside. *J. Biol. Chem.* **243(16)**, 4298-4304 (1968).

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