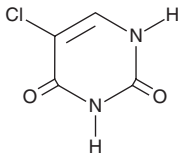
PRODUCT INFORMATION

5-Chlorouracil

Item No. 27790

CAS Registry No.:	1820-81-1
Formal Name:	5-chloro-2,4(1H,3H)-pyrimidinedione
Synonym:	NSC 28172
MF:	$C_4H_3ClN_2O_2$
FW:	146.5
Purity:	≥98%
UV/Vis.:	λ_{max}: 210, 272 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

5-Chlorouracil is supplied as a solid. A stock solution may be made by dissolving the 5-chlorouracil in the solvent of choice, which should be purged with an inert gas. 5-Chlorouracil is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of 5-chlorouracil in these solvents is approximately 53, 0.8, and 8 mg/ml, respectively.

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 5-chlorouracil can be prepared by directly dissolving the solid in aqueous buffers. The solubility of 5-chlorouracil in PBS, pH 7.2, is approximately 60 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

5-Chlorouracil is a chlorinated derivative of the pyrimidine nucleoside base uracil (Item No. 26088). *In vivo*, it is converted into chlorodeoxyuridine, which is mutagenic and genotoxic.[1] Uracil is chlorinated at the 5 position in a cell-free myeloperoxidase, peroxide, and chloride system in which hypochlorous acid is formed.[2] 5-Chlorouracil has been found in human neutrophils stimulated with phorbol 12-myristate 13-acetate (PMA; Item No. 10008014) *in vitro* and in inflammatory human exudate isolated from sites of superficial infection. Levels of 5-chlorouracil are increased in exudate isolated from the site of inflammation in a rat model of carrageenan-induced inflammation and in patient-derived human atherosclerotic aortic tissue.[3,4]

References

1. Morris, S.M. The genetic toxicology of 5-fluoropyrimidines and 5-chlorouracil. *Mutat. Res.* **297(1)**, 39-51 (1993).
2. Henderson, J.P., Byun, J., Takeshita, J., *et al.* Phagocytes produce 5-chlorouracil and 5-bromouracil, two mutagenic products of myeloperoxidase, in human inflammatory tissue. *J. Biol. Chem.* **278(26)**, 23522-23528 (2003).
3. Jiang, Q., Blount, B.C., and Ames, B.N. 5-Chlorouracil, a marker of DNA damage from hypochlorous acid during inflammation. A gas chromatography-mass spectrometry assay. *J. Biol. Chem.* **278(35)**, 32834-32840 (2003).
4. Takeshita, J., Byun, J., Nhan, T.Q., *et al.* Myeloperoxidase generates 5-chlorouracil in human atherosclerotic tissue: A potential pathway for somatic mutagenesis by macrophages. *J. Biol. Chem.* **281(6)**, 3096-3104 (2006).

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