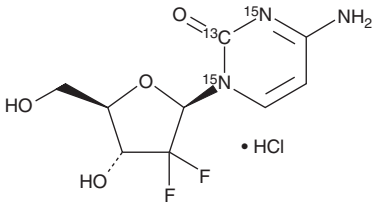
PRODUCT INFORMATION

Gemcitabine-^{13}C,$^{15}N_2$ (hydrochloride)

Item No. 22560

CAS Registry No.: 2757566-59-7
Formal Name: 2'-deoxy-2',2'-difluoro-cytidine-2-^{13}C-1,3-$^{15}N_2$, monohydrochloride
Synonym: dFdC
MF: $C_8[^{13}C]H_{11}F_2N[^{15}N_2]O_4 \bullet HCl$
FW: 302.6
Purity: ≥98%
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

Gemcitabine-^{13}C,$^{15}N_2$ (hydrochloride) is supplied as a solid. A stock solution may be made by dissolving the gemcitabine-^{13}C,$^{15}N_2$ (hydrochloride) in water. We do not recommend storing the aqueous solution for more than one day.

Description

Gemcitabine-^{13}C,$^{15}N_2$ is intended for use as an internal standard for the quantification of gemcitabine (Item Nos. 11690 | 9003096) by GC- or LC-MS. Gemcitabine is an active metabolite of the gemcitabine prodrugs NUC-1031 (Item No. 9003247) and gemcitabine elaidate (Item No. 28303) and a prodrug form of gemcitabine di- and triphosphates.[1-3] Gemcitabine is phosphorylated by intracellular kinases to the intermediate metabolite gemcitabine monophosphate (Item No. 31726) and the active di- and triphosphate forms.[3] It is cytotoxic to HepG2 hepatocellular carcinoma and A549 non-small cell lung cancer (NSCLC) cells (IC_{50}s = 5.2 and 16 nM, respectively) and inhibits tumor growth in various breast, colon, lung, and pancreatic cancer mouse xenograft models.[4] Gemcitabine (12 mg/kg) sensitizes tumors to antibodies targeting programmed cell death protein 1 (PD-1), decreases the number of tumor-infiltrating regulatory T cells (Tregs), and increases survival in an MC-38 syngeneic mouse model of colon carcinoma.[5] Formulations containing gemcitabine have been used in the treatment of cancer.

References

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2. Bergman, A.M., Adema, A.D., Balzarini, J., *et al.* Antiproliferative activity, mechanism of action and oral antitumor activity of CP-4126, a fatty acid derivative of gemcitabine, in in vitro and in vivo tumor models. *Invest. New Drugs* **29(3)**, 456-466 (2011).
3. Veltkamp, S.A., Pluim, D., van Eijndhoven, M.A.J., *et al.* New insights into the pharmacology and cytotoxicity of gemcitabine and 2',2'-difluorodeoxyuridine. *Mol. Cancer Ther.* **7(8)**, 2415-2425 (2008).
4. Merriman, R.L., Hertel, L.W., Schultz, R.M., *et al.* Comparison of the antitumor activity of gemcitabine and ara-C in a panel of human breast, colon, lung and pancreatic xenograft models. Invest. *New. Drugs* **14(3)**, 243-247 (1996).
5. Obradovic, A., Ager, C., Turunen, M., *et al.* Systematic elucidation and pharmacological targeting of tumor-infiltrating regulatory T cell master regulators. *Cancer Cell* **41(5)**, 933-949 (2023).

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