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Diagnostik & molekulare Diagnostik



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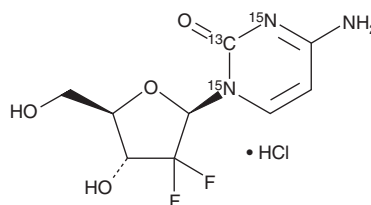
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PRODUCT INFORMATION

Gemcitabine-¹³C,¹⁵N₂ (hydrochloride)

Item No. 22560

CAS Registry No.: 2757566-59-7
Formal Name: 2'-deoxy-2',2'-difluoro-cytidine-2-¹³C-1,3-¹⁵N₂, monohydrochloride
Synonym: dFdC
MF: C₈[¹³C]H₁₁F₂N[¹⁵N₂]O₄ • 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-¹³C,¹⁵N₂ (hydrochloride) is supplied as a solid. A stock solution may be made by dissolving the gemcitabine-¹³C,¹⁵N₂ (hydrochloride) in water. We do not recommend storing the aqueous solution for more than one day.

Description

Gemcitabine-¹³C,¹⁵N₂ 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 (IC₅₀s = 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

- Slusarczyk, M., Lopez, M.H., Balzarini, J., *et al.* Application of ProTide technology to gemcitabine: A successful approach to overcome the key cancer resistance mechanisms leads to a new agent (NUC-1031) in clinical development. *J. Med. Chem.* **57**(4), 1531-1542 (2014).
- 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).
- 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).
- 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).
- 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).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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