PRODUCT INFORMATION

Gemcitabine (hydrochloride)
Item No. 9003096

CAS Registry No.: 122111-03-9
Formal Name: 2'-deoxy-2',2'-difluoro-cytidine, monohydrochloride
MF: C₉H₁₁F₂N₃O₄ • HCl
FW: 299.7
Purity: ≥98%
UV/Vis.: λ_max: 272 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥2 years

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

Laboratory Procedures

Gemcitabine (hydrochloride) is supplied as a crystalline solid. Aqueous solutions of gemcitabine (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of gemcitabine (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

Gemcitabine is an anticancer nucleoside analog that inhibits the growth of HL-60 promyelocytic leukemia cells with an LC₅₀ value of 40 nM.¹ It inhibits the growth of MX-1 mammary, CX-1, HC-1, GC3, and VRC5 colon, LX-1, Calu-6, and NCI-H460 lung, and HS766T, PaCa-2, PANC-1, and BxPC-3 pancreatic cancer tumors in mouse xenograft models (45-93% inhibition).² Gemcitabine is a prodrug that is metabolized to a diphosphate and triphosphate form in cells. The triphosphate form is incorporated into DNA which induces masked chain termination and cell death.³ By specifically inhibiting growth arrest and DNA damage inducible protein 45 a (Gadd45a), a key mediator of active DNA demethylation, gemcitabine, at concentrations ranging from 34 to 134 nM, inhibits repair-mediated DNA demethylation in a methylation-sensitive reporter assay. Gemcitabine also has broad antiretroviral activity, decreasing MuLV cell infectivity, a murine AIDS model, in cell culture (EC₅₀ = ~1.5 nM) and inhibits the progression of murine AIDS in vivo at a dose of 1-2 mg/kg per day.⁴

References