

Product Data Sheet

Product Name: Fludarabine

Cat. No.: GC14144

Chemical Properties

Cas. No. 21679-14-1

Chemical Name (2R,3S,4S,5R)-2-(6-amino-2-fluoropurin-9-yl)-5-(hydroxymethyl)oxolane-3,4-diol

SMILES C1=NC2=C(N1C3C(C(C(O3)CO)O)O)N=C(N=C2N)F

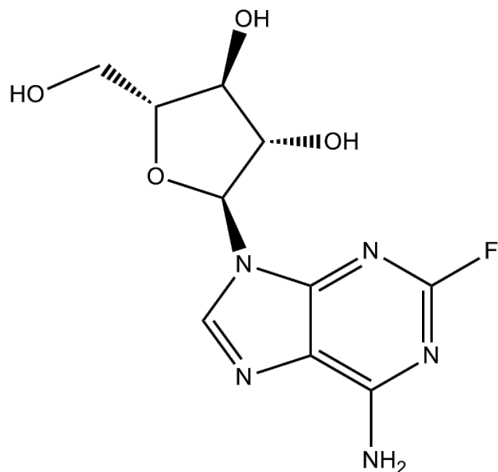
Formula C10H12FN5O4 M.Wt 285.23

Solubility $\geq 9.25\text{mg/mL}$ in DMSO Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

Cell experiment [1]:

Cell lines MEC-2 cells, Flu-resistant clonal cells

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

Preparation Method Cells were treated with or without 100μM Fludarabine for 72h and cell viability was analyzed by MTT.

Reaction Conditions 100μM; 72h

Applications Fludarabine induces MEC-2 cells apoptosis but not flu-resistant clonal cells.

Animal experiment [2]:

Animal models B-cell leukemia (BCL-1) bearing (BALB/c×C57BL/6) F1 mice

Preparation Method Mice received 10^5 BCL-1 leukemic cells and 1 day later were given 0.8mg/kg Fludarabine intraperitoneally for 5 consecutive days. 2 weeks later, mice received another 5-day cycle of 0.8mg/kg Fludarabine and 2 weeks later received 400mg/kg cyclophosphamide intraperitoneally. Control animals received saline instead of fludarabine. One day after cyclophosphamide treatment, C57BL/6 precursor cells were transplanted and the development of leukemia and the extent of graft-versus-host disease (GVHD) were monitored clinically and histopathologically.

Dosage form 0.8mg/kg, two cycles for 5 days every 2 weeks; i.p.

Applications Fludarabine in combination with cyclophosphamide decreases incidence of GVHD and maintains effective graft-versus-leukemia effect after allogeneic stem cell transplantation in murine lymphocytic leukemia.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

References:

- [1]Huang C, Tu Y, Freter C E. Fludarabine-resistance associates with ceramide metabolism and leukemia stem cell development in chronic lymphocytic leukemia[J]. Oncotarget, 2018, 9(69): 33124.
- [2]Weiss L, Abdul-Hai A, Or R, et al. Fludarabine in combination with cyclophosphamide decreases incidence of GVHD and maintains effective graft-versus-leukemia effect after allogeneic stem cell transplantation in murine lymphocytic leukemia[J]. Bone marrow transplantation, 2003, 31(1): 11-15.

Background

Fludarabine is a purine analog that inhibits DNA synthesis^[1]. Fludarabine inhibits cytokine-induced activation of STAT1 and STAT1-dependent gene transcription in normal quiescent or activated lymphocytes^[2]. Fludarabine is an anti-tumor agent used to treat leukemia and lymphoma^[3].

In vitro, treatment of MEC-2 cells with Fludarabine (100 μ M) for 72h significantly reduced cell viability, induced cytochrome c release and DNA cleavage^[4]. Treatment of chronic lymphocytic leukemia (CLL) cells with Fludarabine (3, 10, 30 μ M) for 24-72h induced apoptosis in a dose- and time-dependent manner, increased intracellular phosphorylation of H2A histone family member X (H2AX), and led to DNA damage^[5].

In vivo, treatment of BCL-1-bearing F1 mice with Fludarabine (0.8mg/kg) by intraperitoneal injection reduced the incidence of graft-versus-host disease (GVHD) in mice and maintained the anti-leukemic effect after leukemic cell transplantation^[6]. Treatment of SCID beige mice with Fludarabine (200mg/kg) by intraperitoneal injection for 6 weeks promoted the engraftment of acute myeloid leukemia (AML) cell lines^[7].

References:

- [1] Wang Y, Chen X, Tang N, et al. Boosting Clear Cell Renal Carcinoma-Specific Drug Discovery Using a Deep Learning Algorithm and Single-Cell Analysis[J]. International Journal of Molecular Sciences, 2024, 25(7): 4134.
- [2] Battle T E, Frank D A. STAT1 mediates differentiation of chronic lymphocytic leukemia cells in response to Bryostatins 1[J]. Blood, 2003, 102(8): 3016-3024.
- [3] Ricci F, Tedeschi A, Morra E, et al. Fludarabine in the treatment of chronic lymphocytic leukemia: a review[J]. Therapeutics and clinical risk management, 2009: 187-207.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

Product Data Sheet

- [4] Huang C, Tu Y, Freter C E. Fludarabine-resistance associates with ceramide metabolism and leukemia stem cell development in chronic lymphocytic leukemia[J]. Oncotarget, 2018, 9(69): 33124.
- [5] El-Mabhouh A A, Ayres M L, Shpall E J, et al. Evaluation of bendamustine in combination with fludarabine in primary chronic lymphocytic leukemia cells[J]. Blood, The Journal of the American Society of Hematology, 2014, 123(24): 3780-3789.
- [6] Weiss L, Abdul-Hai A, Or R, et al. Fludarabine in combination with cyclophosphamide decreases incidence of GVHD and maintains effective graft-versus-leukemia effect after allogeneic stem cell transplantation in murine lymphocytic leukemia[J]. Bone marrow transplantation, 2003, 31(1): 11-15.
- [7] Pievani A, Michelozzi I M, Rambaldi B, et al. Fludarabine as a cost-effective adjuvant to enhance engraftment of human normal and malignant hematopoiesis in immunodeficient mice[J]. Scientific RepoRts, 2018, 8(1): 9125.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA