

Product Data Sheet

Product Name: DB2313
Cat. No.: GC62222

Chemical Properties

Cas. No. 2170606-74-1

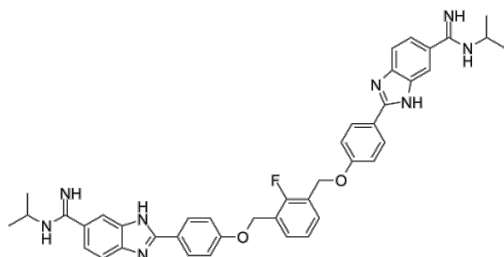
Formula $C_{42}H_{41}FN_8O_2$ M.Wt 708.83

Solubility DMSO : 3.7 mg/mL (5.22 mM; ultrasonic and warming and heat to 70°C) 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 glioma cell lines U87MG and U118MG

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

The glioma cell lines U87MG and U118MG were cultured in DMEM containing 10% fetal bovine serum and 1% penicillin-streptomycin. All cells were maintained in a humidified incubator with 5% CO₂ at 37°C. The cells were routinely tested for mycoplasma contamination. 2000 GBM cells were seeded in 96-well plates and measured cell viability using CCK-8 assay at 0, 24, 48, and 72h. GBM cells were treated with DMSO or DB2313 (10mg/mL). EdU assays were performed using an EdU assay kit with GBM cells seeded in well plates at 2×10^5 cells per well. 2×10^4 GBM cells were used for the Transwell assay. A total of 2×10^5 GBM cells were cultured in spheroid formation ECM for 72h to generate tumor spheroids and used for the 3D tumor spheroid invasion assay with a 96-well 3D spheroid BME cell invasion assay kit. Images were taken at 0, 24, 48, and 72h using microscope.

Reaction Conditions

10µg/ml; 72h

Applications

DB2313 significantly inhibited the proliferation, migration, and invasion of GBM cells (U118MG and U87MG).

Animal experiment [2]:

Animal models

Female wild-type BALB/c mice

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 Female wild-type BALB/c mice were housed under specific pathogen-free conditions and maintained on a 12-hour day-night cycle with water and regular chow available ad libitum. Mice were treated intranasally with house dust mite (HDM; *Dermatophagoides pteronyssinus*) extract (25µg in 30µL PBS or saline (vehicle), 5 days per week for 3 weeks. One group of HDM-treated mice were treated with DB2313 (8mg/kg in PBS). Bronchoalveolar lavage fluid was collected. Mucus-secreting cells (MSCs) were stained and counted. Collagen was stained and analyzed. Airway hyperresponsiveness was assessed using the forced oscillation technique.

Dosage form 8mg/kg; intranasal administration; 5 days/week for 3 weeks

Applications DB2313 decreased airway mucus-secreting cell numbers and small airway collagen deposition, and significantly reduced airway hyperresponsiveness in a house dust mite (HDM)-induced experimental asthma mouse model.

References:

[1] Zhang S, Zhao S, Qi Y, et al. SPI1-induced downregulation of FTO promotes GBM progression by regulating pri-miR-10a processing in an m6A-dependent manner. *Mol Ther Nucleic Acids*. 2022;27:699-717.

[2] Tu X, Gomez HM, Kim RY, et al. Airway and parenchyma transcriptomics in a house dust mite model of experimental asthma. *Respir Res*. 2023;24(1):32.

Background

DB2313 is a potent transcription factor PU.1 inhibitor with an IC₅₀ of 14nM^[1]. DB2313 disrupts the interaction of PU.1 with target gene promoters^[2]. PU.1, a critical transcription factor in the hematopoietic system, plays key roles in myeloid and lymphoid cell differentiation, maintenance of hematopoietic stem cell functions, and the development of acute myeloid leukemia (AML)^[3]. DB2313 is usually used in research related to AML and inflammation^[4].

In vitro, DB2313 (10µg/ml; 72h) significantly inhibited the proliferation, migration, and invasion of

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

GBM cells (U118MG and U87MG)^[5].

In vivo, DB2313 (17mg/kg; every 2 days via intraperitoneal injection for 12 days) significantly suppressed tumor growth and enhanced the recruitment of CD4⁺ T helper 1 (Th1) and cytotoxic T/natural killer (NK) cells into tumors in the B16-OVA melanoma mouse model^[6]. DB2313 (8mg/kg; intranasal administration; 5 days/week for 3 weeks) decreased airway mucus-secreting cell numbers and small airway collagen deposition, and significantly reduced airway hyperresponsiveness in a house dust mite (HDM)-induced experimental asthma mouse model^[7].

References:

- [1] Antony-Debre I, Paul A, Leite J, et al. Pharmacological inhibition of the transcription factor PU.1 in leukemia. *J Clin Invest*. 2017;127(12):4297-4313.
- [2] Tu J, Chen W, Fang Y, et al. PU.1 promotes development of rheumatoid arthritis via repressing FLT3 in macrophages and fibroblast-like synoviocytes. *Ann Rheum Dis*. 2023;82(2):198-211.
- [3] Fisher RC, Scott EW. Role of PU.1 in hematopoiesis. *Stem Cells*. 1998;16(1):25-37.
- [4] Tu X, Kim RY, Brown AC, et al. Airway and parenchymal transcriptomics in a novel model of asthma and COPD overlap. *J Allergy Clin Immunol*. 2022;150(4):817-829.e6.
- [5] Zhang S, Zhao S, Qi Y, et al. SPI1-induced downregulation of FTO promotes GBM progression by regulating pri-miR-10a processing in an m6A-dependent manner. *Mol Ther Nucleic Acids*. 2022;27:699-717.
- [6] Sleapnicov N, Ha SD, Zhong SJ, et al. Inhibition of the Transcription Factor PU.1 Suppresses Tumor Growth in Mice by Promoting the Recruitment of Cytotoxic Lymphocytes Through the CXCL9-CXCR3 Axis. *Cancers (Basel)*. 2025;17(16):2684.
- [7] Tu X, Gomez HM, Kim RY, et al. Airway and parenchyma transcriptomics in a house dust mite model of experimental asthma. *Respir Res*. 2023;24(1):32.

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