DB1976 dihydrochloride

Cat. No.: HY-135797A

CAS No.: 2369663-93-2

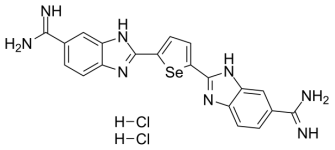
Molecular Formula: $C_{20}H_{18}Cl_2N_8Se$

Molecular Weight: 520.28

Target: Apoptosis

Pathway: Apoptosis

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 1 years; -20°C, 6 months (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 62.5 mg/mL (120.13 mM; Need ultrasonic)
H_2O : 18.33 mg/mL (35.23 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.9220 mL	9.6102 mL	19.2204 mL
5 mM	0.3844 mL	1.9220 mL	3.8441 mL
10 mM	0.1922 mL	0.9610 mL	1.9220 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (4.00 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.00 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

DB1976 dihydrochloride is a selenophene analog of DB270 and a potent and cell-permeable fully efficacious transcription factor PU.1 inhibitor. DB1976 dihydrochloride potently inhibits PU.1 binding (IC_{50} of 10 nM) and strongly inhibits the PU.1/DNA complex (with high DB1976-λB affinity, K_D of 12 nM) in vitro. DB1976 dihydrochloride has apoptosis-inducing effect[1][2][3].

IC_{50} & Target

IC50: 10 nM (Transcription factor PU.1)[1]

In Vitro

DB1976 is a classic heterocyclic dication (a single heteroatom) with strong affinity and selectivity for AT-rich sequences commonly found in cognate DNA binding sites for PU.1[2].
DB1976 inhibits PU.1-dependent transactivation of the reporter in a dose-dependent manner with an IC_{50} value of 2.4 μM in

PU.1-negative HEK293 cells[3].
DB1976 treatment leads to a profound decrease in the growth of PU.1 URE$^{-/-}$ AML cells (IC_{50} of 105 μM), while showing little effect on normal hematopoietic cells at similar concentrations (IC_{50} of 334 μM)[3].
DB1976 treatment leads to a 1.6-fold increase in apoptotic cells in murine PU.1 URE$^{-/-}$ AML cells, and observed similar effects in human MOLM13 cells[3].
DB1976 treatment leads to a significant decrease in the number of viable cells (primary human AML cells) (mean decrease of 81%) and clonogenic capacity (mean decrease of 36%) compared with vehicle-treated cells. The apoptotic cell fraction increased on average by 1.5-fold with DB1976[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Respir Res. 2023 Jan 25;24(1):32.

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REFERENCES

[1]. Munde M, et al. Structure-dependent inhibition of the ETS-family transcription factor PU.1 by novel heterocyclic diamidines. Nucleic Acids Res. 2014 Jan;42(2):1379-90.

[2]. Stephens DC, et al. Pharmacologic efficacy of PU.1 inhibition by heterocyclic dications: a mechanistic analysis. Nucleic Acids Res. 2016 May 19;44(9):4005-13.

[3]. Antony-Debré I, et al. Pharmacological inhibition of the transcription factor PU.1 in leukemia. J Clin Invest. 2017 Dec 1;127(12):4297-4313.

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