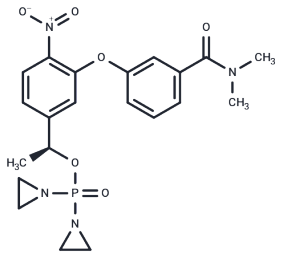
Data Sheet (Cat.No.T211703)

TargetMol

Odafosfamide

Chemical Properties



CAS No. : 2097713-69-2

Formula: C21H25N4O6P

Molecular Weight: 460.42

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Odafosfamide ((S)-OBI-3424) is a highly selective prodrug bis-alkylating agent that is specifically activated by aldehyde-keto reductase 1C3 (AKR1C3), resulting in pronounced cytotoxicity toward tumor cell lines with elevated AKR1C3 expression, and it demonstrates significant antitumor activity in cancers such as liver cancer, non-small cell lung cancer, and leukemia, making it a targeted and mechanistically informative compound for precision oncology research.
Targets(IC50)	NADPH
In vitro	Odafosfamide demonstrates cytotoxic effects on liver cancer cells (SNU-475, SNU-449, C3A) with high AKR1C3 protein and RNA expression levels, exhibiting IC50 values of 15 nM, 45 nM, and 5 nM, respectively, as well as on non-small cell lung cancer cells (NSCLC) such as NCI-H1944, NCI-H2228, NCI-H1755, NCI-H1563, NCI-H2110, and NCI-H1792, with IC50 values of 2.3 nM, 0.21 nM, 8.2 nM, 2.5 nM, 1.1 nM, and 4.5 nM. Additionally, odafosfamide shows potential anti-leukemic activity against 19 leukemia cell lines representing B-ALL, T-ALL, and ETP-ALL, with IC50 values of 60.3 nmol/L, 9.7 nmol/L, and 31.5 nmol/L, respectively.
In vivo	In extensive preclinical models, Odafosfamide demonstrates potent antitumor efficacy. In orthotopic liver cancer (HepG2) xenografts, intravenous (i.v.) administration at 5 mg/kg (weekly for 2 weeks) achieved complete tumor regression with a Tumor Growth Inhibition (TGI) of 101.2%. In castration-resistant prostate cancer (CRPC) models (VCaP xenografts), a 5 mg/kg dose resulted in a TGI of 148%, indicating significant tumor shrinkage, an effect further enhanced when combined with Abiraterone. In pediatric T-cell Acute Lymphoblastic Leukemia (T-ALL) patient-derived xenograft (PDX) models, intraperitoneal (i.p.) injection at 2.5 mg/kg (weekly for 3 weeks) induced substantial disease regression [1][2].

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.1719 mL	10.8596 mL	21.7193 mL
5 mM	0.4344 mL	2.1719 mL	4.3439 mL
10 mM	0.2172 mL	1.086 mL	2.1719 mL
50 mM	0.0434 mL	0.2172 mL	0.4344 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Meng F, et al. A novel selective AKR1C3-activated prodrug AST-3424/OBI-3424 exhibits broad anti-tumor activity. Am J Cancer Res. 2021 Jul 15;11(7):3645-3659.
Evans K, et al. OBI-3424, a Novel AKR1C3-Activated Prodrug, Exhibits Potent Efficacy against Preclinical Models of T-ALL. Clin Cancer Res. 2019 Jul 15;25(14):4493-4503.

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