

Product Data Sheet

Product Name: IMT1
Cat. No.: GC62137

Chemical Properties

Cas. No. 2304621-31-4

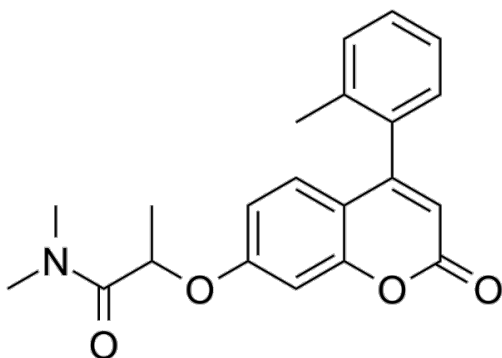
Formula $C_{21}H_{21}NO_4$ M.Wt 351.4

Solubility DMSO : 50 mg/mL (142.29 mM; Need ultrasonic) 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



Background

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

IMT1 is a first-in-class specific and noncompetitive human mitochondrial RNA polymerase (POLRMT) inhibitor. IMT1 causes a conformational change of POLRMT, which blocks substrate binding and transcription in a dose-dependent way in vitro. IMT1 reduces deoxynucleoside triphosphate levels and citric acid cycle intermediates, resulting in a marked depletion of cellular amino acid levels. IMT1 has the potential for mitochondrial transcription disorders related diseases[1].

IMT1 (0.00001-10 μ M; 0-168 h) has a dose-dependent decrease in cell viability in A2780, A549 and HeLa cells. IMT1 shows a strong decrease in cell viability in about one third of the cancer cell lines, 89 cancer cell lines and primary cells (IMR90 lung fibroblasts and human peripheral blood mononuclear cells (PBMCs)), whereas primary cells remained unresponsive[1]. IMT1 (0.01-10 μ M; for 24-200 h) causes a dose-dependent decrease in the levels of mitochondrial transcripts and gradual depletion of mtDNA in HeLa cells. There is a dose-dependent decrease in the levels of subunits (NDUFB8, UQCRC2 and COXI) of respiratory chain complexes I, III and IV[1]. IMT1 reveals a time-dependent and marked increase in the levels of mono- and diphosphate nucleotides that results in a considerable increase in the AMP/ATP ratio and levels of phosphorylated AMPK in A2780 cells[1]. IMT1 severely impairs mtDNA gene expression in A2780 cells that express wild-type POLRMT, whereas cells that express mutant POLRMT (L796Q or L816Q) are resistant[1]. POLRMT is essential for mtDNA transcription and biogenesis of the oxidative phosphorylation (OXPHOS) system[1].

[1]. Nina A Bonekamp, et al. Small-molecule inhibitors of human mitochondrial DNA transcription. Nature. 2020 Dec;588(7839):712-716.

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