

ISRIB (trans-isomer)

Chemical Properties

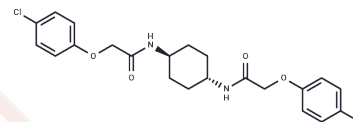
CAS No. : 1597403-47-8

Formula: C₂₂H₂₄Cl₂N₂O₄

Molecular Weight: 451.34

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year



Biological Description

Description	ISRIB (trans-isomer) is a potent inhibitor of PERK (IC ₅₀ =5 nM) that restores protein translation and prevents SG formation in the presence of P-eIF2 α .
Targets(IC ₅₀)	Apoptosis, Autophagy, PERK
In vitro	<p>METHODS: HEK293T cells were treated with clindamycin (2 μg/mL) to induce ER stress and with ISRIB (trans-isomer) or ISRIB (cis-isomer) (0-1 μM) for 7 h. The ATF4 fluorokinase reporter gene was detected.</p> <p>RESULTS: ISRIB (trans-isomer) was 100-fold more potent (IC₅₀=5 nM) than ISRIB (cis-isomer) (IC₅₀=600 nM), suggesting that the compound interacts stereospecifically with its cellular target. [1]</p> <p>METHODS: HEK293T cells were treated with Tm (1 μg/mL) and ISRIB (200 nM) for 1 h. Translation and mRNA changes were detected.</p> <p>RESULTS: ISRIB completely blocked the translational changes that occurred under ER stress. A large number of genes with significant changes in expression upon stress collapsed to the center of the graph under ISRIB and Tm co-treatment. [2]</p>
In vivo	<p>METHODS: To investigate the effects on memory, ISRIB (0.25-2.5 mg/kg) was administered intraperitoneally to CD-1 mice.</p> <p>RESULTS: ISRIB-treated mice showed significant enhancement in spatial and fear-related learning. [1]</p>
Cell Research	U2OS cells are plated on 96-well plates and left to recover overnight. Cells are treated with either with 2 μ g/ml tunicamycin or 100 nM thapsigargin in the presence or absence of 100 nM ISRIB or with ISRIB alone for the indicated and the level of eIF2 α phosphorylation is determined[1].

Solubility Information

Solubility	10% DMSO+90% Saline: 0.11 mg/mL (0.24 mM), Solution. DMSO: 1.11 mg/mL (2.46 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.2156 mL	11.0781 mL	22.1562 mL
5 mM	0.4431 mL	2.2156 mL	4.4312 mL
10 mM	0.2216 mL	1.1078 mL	2.2156 mL
50 mM	0.0443 mL	0.2216 mL	0.4431 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.

Reference

Sidrauski C, et al. Pharmacological brake-release of mRNA translation enhances cognitive memory. Elife. 2013 May 28;2:e00498.

Sidrauski C, et al. The small molecule ISRIB reverses the effects of eIF2 α phosphorylation on translation and stress granule assembly. Elife. 2015 Feb 26;4:e05033.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

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