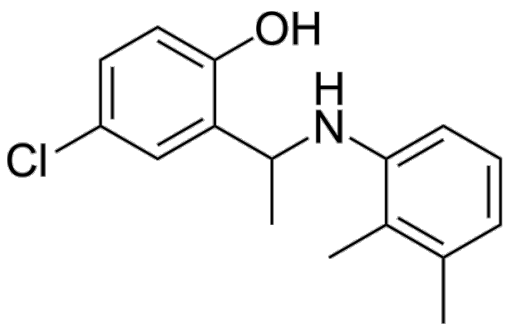
Product Data Sheet

Product Name: MFI8
Cat. No.: GC65989

Chemical Properties

Cas. No.	694488-83-0		
Formula	$C_{16}H_{18}ClNO$	M.Wt	275.77
Solubility	DMSO : 100 mg/mL (362.62 mM; Need ultrasonic)	Storage	4°C, protect from light
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

Product Data Sheet

Cell experiment [1]:	
Cell lines	WT MEF cells
Preparation Method	WT MEF cells (5×10^3cells/well) were seeded in a 96-well white plate and treated with MFI8 for 6h. Caspase-3/7 activity was measured by adding Caspase-Glo 3/7 reagent, and luminescence was detected.
Reaction Conditions	10, 15, 20μM; 6h
Applications	MFI8 concentration-dependently increased caspase-3/7 activity in WT MEF cells.
Animal experiment [2]:	
Animal models	PHN model mice (microglia-specific Gcn5l1 conditional knockout, Gcn5l1-CKO)
Preparation Method	PHN model was generated via cutaneous infection with HSV-1 on the right hindlimb. MFI8 (0.5μg/5μL) was administered by intrathecal injection at the L4-L5 intervertebral space. Spinal dorsal horn tissues were then collected for detection of inflammatory cytokines (TNF-α, IL-1β, IL-6) by Q-PCR and Western blot.
Dosage form	0.5μg/5μL; i.t.

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Applications	Intrathecal MFI8 reversed the suppressive effect of Gcn5l1 deficiency on inflammatory cytokines TNF-α, IL-1β and IL-6 at both mRNA and protein levels.
References:[1] Zacharioudakis E, Agianian B, Kumar MV V, et al. Modulating mitofusins to control mitochondrial function and signaling[J]. Nature communications, 2022, 13(1): 3775.[2] Li W, Cao X, Wang S, et al. GCN5L1 Aggravates Postherpetic Neuralgia Through Regulating Microglial Mitochondrial Fission–Fusion Homeostasis[J]. Journal of Cellular and Molecular Medicine, 2025, 29(18): e70861.	

Background

MFI8 is a small-molecule inhibitor of mitochondrial fusion [1]. By binding to the HR2 domain of the mitofusins MFN1/MFN2, MFI8 inhibits mitochondrial fusion and promotes fission, thereby affecting mitochondrial function[2]. MFI8 is commonly used in studies on mitochondrial dynamics, apoptotic signaling pathways, and Parkinson's disease animal models associated with mitochondrial dysfunction[3,4].

In vitro, treatment of U2OS cells expressing CytoGFP/MitoCherry with MFI8 (20μM) for 6h induced minority mitochondrial outer membrane permeabilization (MOMP). Treatment of WT MEF cells with MFI8 (10, 15, 20μM) for 6h concentration-dependently increased caspase-3/7 activity[5]. Treatment of PANC-1 cells under low-glucose (0.2g/L) conditions with MFI8 (5μM) for 48h caused pronounced mitochondrial fragmentation[6].

In vivo, intrathecal injection of MFI8 (0.5μg/5μL) into postherpetic neuralgia (PHN) model mice (Gcn5l1-deficient) reversed the suppressive effect of Gcn5l1 deficiency on the inflammatory cytokines TNF-α, IL-1β, and IL-6[7].

References:
[1] Song Y, Ren S, Chen X, et al. Inhibition of MFN1 restores tamoxifen-induced apoptosis in resistant cells by disrupting aberrant mitochondrial fusion dynamics[J]. Cancer letters, 2024, 590: 216847.
[2] Hernandez-Resendiz S, Prakash A, Loo S J, et al. Targeting mitochondrial shape: at the heart of

cardioprotection[J]. Basic Research in Cardiology, 2023, 118(1): 49.
[3] Zacharioudakis E, Gavathiotis E. Mitochondrial dynamics proteins as emerging drug targets[J]. Trends in pharmacological sciences, 2023, 44(2): 112-127.
[4] Zacharioudakis E, Agianian B, Kumar MV V, et al. Modulating mitofusins to control mitochondrial function and signaling[J]. Nature communications, 2022, 13(1): 3775.
[5] Zhang Y, Tian S, Niu M, et al. Activin A protects against lipopolysaccharide/TNF-α induced damage of dopaminergic neurons both in vivo and in vitro by regulating mitochondrial fusion[J]. Neuroscience, 2025.
[6] Zhang Z, Fang L, Furukawa H, et al. Maladaptive role of peridroplet mitochondria during lipophagy disruption in pancreatic cancer[J]. Biochemical and Biophysical Research Communications, 2025: 152609.
[7] Li W, Cao X, Wang S, et al. GCN5L1 Aggravates Postherpetic Neuralgia Through Regulating Microglial Mitochondrial Fission–Fusion Homeostasis[J]. Journal of Cellular and Molecular Medicine, 2025, 29(18): e70861.