

Product Data Sheet

Product Name: MFI8
Cat. No.: GC65989

Chemical Properties

Cas. No. 694488-83-0

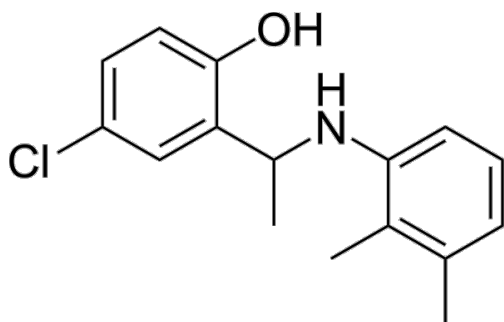
Formula $C_{16}H_{18}ClNO$ M.Wt 275.77

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

Caution: Product has not been fully validated for medical applications. For research use only.

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Cell experiment [1]:	
Cell lines	WT MEF cells
Preparation Method	WT MEF cells (5×10^3 cells/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, 20 μ M; 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 (0.5 μ g/5 μ L) 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-1 β , IL-6) by Q-PCR and Western blot.
Dosage form	0.5 μ g/5 μ L; i.t.

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Applications	Intrathecal MFI8 reversed the suppressive effect of Gcn5l1 deficiency on inflammatory cytokines TNF- α , IL-1 β 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 (20 μ M) for 6h induced minority mitochondrial outer membrane permeabilization (MOMP). Treatment of WT MEF cells with MFI8 (10, 15, 20 μ M) for 6h concentration-dependently increased caspase-3/7 activity^[5]. Treatment of PANC-1 cells under low-glucose (0.2g/L) conditions with MFI8 (5 μ M) for 48h caused pronounced mitochondrial fragmentation^[6].

In vivo, intrathecal injection of MFI8 (0.5 μ g/5 μ L) into postherpetic neuralgia (PHN) model mice (Gcn5l1-deficient) reversed the suppressive effect of Gcn5l1 deficiency on the inflammatory cytokines TNF- α , IL-1 β , 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

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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.

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