

MNF

Chemical Properties

CAS No. :	145370-39-4
Formula:	C16H11NO5
Molecular Weight:	297.26
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	MNF is a specific aryl hydrocarbon receptor (AhR) antagonist that effectively inhibits TCDD-induced AhR signaling pathway activation, attenuates TCDD-induced activation of downstream signaling molecules Akt and Erk1/2 and TGF α expression, and reverses the anti-apoptotic effect of TCDD. It is commonly used in research on AhR-related functions and signaling pathways.
Targets(IC50)	Others
In vitro	<p>MNF (0.1–1000 nM; 24 h) can inhibit TCDD-dependent DRE-driven luciferase activity in MCF-10A cells at concentrations as low as 10 nM [1].</p> <p>MNF (0.1–1000 nM; 3 days) reverses the TCDD-dependent inhibition of apoptosis in MCF-10A cells, with significant effects observed at concentrations of 100 nM and 1000 nM [1].</p> <p>MNF (0.1–1000 nM; 6 h) attenuates Akt phosphorylation levels in MCF-10A cells, with significant inhibition observed at 1 nM and complete inhibition achieved at 100 nM [1].</p> <p>MNF (0.1–1000 nM; 6 h) reverses TCDD-mediated Erk1,2 phosphorylation in MCF-10A cells at concentrations of 10 nM and above; when acting alone, a concentration of 1 nM enhances basal Erk1,2 activation [1].</p> <p>MNF (0.1–100 nM; 6 h) completely abolishes TCDD-dependent TGFα mRNA expression in MCF-10A cells at concentrations as low as 1 nM [1].</p> <p>MNF (0.5–2.5 μM) potently inhibits the basal deethylation activity of ethoxyhalogenated compounds by recombinant human CYP1A1 [2].</p> <p>MNF (0.05–2.5 μM; 1.5–20 h) dose-dependently inhibits 2,3,7,8-tetrachlorodibenzo-p-dioxin-induced ethoxyhalogen deethylation activity in HaCaT cells in vitro [2].</p> <p>MNF (0.05–2.5 μM; 1.5–48 h) initially inhibited and subsequently enhanced FICZ-dependent CYP1A1 mRNA expression and ethoxyhalogen deethylation activity in HaCaT cells, with a significant enhancing effect observed at prolonged incubation times [2].</p> <p>MNF (0.05–2.5 μM; 0–40 h) induces aramatin receptor-dependent ethoxyquin deethylation activity in HaCaT cells; this effect is dependent on endogenous FICZ in the culture medium [2].</p> <p>MNF (0.05 μM; 0–30 h) induces AR-dependent CYP1A1 mRNA expression in HaCaT cells, a process that requires FICZ present in commercial cell culture media [2].</p> <p>MNF (50 nM; 48 h) induces ethoxyhalogen deethylation activity in HaCaT cells only in the presence of 0.1 pM FICZ [2].</p>

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.3641 mL	16.8203 mL	33.6406 mL
5 mM	0.6728 mL	3.3641 mL	6.7281 mL
10 mM	0.3364 mL	1.682 mL	3.3641 mL
50 mM	0.0673 mL	0.3364 mL	0.6728 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

Davis JW Jr, et al. The aryl hydrocarbon receptor antagonist, 3'methoxy-4'nitroflavone, attenuates 2,3,7,8-tetrachlorodibenzo-p-dioxin-dependent regulation of growth factor signaling and apoptosis in the MCF-10A cell line. *Toxicol Appl Pharmacol.* 2003;188(1):42-49.

Wincent E, et al. Inhibition of cytochrome P4501-dependent clearance of the endogenous agonist FICZ as a mechanism for activation of the aryl hydrocarbon receptor. *Proc Natl Acad Sci U S A.* 2012;109(12):4479-4484.

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