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产品名称：IQ-1S (free acid)
产品别名：IQ-1S free acid

生物活性：

Description

IQ-1S free acid is a prospective inhibitor of NF-κB/activating protein 1 (AP-1) activity with an IC_{50} of 2.3±0.41 μM. IQ-1S free acid has binding affinity (K_d values) in the nanomolar range for all three JNKs with K_ds of 100 nM, 240 nM, and 360 nM for JNK3, JNK1, and JNK2, respectively.

IC_{50} & Target

JNK3	JNK1	JNK2	CK1δ	PI3Kγ	MKNK2
100 nM (Kd)	240 nM (Kd)	360 nM (Kd)	0.38 μM (Kd)	0.47 μM (Kd)	0.92 μM (Kd)

In Vitro

Compound IQ-1S is a potent, noncytotoxic inhibitor of pro-inflammatory cytokine [interleukin (IL)-1α, IL-1β, IL-6, IL-10, tumor necrosis factor (TNF)-α, interferon-γ, and granulocyte-macrophage colony-stimulating factor] and nitric oxide production by human and murine monocyte/macrophages. The effect of IQ-1S is evaluated on LPS-induced cytokine production in human PBMCs. Among the 12 cytokines analyzed, LPS (200 ng/mL) consistently induces five (IL-1α, IL-1β, IL-6, IL-10, and TNF-α) in PBMCs compared with DMSO-treated control cells. Production of all of these cytokines is significantly inhibited by 20 μM IQ-1S. Among them, TNF-α production is inhibited completely by IQ-1 (>99%), the levels of IL-1α, IL-1β, and IL-10 are decreased by 85%, and IL-6 production is decreased by 33%[1].

In Vivo

When mice are dosed with 12.5 and 30 mg/kg IQ-1S (The sodium salt of IQ-1S) i.p., the serum exposure of the compound is also good, with AUC0-12h values of 2.9 and 7.4 μM/h, respectively[1].

Solvent&Solubility

In Vitro:

DMSO : ≥ 32 mg/mL (129.42 mM)

H_2O : < 0.1 mg/mL (insoluble)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	4.0445 mL	20.2224 mL	40.4449 mL
5 mM	0.8089 mL	4.0445 mL	8.0890 mL
10 mM	0.4044 mL	2.0222 mL	4.0445 mL

*请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液；一旦配成溶液，请分装保存，避免反复冻融造成的产品失效。

储备液的保存方式和期限：-80°C, 6 months; -20°C, 1 month。-80°C 储存时，请在 6 个月内使用，-20°C 储存时，请在 1 个月内使用。

In Vivo:

请根据您的实验动物和给药方式选择适当的溶解方案。以下溶解方案都请先按照 In Vitro 方式配制澄清的储备液，再依次添加助溶剂：

——为保证实验结果的可靠性，澄清的储备液可以根据储存条件，适当保存；体内实验的工作液，建议您现用现配，当天使用； 以下溶剂前显示的百分比是指该溶剂在您配制终溶液中的体积占比；如在配制过程中出现沉淀、析出现象，可以通过加热和/或超声的方式助溶

1.请依序添加每种溶剂： 10% DMSO→40% PEG300 →5% Tween-80 → 45% saline

Solubility: ≥ 1.67 mg/mL (6.75 mM); Clear solution

此方案可获得 ≥ 1.67 mg/mL (6.75 mM，饱和度未知) 的澄清溶液。

	以 1 mL 工作液为例，取 100 μL 16.699999 mg/mL 的澄清 DMSO 储备液加到 400 μL PEG300 中，混合均匀；向上述体系中加入 50 μL Tween-80，混合均匀；然后继续加入 450 μL 生理盐水定容至 1 mL。 2.请依序添加每种溶剂： 10% DMSO→ 90% (20% SBE-β-CD in saline) Solubility: 1.67 mg/mL (6.75 mM); Suspended solution; Need ultrasonic 此方案可获得 1.67 mg/mL (6.75 mM)的均匀悬浊液，悬浊液可用于口服和腹腔注射。 以 1 mL 工作液为例，取 100 μL 16.699999 mg/mL 的澄清 DMSO 储备液加到 900 μL 20% 的 SBE-β-CD 生理盐水水溶液中，混合均匀。 3.请依序添加每种溶剂： 10% DMSO →90% corn oil Solubility: ≥ 1.67 mg/mL (6.75 mM); Clear solution 此方案可获得 ≥ 1.67 mg/mL (6.75 mM，饱和度未知) 的澄清溶液，此方案不适用于实验周期在半个月以上的实验。 以 1 mL 工作液为例，取 100 μL 16.699999 mg/mL 的澄清 DMSO 储备液加到 900 μL 玉米油中，混合均匀。
References	[1]. Schepetkin IA, et al. Identification and characterization of a novel class of c-Jun N-terminal kinase inhibitors. Mol Pharmacol. 2012 Jun;81(6):832-45.

实验参考：

Cell Assay	Human PBMCs are plated in 96-well plates at a density of 2×10^5 cells/well in culture medium supplemented with 3% (v/v) endotoxin-free FBS. PBMCs are pretreated with 20 μM IQ-1S or DMSO for 30 min, followed by addition of 200 ng/ml LPS for 24 h. A human cytokine MultiAnalyte ELISArray Kit is used to evaluate various cytokines (IL-1α, IL-1β, IL-2, IL-4, IL-6, IL-8, IL-10, IL-12, IL-17A, interferon (IFN)-γ, TNF-α, and granulocyte-macrophage colony-stimulating factor in supernatants of PBMCs[1].
Animal Administration	Mice[1] For in vivo analysis, 12.5 or 30 mg/kg i.p. doses of IQ-1S (The sodium salt of IQ-1) are administered to BALB/c mice (15-20 animals/group), and the mice are sacrificed at various time points after compound administration. For quantification, a calibration curve is established using mouse serum samples spiked with known concentrations of IQ-1S (0.1-20 μM), and a linear dependence of the peak area with IQ-1S concentration is obtained (correlation coefficient r=0.997). The area under the serum concentration-time curve ($AUC_{0\text{-}12h}$) is calculated using the linear trapezoidal method up to the last measured concentration[1].
References	[1]. Schepetkin IA, et al. Identification and characterization of a novel class of c-Jun N-terminal kinase inhibitors. Mol Pharmacol. 2012 Jun;81(6):832-45.