Radioprotectin-1

Cat. No.: HY-114380

CAS No.: 1622006-09-0

Molecular Formula: $C_{23}H_{19}ClN_2O_6S$

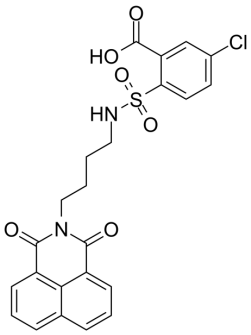
Molecular Weight: 486.92

Target: LPL Receptor

Pathway: GPCR/G Protein

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (256.72 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.0537 mL	10.2686 mL	20.5373 mL
5 mM	0.4107 mL	2.0537 mL	4.1075 mL
10 mM	0.2054 mL	1.0269 mL	2.0537 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (4.27 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.27 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (4.27 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Radioprotectin-1 is a potent and specific nonlipid agonist of lysophosphatidic acid receptor 2 (LPA_2), with an EC_{50} value of 25 nM for murine LPA_2 subtype[1].

IC_{50} & Target

EC50: 25 nM (murine LPA_2 subtype)[1]

In Vitro

Radioprotectin-1 is a potent agonist of LPA_2 with an EC_{50} of 5 pM and functions as a full agonist at the human ortholog of

LPA_2[1].
Radioprotectin-1 (0-3 μM; 15 minutes) effectively reduces apoptosis induced by γ-irradiation and the radiomimetic drug Adriamycin in cells that expressed LPA_2 either endogenously or after transfection[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	MEF cells , IEC-6 cells
Concentration:	0 μM, 0.1 μM, 0.3 μM, 1.0 μM,3 μM
Incubation Time:	15 minutes
Result:	Protected cells from apoptosis by γ-irradiation- and the radiomimetic chemotherapeuticAdiamycin.

In Vivo

Radioprotectin-1 is a high-potency specific agonist of the murine LPA_2 GPCR [1].
Radioprotectin-1 (0.1 mg/kg, 0.3 mg/kg; s.c.; every 12 hours; for 3 days) decreases the mortality of C57BL/6 mice in models of the hematopoietic acute radiation syndromes (HE-ARS) and gastrointestinal acute radiation syndromes (GI-ARS) [1].
Radioprotectin-1 exerts its radioprotective and radiomitigative action through specific activation of the upregulated LPA_2 GPCR in $Lgr5^+$stem cells[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	8-10 weeks old C57BL/6 female mice bearing total body irradiation (TBI) [1]
Dosage:	0.1 mg/kg, 0.3 mg/kg
Administration:	Subcutaneous injection; every 12 hours; for 3 days
Result:	Decreased mortality of C57BL/6 mice in models of the HE-ARS and the GI-ARS.

REFERENCES

[1]. Kuo B, et al. The LPA2 receptor agonist Radioprotectin-1 spares Lgr5-positive intestinal stem cells from radiation injury in murine enteroids. Cell Signal. 2018 Nov;51:23-33.

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