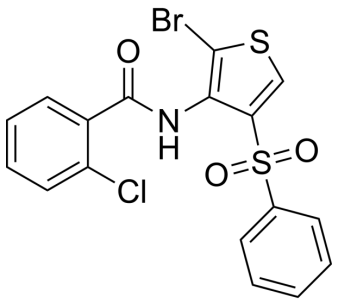
BNTA

Cat. No.:	HY-136651
CAS No.:	685119-25-9
Molecular Formula:	$C_{17}H_{11}BrClNO_3S_2$
Molecular Weight:	456.76
Target:	Reactive Oxygen Species
Pathway:	Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (218.93 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.1893 mL	10.9467 mL	21.8933 mL
	5 mM	0.4379 mL	2.1893 mL	4.3787 mL
	10 mM	0.2189 mL	1.0947 mL	2.1893 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: ≥ 2.5 mg/mL (5.47 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.47 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

BNTA, a potent extracellular matrix (ECM) modulator, facilitates cartilage structural molecule synthesis on chondrocytes by activating superoxide dismutase 3 (SOD3). BNTA shows a promising potential for osteoarthritis alleviation by modulating cartilage generation[1].

In Vitro

BNTA (0.01-10 μM; 1-7 d) does not decrease cell viability of human osteoarthritis chondrocytes and rat primary chondrocytes [1].

BNTA (0.1 μM; 2 d) increases SOX9 protein markedly[1].

BNTA (0.1 μM; 2 d) remarkably increases the COL2A1 and SOX9 protein levels in IL1β-induced rat OA chondrocytes[1].

BNTA (10 μM; 5 d) increases proteoglycan staining in ATDC5 cells[1].

BNTA (0.01-10 μM; 6 h) upregulates the expression levels of ECM-related genes COL2A1, ACAN, proteoglycan 4 (PRG4), and

SRY-box 9 (SOX9) in human OA chondrocytes[1].
BNTA (0.01-10 μM; 6 h) increases Col2a1, Acan, Prg4, and Sox9 mRNA levels, with maximum effects around 0.1 μM in IL1β-induced rat OA chondrocytes[1].
BNTA (0.01-1 μM; 2 or 3 w) enhances anabolism and inhibited inflammatory response in osteoarthritis cartilage explants[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	Human OA chondrocytes
Concentration:	0.01, 0.1, 1, 10 μM
Incubation Time:	1, 3, 5, 7 d
Result:	No toxicity was observed.

Western Blot Analysis[1]

Cell Line:	Human OA chondrocytes
Concentration:	0.1 μM
Incubation Time:	2 d
Result:	Elevated SOX9 protein compared with vehicle.

In Vivo

BNTA (0.015-1.5 mg/kg; intra-articular injection; twice a week for 4 and 8 weeks) could attenuate OA progression developed after anterior cruciate ligament transection (ACLT) in rats[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male SD rats weighing 80 g are induced by ACLT[1]
Dosage:	0.015, 0.15, 1.5 mg/kg
Administration:	Intra-articular injection; twice a week for 4 and 8 weeks
Result:	Attenuated post-traumatic osteoarthritis development after intra-articular injection for 4 and 8 weeks and was well tolerated.

REFERENCES

[1]. Shi Y, et, al. A small molecule promotes cartilage extracellular matrix generation and inhibits osteoarthritis development. Nat Commun. 2019 Apr 23; 10(1): 1914.

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