Product Data Sheet

Product Name: Coixol (6-Methoxy-2-benzoxazolinone)
Cat. No.: GC30144

Chemical Properties

Cas. No.	532-91-2		
SMILES	O=C1OC2=CC(OC)=CC=C2N1		
Formula	$C_8H_7NO_3$	M.Wt	165.15
Solubility	DMSO : ≥ 30 mg/mL (181.65 mM)	Storage	Store at 2-8°C,protect from light
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ 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

Cell experiment [1]:

Cell lines	PC12 cells
Preparation Method	Differentiated PC12 cells were treated with Coixol at 0.125μM, 0.25μM, 0.5μM, 1μM, and 2μM for 48h. Then, cells were further exposed to $Abeta_{25-35}$ at 20μM for 24h. MTT assay to measure cell viability.
Reaction Conditions	0.125, 0.25, 0.5, 1, 2μM; 48h
Applications	Coixol pretreatments at 0.25-2μM increased cell survival when compared with Abeta groups.

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Animal experiment [2]:

Animal models	SD rats
Preparation Method	The experimental rats were divided into four groups (n=5 rats/group): Group I, Untreated diabetic rats (Db); Group II, Diabetic rats treated with Coixol 25mg/kg(CX-25); Group III, Diabetic rats treated with Coixol 50mg/kg (CX-50); Group IV, Diabetic rats treated with Glibenclamide 5mg/kg (GB) once daily for 15 days. Coixol were given orally in 1ml of water suspension by gavage to the experimental groups. The fasting blood glucose was measured with on day 1, 7, and 15, respectively.
Dosage form	25, 50mg/kg; for 15 days; p.o.
Applications	Coixol improves glucose tolerance and stimulates glucose-induced plasma insulin in non-diabetic and diabetic rats.

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References:
[1] Chen J Y, Li C Y, Mong M C, et al. Preventive effects of coixol, an active compound of adlay seed, in NGF-differentiated PC12 cells against beta-amyloid25-35-induced neurotoxicity[J]. Asian Biomedicine: Research, Reviews and News, 2024, 18(5): 224.
[2]Hameed A, Hafizur R M, Khan M I, et al. Coixol amplifies glucose-stimulated insulin secretion via cAMP mediated signaling pathway[J]. European Journal of Pharmacology, 2019, 858: 172514.

Background

Coixol (6-Methoxy-2-benzoxazolinone) is a polyphenol compound extracted from *Coix lacryma-jobi*, which has anti-tumor, anti-inflammatory and antioxidant activities[1]. Coixol can act as a central muscle relaxant and has anticonvulsant effects[2]. Coixol can improve lung injury caused by *Toxoplasma* infection by interfering with the *Toxoplasma* HSP70/TLR4/NF-κB signaling pathway[3].

In vitro, pretreatment of PC12 cells with Coixol (0.25-2μM) for 48h protected PC12 cells from Abeta$_{25-35}$-induced neurotoxicity, increased Bcl-2 mRNA expression, mitochondrial membrane potential and Na^+-K^+ ATPase activity, and decreased Bax mRNA expression, caspase-3 activity and intracellular Ca^{2+} release[4]. Coixol (0-33.035mg/L) treatment of A549 cells for 24-72h inhibited cell proliferation in a concentration-dependent manner,

induced cell morphological changes, upregulated the expression of intracellular caspase-3, caspase-8, caspase-9 and Bax proteins, and downregulated the expression of Bcl-2 protein[5].

In vivo, Coixol (25, 50mg/kg) was orally treated with non-diabetic and diabetic rats for 15 days, which improved glucose tolerance in non-diabetic and diabetic rats and increased plasma insulin levels within 30min[6].

References:
[1] Hu Y, Zhou Q, Liu T, et al. Coixol suppresses NF-κB, MAPK pathways and NLRP3 inflammasome activation in lipopolysaccharide-induced RAW 264.7 cells[J]. Molecules, 2020, 25(4): 894.
[2] Wei T H, Hsieh C L. Headaches, migraine, and herbal medicine[M]//Treatments, nutraceuticals, supplements, and herbal medicine in neurological disorders. Academic Press, 2023: 401-419.
[3] Shen X Y, Lu J M, Lu Y N, et al. Coixol ameliorates Toxoplasma gondii infection-induced lung injury by interfering with T. gondii HSP70/TLR4/NF-κB signaling pathway[J]. International Immunopharmacology, 2023, 118: 110031.
[4] Chen J Y, Li C Y, Mong M C, et al. Preventive effects of coixol, an active compound of adlay seed, in NGF-differentiated PC12 cells against beta-amyloid25-35-induced neurotoxicity[J]. Asian Biomedicine: Research, Reviews and News, 2024, 18(5): 224.
[5] Wang X C, Shen X Y, Chen L, et al. Preparation, characterization, and anticancer effects of an inclusion complex of coixol with β-cyclodextrin polymers[J]. Pharmaceutical Biology, 2024, 62(1): 2294331.
[6] Hameed A, Hafizur R M, Khan M I, et al. Coixol amplifies glucose-stimulated insulin secretion via cAMP mediated signaling pathway[J]. European Journal of Pharmacology, 2019, 858: 172514.

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