Data Sheet (Cat.No.T4082)

TargetMol

Astragaloside

Chemical Properties

CAS No. :

Formula:

Molecular Weight:

Appearance: no data available

Storage: keep away from direct sunlight
Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Astragaloside, one of the main active ingredients in Astragalus membranaceus.
Targets(IC50)	MMP,ERK,JNK
In vitro	Astragaloside IV (10, 20, 40 ng/mL) inhibits NSCLC cell growth, whereas low concentrations of astragaloside IV (1, 2.5, 5 ng/mL) has no obvious cytotoxicity on cell viability. Moreover, combined treatment with astragaloside IV significantly increases chemosensitivity to cisplatin in NSCLC cells. On the molecular level, astragaloside IV co-treatment significantly inhibits the mRNA and protein levels of B7-H3 in the presence of cisplatin. Astragaloside IV inhibits the viability and invasive potential of MDA-MB-231 breast cancer cells, suppresses the activation of the mitogen activated protein kinase (MAPK) family members ERK1/2 and JNK, and downregulates matrix metalloproteases (MMP)-2 and -9.
In vivo	Astragaloside IV (10, 20 mg/kg, p.o.) exhibits a potent ability to prevent cognitive deficits induced by transient cerebral ischemia and reperfusion. Astragaloside IV (10 mg/kg) and Astragaloside IV (20 mg/kg) can significantly decrease the levels of these cytokines compared to the Model group. Astragaloside IV significantly inhibits the level of TLR4 and its downstream proteins, suggesting that both MyD88-dependent and -independent pathways play important roles in the anti-inflammatory effects of Astragaloside IV. Astragaloside IV attenuates NLRP3 and cleaved-caspase-1 expression, and reduces Iba1 protein expression[1]. In the mice model, the high-dose astragaloside IV group has a significant increase in the 48-hour survival rate [60% (9/15) vs 13.3% (2/15), $P < 0.05$], significant reductions in the serum ALT and AST levels ($P < 0.01$), and significant reductions in liver histopathological indices and the degree of apoptosis of hepatocytes ($P < 0.01$), as well as a significant reduction in the content of MDA in liver homogenate ($P < 0.01$) and a significant increase in the activity of SOD.
Kinase Assay	Briefly, MDA-MB-231 cells treated as indicated or tumor tissues are harvested and lysed in Mg2+ lysis buffer containing 50 mM Tris (pH 7.5), 10 mM MgCl2, 0.5 M NaCl, and protease inhibitor cocktail. Equal amounts of lysates are incubated with PAK-PBD beads at 4°C for 1 h. PAK-PBD beads are pelleted by centrifugation and washed with ish buffer containing 25 mM Tris (pH 7.5), 30 mM MgCl2, 40 mM NaCl. Active Rac1 is detected by western blotting.

Cell Research	Cell viability is determined by CCK-8 assay. To be brief, cultured NSCLC cells are seeded into 96-well plates at the density of 4×104 (cells/well). Then 10 μL?well CCK8 solution is added and incubated in dark at 37°C for another 2 h. The absorbance is determined with the wavelength of 490 nm.
Animal Research	Transient cerebral ischemia and reperfusion is prepared by BCCAO, as BCCAO is considered an ideal model to study transient cerebral ischemia and reperfusion injury-mediated inflammatory response. Mice are randomLy divided into the Sham, Model, Astragaloside IV (10 mg/kg) and Astragaloside IV (20 mg/kg) treatment groups. The Astragaloside IV treatment groups are intragastrically administered 7 days before the surgery and terminated on the day of sacrifice. On the day of the surgery, Astragaloside IV is administrated 2 h prior to ischemia. The Sham-operated and Model groups are treated with distilled water. After the mice are anesthetized with an intraperitoneal injection of chloral hydrate (350 mg/kg), the bilateral common carotid arteries are exposed and carefully separated with a small ventral neck incision and occluded twice (20 min each) with ligated surgical silk as described previously with minor modifications. There is a 10 min reperfusion period between the two occlusion periods (ischemia 20 min ? reperfusion 10 min ? ischemia 20 min). Sham-operated mice are subjected to the same surgical operation without the surgical silk ligation. Mouse body temperature is maintained at 37±0.5°C during the surgery with heating equipment until recovery from the anesthesia.

Solubility Information

Solubility	DMSO: 50 mg/mL (78.06 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Reference

Li M, et al. Astragaloside IV attenuates cognitive impairments induced by transient cerebral ischemia and reperfusion in mice via anti-inflammatory mechanisms. Neurosci Lett. 2016 Dec 20. pii: S0304-3940(16)30994-6

Zhang H, Cai J, Li C, et al.Wogonin inhibits latent HIV-1 reactivation by downregulating histone crotonylation. Phytomedicine.2023: 154855.

He, C., Liu, Y., Xu, Z., Dai, P., Chen, X., & Jin, D. (2016). Astragaloside IV Enhances Cisplatin Chemosensitivity in Non-Small Cell Lung Cancer Cells Through Inhibition of B7-H3. Send To Cell Physiol Biochem, 40(5), 1221-1229. doi: 10.1159/000453175

Liu L, et al. [Protective effect of astragaloside IV against acute liver failure in experimental mice]. Zhonghua Gan Zang Bing Za Zhi. 2016 Oct 20;24(10):772-777.

Jiang K, et al. Astragaloside IV inhibits breast cancer cell invasion by suppressing Vav3 mediated Rac1/MAPK signaling. Int Immunopharmacol. 2016 Dec 5;42:195-202