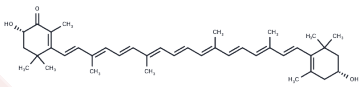
Data Sheet (Cat.No.TN11583)

TargetMol

Adonixanthin

Chemical Properties



CAS No. : 4418-73-9

Formula: C40H54O3

Molecular Weight: 582.86

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Adonixanthin ((3S,3'R)-Adonixanthin) is a carotenoid that acts as an orally active antioxidant and anticancer agent. It demonstrates the ability to inhibit the proliferation and migration of glioblastoma cells and provides cellular protection against various injuries, suppressing increased reactive oxygen species (ROS) production. Adonixanthin safeguards cells from photo-induced damage through antioxidative responses and Nrf2 activation. It can halt glioblastoma progression and improve blood-brain barrier permeability in autologous intracerebral hemorrhage (ICH) models. This compound is applicable in research related to glioblastoma (GBM) and intracerebral hemorrhage (ICH).
Targets(IC50)	MMP,ERK,Akt,Nrf2,NADPH,p38 MAPK,ROS
In vitro	Adonixanthin effectively inhibits the proliferation of mouse glioblastoma cell line GL261 and human glioblastoma cell line U251MG at concentrations of 0.1-10 μM for 96 hours. At a concentration of 10 μM for 72 hours, it reduces the proportion of BrdU-positive cells in GL261. Additionally, it inhibits cell migration in GL261 and U251MG at 10 μM for 48 hours. At 10 μM for 6 hours, adonixanthin decreases the phosphorylation levels of p-ERK1/2 and p-Akt within GL261 cells. It increases p-p38 phosphorylation, decreases cyclin D1 expression, elevates p27 expression, and reduces MMP-2, Nox4, and fibronectin expression over 6-48 hours, without impacting MMP-9 significantly. At 0.1-1 μM for 4 hours, adonixanthin significantly reduces hemoglobin-induced cell death and ROS production in human brain microvascular endothelial cells (HBMVECs), and upregulates HO-1 and VE-cadherin levels. For 28 hours at 0.1-1 μM, it considerably diminishes collagenase-induced cell death in HBMVECs, inhibits ERK1/2 phosphorylation, and increases VE-cadherin levels. Adonixanthin, at concentrations of 0.1-1 μM for 25 hours, reduces SH-SY5Y cell death induced by H2O2 and LPS in a dose-dependent manner. Furthermore, at a molar ratio/half inhibitory concentration of Hyptadienic acid (TPA) at 329, it suppresses activation of Epstein-Barr virus early antigen in Raji cells without significant cytotoxicity. At 167 μM, adonixanthin inhibits AMVN-induced peroxidation of methyl linoleate. It exhibits singlet oxygen quenching activity in a methylene blue-sensitized photooxidation system in ethanol with a half inhibitory concentration of 11.1 μM for 1-100 μM. Also, adonixanthin upregulates Nrf2-regulated gene mRNA expression in 661 W cells at 20 μM for 6 hours and increases Nrf2 in the nucleus. At 10 μM, it protects 661 W cells from light-induced cell death and reduces ROS production induced by light exposure, while Nrf2 silencing negates this protective effect.

In vivo	Adonixanthin, administered at a dose of 10-30 mg/kg orally once daily for 10 days, effectively inhibits the progression of orthotopic glioblastoma in C57BL/6J mice. In addition, at a dose of 100 mg/kg given orally once daily for 7 days, it enhances blood-brain barrier permeability in a mouse model of intracerebral hemorrhage induced by autologous blood injection. Furthermore, the application of Adonixanthin (50 μg [85 nmol] topically) one hour before each TPA treatment for 20 weeks significantly reduces the incidence and number of papillomas in a DMBA-initiated, Hyptadienic acid (TPA)-promoted mouse skin cancer model.

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.7157 mL	8.5784 mL	17.1568 mL
5 mM	0.3431 mL	1.7157 mL	3.4314 mL
10 mM	0.1716 mL	0.8578 mL	1.7157 mL
50 mM	0.0343 mL	0.1716 mL	0.3431 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.