Phytoene desaturase-IN-1

Cat. No.: HY-151095

CAS No.: 2765793-54-0

Molecular Formula: $C_{18}H_{13}ClF_3N_3O_2S$

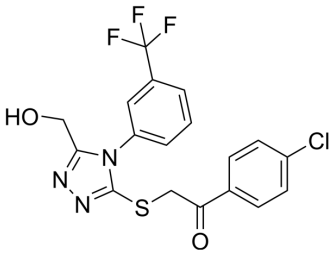
Molecular Weight: 427.83

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 : 125 mg/mL (292.17 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.3374 mL	11.6869 mL	23.3738 mL
	5 mM	0.4675 mL	2.3374 mL	4.6748 mL
	10 mM	0.2337 mL	1.1687 mL	2.3374 mL

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

BIOLOGICAL ACTIVITY

Description

Phytoene desaturase-IN-1 is a potent phytoene desaturase (PDS) inhibitor (K_d: 65.9 μM) through π−π stacking effect with Phe301 residue. Phytoene desaturase-IN-1 shows broad spectrum of postemergence herbicidal activity. Phytoene desaturase-IN-1 induces PDS mRNA reduction, phytoene and reactive oxygen species (ROS) accumulation in albino leaves. Phytoene desaturase-IN-1 can be used in the area of agricultural production[1].

IC_{50} & Target

Phytoene desaturase (PDS), reactive oxygen species (ROS)[1].

In Vitro

Phytoene desaturase-IN-1 (1b, 375−750 g/ha, 25 days) shows a broad spectrum of herbicidal activity against six kinds of weeds (including ECHCG, DIGSA, SETFA, ABUJU, AMARE, and ECLPR)[1].

Phytoene desaturase-IN-1 (750 g/ha, 14 days) down-regulates PDS mRNA level and induces phytoene accumulation, with the observed albino leaf phenotype[1].

Phytoene desaturase-IN-1 (750 g/ha, 3 days) induces ROS accumulation and regulates ROS-associated enzymes activity[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

RT-PCR[1]

Cell Line:	Albino leaves
Concentration:	750 g/ha
Incubation Time:	14 days
Result:	Reduced PDS mRNA level by 30%, thereby limiting the catalytic dehydrogenation process of phytoene and causing phytoene accumulation.

REFERENCES

[1]. Di Zhang, et al. Discovery of (5-(Benzylthio)-4-(3-(trifluoromethyl)phenyl)-4 H-1,2,4-triazol-3-yl) Methanols as Potent Phytoene Desaturase Inhibitors through Virtual Screening and Structure Optimization. J Agric Food Chem. 2022 Aug 10.

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