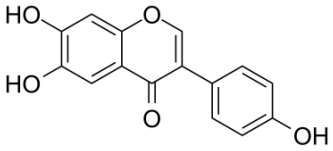
Desmethylglycitein

Cat. No.:	HY-N5072
CAS No.:	17817-31-1
Molecular Formula:	$C_{15}H_{10}O_5$
Molecular Weight:	270.24
Target:	CDK; PI3K; PKC
Pathway:	Cell Cycle/DNA Damage; PI3K/Akt/mTOR; Epigenetics; TGF-beta/Smad
Storage:	Please store the product under the recommended conditions in the COA.



BIOLOGICAL ACTIVITY

Description

Desmethylglycitein (4',6,7-Trihydroxyisoflavone), a metabolite of daidzein, sourced from Glycine max with antioxidant, and anti-cancer activities.Desmethylglycitein binds directly to **CDK1** and **CDK2** in vivo, resulting in the suppresses CDK1 and CDK2 activity[1]. Desmethylglycitein is a direct inhibitor of protein kinase C (**PKC**)α, against solar UV (sUV)-induced matrix matrix metalloproteinase 1 (**MMP1**)[2]. Desmethylglycitein binds to **PI3K** in an ATP competitive manner in the cytosol, where it inhibits the activity of PI3K and downstream signaling cascades, leading to the suppression of adipogenesis in 3T3-L1 preadipocytes[3].

IC_{50} & Target	CDK1	CDK2	PKC

In Vitro

Desmethylglycitein (4',6,7-Trihydroxyisoflavone)(0-100 μM; 24-72 hours) suppesses anchorage-dependent growth of HCT-116 and DLD1 cells in a dose- and time-dependent manner without cytotoxicity [1].

Desmethylglycitein (4',6,7-Trihydroxyisoflavone)(0-100 μM; 24-72 hours) suppresses CDK1 activity in a dose-dependent manner and inhibits CDK2 activity in HCT-116 cells[1].

Desmethylglycitein (4',6,7-Trihydroxyisoflavone)(0-100 μM; 24-72 hours) induces cell cycle arrest at the S and G2/M phases, the percentage of cells in S phase is higher in the 100 μM 6,7,4′-THIF-treated group, and the same pattern is observed in G2/M phase (29.5% versus 19.1%) [1].

Cell Viability Assay[1]

Cell Line:	HCT-116 cells
Concentration:	0, 12.5, 25, 50 or 100 μM
Incubation Time:	24, 48 or 72 hours
Result:	Inhibited anchorage-dependent and -independent growth of HCT-116 cells.

Western Blot Analysis[1]

Cell Line:	HCT-116 and DLD1 cells
Concentration:	0, 25, 50 or 100 μM
Incubation Time:	48 hours

Result:	Inhibited CDK1,CDK2 expression.

Cell Cycle Analysis[1]

Cell Line:	HCT-116 cells
Concentration:	0, 25, 50 or 100 μM
Incubation Time:	24, 48 or 72 hours
Result:	Induces cell cycle arrest of HCT-116 cells at S and G2/M phases.

In Vivo

Desmethylglycitein (4',6,7-Trihydroxyisoflavone) (intraperitoneally injection; 5 or 25 mg/kg; once daily; 20 days) suppresses tumor development in mice and serves as an effective anticancer treatment with the potential to inhibit or delay the tumorigenicity of HCT-116 cells in an in vivo system[1].

Animal Model:	Female athymic nude mice subcutaneously injected with HCT-116 cells[1]
Dosage:	5 or 25 mg/kg
Administration:	Intraperitoneally injection; 5 or 25 mg/kg; once daily; 20 days
Result:	Decreased tumor growth, volume and weight of HCT-116 xenografts.

REFERENCES

[1]. Lee DE, et al. 6,7,4'-trihydroxyisoflavone inhibits HCT-116 human colon cancer cell proliferation by targeting CDK1 and CDK2. Carcinogenesis. 2011 Apr;32(4):629-35.

[2]. Lim TG, et al. The daidzein metabolite, 6,7,4'-Trihydroxyisoflavone, is a novel inhibitor of PKCα in suppressing solar UV-induced matrix metalloproteinase 1. Int J Mol Sci. 2014 Nov 19;15(11):21419-32

[3]. Seo SG, et al. A metabolite of daidzein, 6,7,4'-trihydroxyisoflavone, suppresses adipogenesis in 3T3-L1 preadipocytes via ATP-competitive inhibition of PI3K.

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