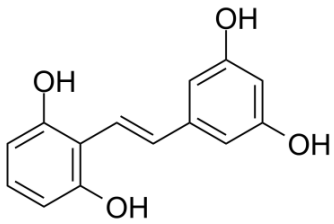
Gnetol

Cat. No.:	HY-126052
CAS No.:	86361-55-9
Molecular Formula:	$C_{14}H_{12}O_4$
Molecular Weight:	244.24
Target:	COX; Tyrosinase; HDAC
Pathway:	Immunology/Inflammation; Metabolic Enzyme/Protease; Cell Cycle/DNA Damage; Epigenetics
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Gnetol is a phenolic compound isolated from the root of Gnetum ula Brongn. Gnetol potently inhibits COX-1 (IC_{50} of 0.78 μM) and HDAC. Gnetol is a potent tyrosinase inhibitor with an IC_{50} of 4.5 μM for murine tyrosinase and suppresses melanin biosynthesis. Gnetol has antioxidant, antiproliferative, anticancer and hepatoprotective activity. Gnetol also possesses concentration-dependent α-Amylase, α-glucosidase, and adipogenesis activities[1][2][3].		
IC_{50} & Target	COX-1 0.78 μM (IC_{50})	Tyrosinase 4.5 μM (IC_{50})	HDAC
In Vitro	The antiproliferative activities of Gnetol are tested in HCT-116, Hep-G2, MDA-MB-231, and PC-3 cell lines by measuring cell viability after treatment with 4.1 μM, 40.9 μM, 204.7 μM, 409.4 μM, and 1023.6 μM. Gnetol shows concentration-dependent reductions in cell viability in cancer cell lines with greatest activity in colorectal cancer[1]. Gnetol at 200 μg/mL significantly offers the highest protection of 54.3% against the toxicant. A lower dose of Gnetol (50 μg/mL) also shields the cell line from the toxic effects of CCl4[3]. The ligand molecule TGF-β and PPARα protein show that Gnetol has the binding affinity of 7.0 and 8.4, respectively[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.		
In Vivo	Male Sprague-Dawley rats were cannulated and dosed either intravenously with Gnetol (10 μg/kg) or orally (100 mg/kg). After oral and intravenous administration, Gnetol is detected in both serum and urine as the parent compound and as a glucuronidated metabolite. The bioavailability of Gnetol is determined to be 6%. Gnetol is rapidly glucuronidated and is excreted in urine and via nonrenal routes[1]. Pretreatment of Male NIH Swiss mice (20-35 g) with Gnetol (50mg/kg, SC) is able to increase the latency period to response in analgesia models[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.		

REFERENCES

[1]. Remsberg CM, et al. Preclinical Pharmacokinetics and Pharmacodynamics and Content Analysis of Gnetol in Foodstuffs. Phytother Res. 2015 Aug;29(8):1168-79.

[2]. Ohguchi K, et al. Gnetol as a potent tyrosinase inhibitor from genus Gnetum. Biosci Biotechnol Biochem. 2003 Mar;67(3):663-5.

[3]. Jinadatta P, et al. In silico, in vitro: antioxidant and antihepatotoxic activity of gnetol from Gnetum ula Brongn. Bioimpacts. 2019;9(4):239-249.

Caution: Product has not been fully validated for medical applications. For research use only.

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