Raspberry ketone

Cat. No.: HY-N1426

CAS No.: 5471-51-2

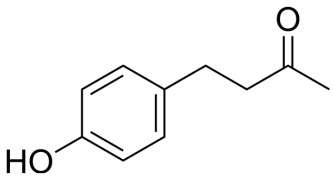
Molecular Formula: $C_{10}H_{12}O_2$

Molecular Weight: 164.2

Target: PPAR

Pathway: Cell Cycle/DNA Damage; Metabolic Enzyme/Protease; Vitamin D Related/Nuclear Receptor

Storage: 4°C, stored under nitrogen
* In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (609.01 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	6.0901 mL	30.4507 mL	60.9013 mL
	5 mM	1.2180 mL	6.0901 mL	12.1803 mL
	10 mM	0.6090 mL	3.0451 mL	6.0901 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (15.23 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (15.23 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (15.23 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Raspberry ketone is a major aromatic compound of red raspberry, widely used as a fragrance in cosmetics and as a flavoring agent in foodstuff; also shows PPAR-α agonistic activity.

IC_{50} & Target

PPAR-α

In Vitro

Raspberry ketone (1, 10, 20, and 50 μM) suppresses adipogenesis and lipid accumulation in 3T3-L1 pre-adipocytes. Raspberry ketone (10 μM) significantly blocks C/EBPα, PPARγ, and aP2 expression and increases the expression of ATGL and HSL, and CPT1B[1].

	MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Raspberry ketone (0.5%, 1%, or 2%) increasses the levels of total cholesterol (TC), triglycerides (TG), low-density lipoprotein cholesterol contents (LDL-C), ISI (insulin-sensitivr index), PPAR-α and LDLR, decreases the serum levels of AST (aspartate aminotransferase), ALT (alanine aminotransferase), ALP (alkaline phosphatase), IRI (insulin resistance index), GLU (glucose), INS (insulin-sensitivr index), LEP (leptin), and TNF-α in rats compared with a high-fat diet-induced NASH model. Raspberry ketone also causes increased SOD activities[2]. Raspberry ketone shows cardioprotective action against isoproterenol-induced myocardial infarction in rats, and the effects may be due to its PPAR-α agonistic activity[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [1]	For the cytotoxicity study, 3T3-L1 pre-adipocytes are cultured and differentiated. After Raspberry ketone treatment for 4 d in DMEM containing 10% fetal bovine serum, the lactate dehydrogenase (LDH) concentration in the medium is immediately detected with the CytoTox 96 nonradioactive cytotoxicity assay kit[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	During the experimental period, the animal room holds four rats per cage, with free access to water and food, under conditions of temperature controlled at 20-26°C, humidity at 40-70%, and a 12/12-h day-night light cycle. Rats are fed with normal diet for 1 week and then randomly divided into five groups: normal control (NC) group (n=8) fed normal diet for 8 weeks, the model control (MC) group (n=8) fed high-fat diet (82% standard diet, 8.3% yolk powder, 9.0% lard, 0.5% cholesterol, and 0.2% sodium taurocholate), the Raspberry ketone low-dose (RKL) group (n=8), the Raspberry ketone middle-dose (RKM) group (n=8), and the Raspberry ketone high-dose (RKH) group (n=8). Rats are first fed with high-fat diet for 4 weeks, and then these rats are given intragastrically 0.5%, 1%, or 2% Raspberry ketone. The first two groups of rats are intragastrically administered salad oil at the same dose (2 mL/day per rat) once a day at 10:00 a.m., lasting for 4 weeks[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- J Clin Invest. 2023 Oct 12:e173160.

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REFERENCES

[1]. Park KS. Raspberry ketone, a naturally occurring phenolic compound, inhibits adipogenic and lipogenic gene expression in 3T3-L1 adipocytes. Pharm Biol. 2015 Jun;53(6):870-5.

[2]. Wang L, et al. Raspberry ketone protects rats fed high-fat diets against nonalcoholic steatohepatitis. J Med Food. 2012 May;15(5):495-503.

[3]. Khan V, et al. Raspberry ketone protects against isoproterenol-induced myocardial infarction in rats. Life Sci. 2018 Feb 1;194:205-212.

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