Riboflavin Tetrabutyrate

Cat. No.: HY-B2239

CAS No.: 752-56-7

Molecular Formula: $C_{33}H_{44}N_4O_{10}$

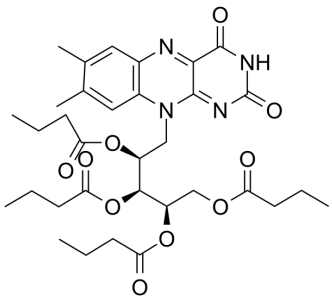
Molecular Weight: 656.72

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	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (152.27 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.5227 mL	7.6136 mL	15.2272 mL
5 mM	0.3045 mL	1.5227 mL	3.0454 mL
10 mM	0.1523 mL	0.7614 mL	1.5227 mL

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

BIOLOGICAL ACTIVITY

Description

Riboflavin Tetrabutyrate is a lipophilic flavin derivative with antioxidative and lipid peroxide-removing activity.

In Vitro

Riboflavin Tetrabutyrate inhibits oxygen uptake by lipid peroxidation. Riboflavin Tetrabutyrate is suppressive against both NADPH-coupled and ascorbate-induced microsomal lipid peroxidation. Riboflavin Tetrabutyrate seems to exhibit its antioxidative action at or after the hydrogen atom is abstracted as a free radical from an active methylene group of polyunsaturated fatty acids during the process of enzymic oxidation-reduction reaction[1].

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

In Vivo

Riboflavin Tetrabutyrate might improve the metabolism of lipids in patients suffering from atherosclerosis, diabetes, fatty liver and so on through the inhibition of lipid peroxide, resulting in the decrease of the elevated serum lipid[1]. Feeding of Riboflavin Tetrabutyrate results in an increase in the hepatic activity of 3-ketoacyl-CoA thiolase by 50% of the control level, while the activities of renal 3-ketoacyl-CoA thiolase and of hepatic and renal acyl-CoA synthetase and acyl-CoA dehydrogenase remain unaffected. The increase in hepatic 3-ketoacyl-CoA thiolase activity suggests that prolonged Riboflavin Tetrabutyrate administration results in an increased beta-oxidation of fatty acid in the liver [2].

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PROTOCOL

Animal Administration [3]

Rats: Riboflavin tetrabutyrate-^{14}C (700 μg, corresponding to 400 μg of riboflavin; total radioactivity 2.19×10^{5} cpm) is suspended in 0.2mL of soybean oil and given per os . In the case of injection, same amount of Riboflavin tetrabutyrate-^{14}C is dissolved in 1mL of soybean oil and injected subcutaneously into the back of rat[3].

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REFERENCES

[1]. Tahara K, et al. Effect of riboflavin and riboflavin 2',3',4',5'-tetrabutyrate on rat liver microsomallipid peroxidation. J Nutr Sci Vitaminol (Tokyo). 1974;20(2):81-8.

[2]. Okuno E, et al. Effect of chronic administration of riboflavin 2',3',4',5'-tetrabutyrate on the hepatic enzymes of fatty acid oxidation in the rat. J Nutr Sci Vitaminol (Tokyo). 1983 Dec;29(6):637-42.

[3]. Yagi K, et al. Studies on fatty acid esters of flavins. VI. Incorporation of riboflavin part of riboflavin tetrabutyrate-2-14C into flavin nucleotides in the organs of rat. J Vitaminol (Kyoto). 1969 Jun 10;15(2):155-9.

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