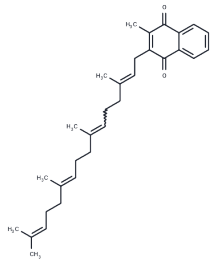
Data Sheet (Cat.No.T7106)

TargetMol

Menaquinone-4

Chemical Properties



CAS No. : 863-61-6

Formula: C31H40O2

Molecular Weight: 444.65

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Menaquinone-4 (Vitamin K2) is a vitamin K compound used as a hemostatic agent, and also as adjunctive therapy for the pain of osteoporosis.
Targets(IC50)	Endogenous Metabolite
In vivo	Vitamin K supplementation reversed the high fat diet induced bone deterioration by modulating osteoblast and osteoclast activities and prevent bone loss in a high-fat diet-induced obese mice[1].
Animal Research	Forty-two male, 4-week-old C57BL/6J mice.?an automated constant-temperature humidity system was used to maintain a temperature of 23°C ± 2°C and humidity of 60% ± 3% for the animals.?The animals were provided with feed and drink ad libitum.?For environmental adaptation, the animals had 1 week of circulation, and then were provided with the experimental diet after being randomly divided into 6 groups (7 animals in each group;?randomized block design).?The AIN-93G diets consisted of a normal diet (N), normal diet + vitamin K1 (N-K1), normal diet + vitamin K2 (N-K2), 45% high-fat diet (HF), 45% high-fat diet + vitamin K1 (HF-K1), and a 45% high-fat diet + vitamin K2 (HF-K2).?The vitamin K1 and vitamin K2 contents were 200 mg/1,000 g, and the diet was provided in pellet form.?Food intake amount was measured every other day.?Body weight was measured once a week, and the food efficiency ratio (FER) was calculated by dividing the increased body weight from day1 to the final day by the food intake amount during the experiment period.?For fat amount measurement, the epididymal fat, perirenal fat, and retroperitoneal fat were extracted from dead animal subjects, were washed with 0.9% NaCl, dried by filter paper, and then were weighed[1].

Solubility Information

Solubility	DMSO: 10.33 mg/mL (23.23 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 1 mg/mL (2.25 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.249 mL	11.2448 mL	22.4896 mL
5 mM	0.4498 mL	2.249 mL	4.4979 mL
10 mM	0.2249 mL	1.1245 mL	2.249 mL
50 mM	0.045 mL	0.2249 mL	0.4498 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Kim M , Na W , Sohn C . Vitamin K1 (phylloquinone) and K2 (menaquinone-4) supplementation improves bone formation in a high-fat diet-induced obese mice[J]. Journal of Clinical Biochemistry and Nutrition, 2013, 53(2):108-113.

Noda S , Yamada A , Tanabe R , et al. Menaquinone-4 (vitamin K2) up-regulates expression of human intestinal alkaline phosphatase in Caco-2 cells[J]. Nutrition Research, 2016:S0271531716301932.