

## Vitamin K

Cat. No.:	HY-B2172		
CAS No.:	12001-79-5		
Target:	Endogenous Metabolite		
Pathway:	Metabolic Enzyme/Protease		
Storage:	Pure form	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month

# Vitamin K

### SOLVENT & SOLUBILITY

In Vitro	DMSO : 50 mg/mL (Need ultrasonic)
In Vivo	1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (Infinity mM); Clear solution

### BIOLOGICAL ACTIVITY

Description	Vitamin K, the blood-clotting vitamin, is important for the function of numerous proteins within the body, such as the coagulation factors, osteocalcin and matrix-Gla protein.
IC <sub>50</sub> & Target	Microbial Metabolite
In Vitro	Phylloquinone (vitamin K1) and Menaquinones (vitamin K2) are the two naturally occurring forms of vitamin K. Phylloquinone is the major dietary source of vitamin K and is found at highest concentrations in green leafy vegetables <sup>[1]</sup> . Vitamin K2 (menaquinone) is found in small amounts in chicken, butter, egg yolks, cheese and fermented soyabeans. Vitamin K1 and vitamin K2 are required for the $\gamma$ -glutamyl carboxylation of all vitamin K-dependent proteins <sup>[2]</sup> . Vitamin K has important actions in the nervous system. Vitamin K contributes to the biological activation of proteins Gas6 and protein S, ligands for the receptor tyrosine kinases of the TAM family (Tyro3, Axl, and Mer). In brain, vitamin K also participates in the synthesis of sphingolipids, an important class of lipids present in high concentrations in brain cell membranes <sup>[3]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Vitamin K is well-known for its function in blood coagulation. Several human studies report the beneficial role of vitamin K supplementation in improving insulin sensitivity and glucose tolerance, preventing insulin resistance, and reducing the risk of type 2 diabetes <sup>[1]</sup> . The adequate intake for vitamin K has been proposed to be 90 $\mu$ g/day for women and 120 $\mu$ g/day for men <sup>[2]</sup> . Vitamin K deficiency results in an increase in undercarboxylated osteocalcin, a protein with low biological activity. Several studies have demonstrated that low dietary vitamin K intake is associated with low bone mineral density or increased fractures. Additionally, vitamin K supplementation has been shown to reduce undercarboxylated osteocalcin and improve the bone turnover profile <sup>[4]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

---

## REFERENCES

---

- [1]. Manna P, et al. Beneficial role of vitamin K supplementation on insulin sensitivity, glucose metabolism, and the reduced risk of type 2 diabetes: A review. *Nutrition*. 2016 Jul-Aug;32(7-8):732-9.
- [2]. DiNicolantonio JJ, et al. The health benefits of vitamin K. *Open Heart*. 2015 Oct 6;2(1):e000300.
- [3]. Ferland G, et al. Vitamin K, an emerging nutrient in brain function. *Biofactors*. 2012 Mar-Apr;38(2):151-7.
- [4]. Bügel S, et al. Vitamin K and bone health. *Proc Nutr Soc*. 2003 Nov;62(4):839-43.
- 

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA