



# SZABO SCANDIC

Part of Europa Biosite

## Produktinformation



Forschungsprodukte & Biochemikalien



Zellkultur & Verbrauchsmaterial



Diagnostik & molekulare Diagnostik



Laborgeräte & Service

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- Trockeneiszuschlag
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- Expressversand

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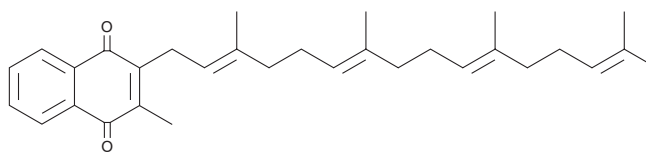
# PRODUCT INFORMATION



## Menaquinone 4

Item No. 18423

**CAS Registry No.:** 863-61-6  
**Formal Name:** 2-methyl-3-[(2E,6E,10E)-3,7,11,15-tetramethyl-2,6,10,14-hexadecatetraen-1-yl]-1,4-naphthalenedione  
**Synonyms:** MK-4, Vitamin K<sub>2(20)</sub>  
**MF:** C<sub>31</sub>H<sub>40</sub>O<sub>2</sub>  
**FW:** 444.7  
**Purity:** ≥98%  
**UV/Vis.:** λ<sub>max</sub>: 248, 269, 329 nm  
**Supplied as:** A crystalline solid  
**Storage:** -20°C  
**Stability:** ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

Menaquinone 4 is supplied as a crystalline solid. A stock solution may be made by dissolving the menaquinone 4 in the solvent of choice. Menaquinone 4 is soluble in the organic solvent chloroform, which should be purged with an inert gas. The solubility of menaquinone 4 in this solvent is approximately 100 mg/ml.

### Description

Menaquinone 4 (MK-4) is the predominant homolog of vitamin K<sub>2</sub> and is composed of a naphthoquinone base with four isoprenoid units in the side chain.<sup>1</sup> It is formed primarily *via* conversion of vitamin K<sub>1</sub> (Item No. 21051) *in vivo* and accumulates in various tissues, including the brain.<sup>2,3</sup> MK-4 halts the cell cycle at the G<sub>1</sub> phase in HepG2, Hep3B, and Huh7 hepatocellular carcinoma cells in a concentration-dependent manner.<sup>4</sup> It also inhibits IκB kinase (IKK) activity, IκBα phosphorylation, and the transcriptional activity of NF-κB. Vitamin K<sub>2</sub> may have a role in bone metabolism.<sup>1</sup>

### References

1. Plaza, S.M. and Lamson, D.W. Vitamin K2 in bone metabolism and osteoporosis. *Altern. Med. Rev.* **10**(1), 24-35 (2005).
2. Shearer, M.J. and Newman, P. Metabolism and cell biology of vitamin K. *Thromb. Haemost.* **100**(4), 530-547 (2008).
3. Okano, T., Shimomura, Y., Yamane, M., *et al.* Conversion of phylloquinone (vitamin K<sub>1</sub>) into menaquinone-4 (vitamin K<sub>2</sub>) in mice: Two possible routes for menaquinone-4 accumulation in cerebra of mice. *J. Biol. Chem.* **283**(17), 11270-11279 (2008).
4. Ozaki, I., Zhang, H., Mizuta, T., *et al.* Menatetrenone, a vitamin K<sub>2</sub> analogue, inhibits hepatocellular carcinoma cell growth by suppressing cyclin D<sub>1</sub> expression through inhibition of nuclear factor κB activation. *Clin. Cancer Res.* **13**(7), 2236-2245 (2007).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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