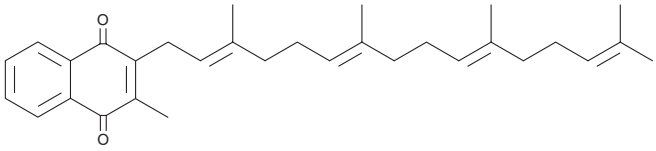
PRODUCT INFORMATION

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 $K_{2(20)}$
MF: $C_{31}H_{40}O_2$
FW: 444.7
Purity: ≥98%
UV/Vis.: λ_{max}: 248, 269, 329 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 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, which should be purged with an inert gas. Menaquinone 4 is soluble in the organic solvent chloroform. 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_2 and is composed of a naphthoquinone base with four isoprenoid units in the side chain.[1] It is formed primarily *via* conversion of vitamin K_1 (Item No. 21051) *in vivo* and accumulates in various tissues, including the brain.[2,3] MK-4 halts the cell cycle at the G_1 phase in HepG2, Hep3B, and Huh7 hepatocellular carcinoma cells in a concentration-dependent manner.[4] It also inhibits IκB kinase (IKK) activity, IκBα phosphorylation, and the transcriptional activity of NF-κB. Vitamin K_2 may have a role in bone metabolism.[1]

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_1) into menaquinone-4 (vitamin K2) 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_2 analogue, inhibits hepatocellular carcinoma cell growth by suppressing cyclin D_1 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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