

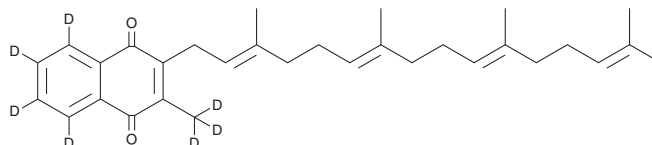
PRODUCT INFORMATION



Menaquinone 4-d₇

Item No. 25709

CAS Registry No.: 1233937-25-1
Formal Name: 2-(methyl-d₃)-3-[(2E,6E,10E)-3,7,11,15-tetramethyl-2,6,10,14-hexadecatetraen-1-yl]-1,4-naphthalenedione-5,6,7,8-d₄
Synonyms: MK-4-d₇, Vitamin K₂₍₂₀₎-d₇
MF: C₃₁H₃₃D₇O₂
FW: 451.7
Chemical Purity: ≥95% (Menaquinone 4; mixture of *cis/trans* isomers)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₇); ≤1% d₀
Supplied as: An oil
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-d₇ (MK-4-d₇) is intended for use as an internal standard for the quantification of MK-4 (Item No. 18423) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

MK-4-d₇ is supplied as an oil. A stock solution may be made by dissolving the MK-4-d₇ in the solvent of choice. MK-4-d₇ is slightly soluble in chloroform.

Description

MK-4 is the predominant homolog of vitamin K₂ and is composed of a naphthoquinone base with four isoprenoid units in the side chain.¹ It is formed primarily *via* conversion of vitamin K₁ (Item No. 21051) *in vivo* and accumulates in various tissues, including the brain.^{2,3} MK-4 halts the cell cycle at the G₁ 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 K₂ 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 K₁) 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 K2 analogue, inhibits hepatocellular carcinoma cell growth by suppressing cyclin D1 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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