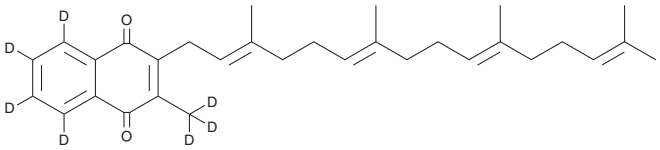
PRODUCT INFORMATION

Menaquinone 4-d_7

Item No. 25709

CAS Registry No.:	1233937-25-1
Formal Name:	2-(methyl-d_3)-3-[(2E,6E,10E)-3,7,11,15-tetramethyl-2,6,10,14-hexadecatetraen-1-yl]-1,4-naphthalenedione-5,6,7,8-d_4
Synonyms:	MK-4-d_7, Vitamin $K_{2(20)}$-d_7
MF:	$C_{31}H_{33}D_7O_2$
FW:	451.7
Chemical Purity:	≥95% (Menaquinone 4; mixture of *cis*/*trans* isomers)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_7); ≤1% d_0
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-d_7 (MK-4-d_7) 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-d_7 is supplied as an oil. A stock solution may be made by dissolving the MK-4-d_7 in the solvent of choice. MK-4-d_7 is slightly soluble in chloroform.

Description

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 K_2) 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).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM