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VITAMIN K2 VS VITAMIN K1 PAPER, SUPPORTED BY NATTOPHARMA, PUBLISHED IN *INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES*

**New review paper, completed as part of INTRICARE and EVOLuTION research grants,
advances argument for Vitamin K2-specific RDI to benefit more consumers.**

OSLO, NORWAY AND EDISON, NJ (26 FEB 2019) — *The International Journal of Molecular Sciences* has published a new review paper examining the differences between vitamins K1 and K2, showing that based on its very molecular structure K2 is available beyond the liver to support systems like the bone and vasculature through proper calcium utilization. The review paper, the result of the INTRICARE and EVOLuTION grants awarded to NattoPharma's International Research Network by the European Union within the Horizon 2020 Marie Skłodowska-Curie research and innovation program, is an important step in establishing the need for a Vitamin K2-specific recommended daily intake (RDI).

The paper is significant because it is a necessary step towards recognizing the importance of a vitamin K2-specific RDI, an endeavor NattoPharma is currently spearheading with the help of its research partners, according to NattoPharma Chief Medical Officer Dr. Hogne Vik.

"This review paper continues to explore the differences between Vitamin K1 with its known benefit for coagulation and the newly recognized benefits of Vitamin K2 also to function extrahepatically to support bone and cardiovascular health," says Vik. "Practically, the body of evidence today supports a dominant role for Vitamin K2 in the inhibition of calcification of soft tissues because of its better bioavailability and bioactivity. Observational studies and gold standard double-blind, placebo-controlled trials show that Vitamin K2 may inhibit vascular calcification and even hold progression of vascular stiffness.

"Recognition of Vitamin K2's benefits as strong and significant elucidated inhibitor of vascular and soft tissue calcification is one of the core reasons a separate RDI should be established," Vik adds. "We are proud that our partnership with Maastricht University and these prestigious grants have given us an opportunity to further the understanding of the necessity of obtaining adequate vitamin K2 for human health."

Expanding global understanding for the need for additional Vitamin K2 in a diet to overcome insufficient intake and address significant health concerns will certainly increase the number of consumers that MenaQ7 can significantly benefit.

According to the authors, the paper “Vitamin K: Double Bonds beyond Coagulation Insights into Differences between Vitamin K1 and K2 in Health and Disease”, is the first to highlight differences between isoforms vitamin K1 and K2 by means of source, function, and extrahepatic activity. Prof. Schurgers states that functions of K2 are proving to be beneficial with regard to cardiovascular diseases and bone metabolism, yet there is a growing body of evidence suggesting vitamin K2 is involved in multiple cellular processes and might have a protective role in various organs throughout the human body. To that end it is important to consider an RDI reflective of these additional roles.

“When exploring the non-coagulation, extrahepatic activities of vitamin K, it is clear that K2 in its various forms is the highlight of such activity. Therefore, although history and nomenclature have classed K1 and K2 into the same category, these molecules can have a very different action in the body,” says Prof. Schurgers, Professor of Biochemistry of Vascular Calcification and Vice Chair of Biochemistry at the Cardiovascular Research Institute Maastricht (CARIM), Maastricht University; and senior author and leader of the research project. “Major health organizations, such as WHO, European Food Safety Authority (EFSA) and Food and Drug Administration (FDA) have established RDI for vitamin K, which is solely based on the dose of K1 to retain an appropriate blood clotting function. Differences between K1 and K2 merit recognition among national and international regulatory organizations, and remain open to research.”

The review paper is the result of the INTRICARE (grant agreement No 722609) and EVOLuTION (grant agreement No 675111) grants funded by the European Union within the Horizon 2020 Marie Skłodowska-Curie research and innovation program, awarded to NattoPharma’s International Research Network to train a total of 26 Early Stage Researchers (ESRs) focusing on harnessing endogenous mechanisms for health and the effect of vitamin K to hold or regress microcalcification and subsequent cardiovascular disease.

Reference:

Halder M, Petsophonakul P, Akbulut AC, Pavlic A, Bohan F, Anderson E, Maresz K, Kramann R, Schurgers L. *Vitamin K: Double Bonds Beyond Coagulation Insights Into Differences Between Vitamin K1 and K2 in Health and Disease. Int J Mol Sci.* 2019, 20, 896; doi:10.3390/ijms20040896

(Direct link: <https://www.mdpi.com/1422-0067/20/4/896/htm>)

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About NattoPharma and MenaQ7®

NattoPharma ASA, based in Norway, is the supplement industry world leader in vitamin K2 research and development. NattoPharma is the exclusive international supplier of MenaQ7® Vitamin K2 as MK-7, the best documented, vitamin K2 as menaquinone-7 (MK-7) with guaranteed actives and stability, clinical substantiation, and international patents granted and pending; and now the new MenaQ7® Full Spectrum, which delivers menaquinones 6, 7, and 9. The company has a multi-year research and development program to substantiate and discover the health benefits of Vitamin K2 for applications in the marketplace for functional food and dietary supplements, in addition to exclusive access to the research efforts of its pharmaceutical arm, Kaydence Pharma AS (est. 2017), outside of the pharmaceutical domain. With a global presence, the company established its North American subsidiary, NattoPharma USA, Inc., in Edison, NJ, and NattoPharma R&D Ltd. in Cyprus. For more information, visit www.nattopharma.com or www.menaq7.com.

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