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Convenient, scalable synthesis of 2-methyl-3-(3',3'-carboxymethylpropyl)-1,4-naphthoquinone, the principal vitamin K urinary metabolite

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ABSTRACT

The ultimate metabolite of vitamin K, 2-methyl-3-(3',3'-carboxymethylpropyl)-1,4-naphthoquinone (**1**), has been shown to be biologically active and may be used as a measure of vitamin K levels in the body. We report a facile, five-step synthesis of **1** that requires only two isolated intermediates and a single chromatographic purification, and provides the title product in 26% overall yield. The structure of one of the intermediates was confirmed by X-ray crystallography.