

## MENAQUINONE STRUCTURE AND REDOX POTENTIAL: EFFECTS OF ISOPRENE REDUCTION IN BACTERIA

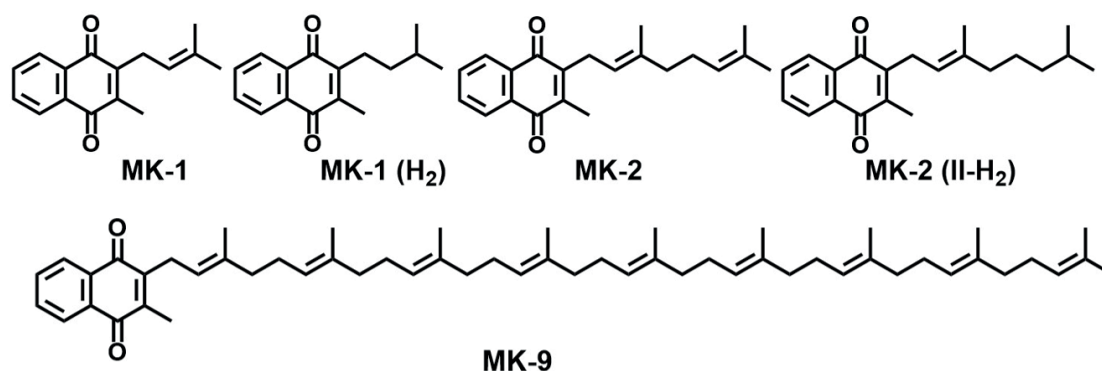
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Lipoquinones are organic hydrophobic compounds which are ubiquitous in mammals and most bacteria where they are essential components of the electron transport chain and participate in aerobic cellular respiration. Depending on the system at hand they are known as ubiquinones (in mammals and *E. coli*), menaquinones (in bacteria),<sup>1</sup> and phyloquinone (in plants). In the case of menaquinones, we have been preparing truncated derivatives with much better properties than the natural water insoluble MK-9.<sup>1-5</sup> Using truncated derivatives, we have studied the effects of chain length and structure on enzyme selectivity.<sup>3</sup>



MK-derivatives include MK-1, MK-2, MK-9 and saturated versions

The enzyme MenJ is a contextually essential enzyme and uses NADH and FAD during the reaction. MenJ specifically hydrogenate the second double bond on the isoprene link and little is known regarding its reaction, the structure, its location and selectivity of the enzyme products. As a result, the properties of both saturated and unsaturated truncated derivatives are investigated.<sup>2,4-5</sup> We find that saturation and chain length are important parameters that impact compounds redox potential, and may be important for their potential roles in biology.<sup>1</sup>

### References

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