Subject: I-Ascorbic acid 2-phosphate
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I-Ascorbic acid 2-phosphate represses the dihydrotestosterone-induced dickkopf-1 expression in human balding dermal papilla cells.

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Abstract

Recent studies suggested that dihydrotestosterone (DHT)-driven alteration in the autocrine and paracrine factors may be a key to androgen-potentiated balding. Also, we recently claimed that DHT-inducible dickkopf-1 (DKK-1) is one of the key factors involved in the androgen-potentiated balding. Here, we investigated whether I-ascorbic acid 2-phosphate (Asc 2-P), a derivative of I-ascorbic acid, could attenuate DHT-induced DKK-1 expression in dermal papilla cells (DPCs) from balding scalp. We observed that DHT-induced DKK-1 mRNA expression was attenuated in the presence of Asc 2-P as examined by RT-PCR analysis. In addition, we found that DHT-induced activation of luciferase reporter activity was significantly repressed when Asc 2-P was added together with DHT. Moreover, Asc 2-P repressed DHT-induced DKK-1 protein expression as examined by enzyme-linked immunosorbent assay (ELISA). Although there will be many hurdles to apply our finding to actual remedies, these results suggest that it would be worthy to evaluate Asc 2-P or its derivatives for the treatment and prevention of androgen-driven balding.

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