Induction of synthesis of metallothionein, a photoprotection protein, by hinokitiol

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Metallothionein has been known as one of photoprotection proteins. Effective inducers of metallothionein are needed for protection of skin from UVB-solar radiation. We have performed a search for non-metallic substances which activate metallothionein gene expression. Hinokitiol, an extract of steam distillation of the root or trunk of Japanese cypress, was found to activate the metallothionein promoter. The results of our study for elucidation of the mechanism of induction of metallothionein synthesis by hinokitiol suggest that hinokitiol activates MTF-1, a transcriptional factor, through mobilization of zinc, an activator of MTF-1, from medium to cells.