

## Function of diacylglycerol kinase in keratinocyte differentiation

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It is well-known that keratinocytes differentiation is partly regulated by PKC. However, function of diacylglycerol (DG) kinase (DGK), which can attenuate PKC activity by reducing the amount of DG, in keratinocyte differentiation is fully unknown. Therefore, we tried to identify DGK subtype(s) expressed in the keratinocytes and investigate function(s) of DGK in the skin.

We found that human keratinocytes, HaCaT cells, express almost all DGK subtypes except for DGK $\kappa$ . At least DGK $\beta$ ,  $\gamma$ , and  $\iota$ , were up-regulated during the differentiation, while DGK $\eta$  was down-regulated. mRNA level of the other DGK subtypes did not changed. We focused on DGK $\gamma$  and found that the DGK subtype was expressed in the basal, spinous and granular layers but not in the cornified layer by immunofluorescent staining. To further explore a function of DGK $\gamma$  in the differentiation, we overexpressed GFP-DGK $\gamma$  in HaCaT cells and compare the cell shape. However, we could not detect remarkable difference. Therefore, we then tried to produce DGK $\gamma$  knock out (KO) mouse and succeeded. We checked “allergy level”, “bailer function” and “recovery speed from wounding” using the KO mice. However, there was no significant difference between KO and WT mouse in all tested.