

GSK3 inhibition increases melanin synthesis in mouse B16 melanoma cells and normal human melanocytes

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Glycogen synthase kinase 3 (GSK3) is implicated in many biological events including melanogenesis. The aim of this study was to investigate the effects of Kenpauullone, a specific inhibitor of GSK3 on melanin synthesis in B16 melanoma cells. The results of this study indicates that Kenpauullone displayed melanogenesis stimulation activity in a concentration-dependent manner in murine B16 melanoma cells without any significant effects on cell proliferation. Tyrosinase activity and intracellular melanin amounts were increased 48 hr after addition of Kenpauullone in B16 cells. The expression levels of tyrosinase were dose-dependently enhanced after treatment with Kenpauullone. At the same time, the expression levels of tyrosinase mRNA were also increased after addition of Kenpauullone. The stimulatory effect of Kenpauullone mainly resulted from the increased expression of tyrosinase. These findings suggest that the application of GSK3 inhibitors may be a potential therapeutic method for the treatment of hypopigmenting disease such as vitiligo.