

デルタ - トコトリエノールで処理したマウスメラノーマ細胞中のメバロン酸ニリン酸脱炭酸酵素の減少はリソソームやメラノソームの放出とコレステロール含量の低下に関与していない

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Reduction of Mevalonate Pyrophosphate Decarboxylase in Mouse Melanoma Cells Treated with δ -Tocotrienol Is Not Associated with Reduction of Cholesterol Content or Release of Lysosomes and Melanosomes

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ABSTRACT: We previously reported that a decrease in the melanin content of mouse melanoma cells (B16 cells) treated with δ -tocotrienol was the result of a decrease in the level of tyrosinase activity and protein. Use of δ -tocotrienol as a whitening agent, may therefore have side effects. In the present study, we examined whether δ -tocotrienol caused side effects (the release of lysosomes from and a decrease in the cholesterol content of cells). We also examined the release of melanosomes (lysosome-related organella). Neither of lysosomes nor melanosomes were released from cells treated with δ -tocotrienol, since β -glucuronidase (melanosomal and lysosomal enzyme) activity, melanin content (melanosomal marker), and tyrosinase (melanosomal enzyme) activity did not increase in the cell culture medium. Although mevalonate pyrophosphate decarboxylase (MPD; an enzyme of cholesterol biosynthesis) was significantly reduced in the cells treated with δ -tocotrienol, cholesterol content was not. Thus, δ -tocotrienol might be useful as a therapeutic or preventive drug for hyperpigmentation and as a component of whitening and/or lightening cosmetics not causing severe side effect (reduction of cholesterol content and release of lysosomes/melanosomes), although δ -tocotrienol cause a decrease of MPD.

抄録 デルタ - トコトリエノールは、コレステロール合成酵素の1つであるメバロン酸ニリン酸脱炭酸酵素の減少を引き起こすけれども、リソソームやメラノソームの放出とコレステロール含量の低下には関与していない。