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## **Branched-chain amino acids complex inhibits melanogenesis in B16F0 melanoma cells.**

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### **Source**

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### **Abstract**

Present study was investigated the effect of each or complex of three branched-chain amino acids (BCAAs; isoleucine, leucine, and valine) on melanin production in B16F0 melanoma cells treated with various concentrations (1-16 mM) for 72 h. Among the 20 amino acids, lysine and glycine showed the highest activities of DPPH radical scavenging and mushroom tyrosinase inhibition, respectively. Each and combination of BCAAs reduced melanogenesis in a concentration-dependent manner without any morphological changes and cell viability in melanoma cells. Present study was also investigated the inhibitory effects of each or complex of BCAAs at each 10 mM concentration on the 100  $\mu$ M IBMX-mediated stimulation of melanogenesis in melanoma cells for 72 h and found that IBMX treatment was stimulated to enhance melanin synthesis and that the complex of BCAAs was the most effectively inhibited in the melanin amounts of cellular and extracellular and the whitening the cell pellet. When the inhibitory effect of BCAAs on tyrosinase was examined by intracellular tyrosinase assay, both isoleucine and valine exhibit slightly inhibition, but leucine and combination of BCAAs did not inhibit the cell-derived tyrosinase activity. Present study demonstrated that complex of BCAAs inhibited melanin production without changes intercellular tyrosinase activity. Thus, the complex of BCAAs may be used in development of safe potentially depigmenting agents.

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