Possible involvement of delta-6-desaturase in control of melanoma growth by gamma-linolenic acid.


Source

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Abstract

This study examined the effects of linoleic acid (LA) and gamma-linolenic acid (GLA) on BL6 melanoma growth in cell culture and of safflower oil (SFO) which contains LA and evening primrose oil (EPO) which contains GLA, on melanoma growth when grown in mice. The delta-6-desaturase activity of the melanoma cells in the two systems was also examined and an attempt made to relate the activity of the enzyme to the effects of GLA on cell and tumour growth. LA and GLA were found to be equipotent in inhibiting growth of the in vitro cultured BL6 cells which were found to contain an appreciable level of delta-6-desaturase activity. EPO was however found to be a more potent promoter of in vivo melanoma growth in mice than SFO. Melanomas grown in mice were found to lack delta-6-desaturase activity suggesting that the EPO diet, by providing GLA, was able to compensate for the loss of enzyme activity in the melanomas. The possibility that melanomas in mice have a requirement for GLA for growth while in in vitro cultured cells excess GLA inhibits the growth of the cells through an increase in lipid peroxidation is discussed.

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