

Low-dose DHA-induced astrocyte proliferation can be attenuated by insufficient expression of BLBP *in vitro*

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Docosahexaenoic acid (DHA) is an n-3 long chain polyunsaturated fatty acid (PUFA) that is involved in a wide range of cellular processes in human cells. Brain lipid binding protein (BLBP) exhibits a high affinity for n-3 PUFAs, especially DHA, but the precise functional contributions of DHA and BLBP in astrocytes are not clear. We analyzed cell viability and the ratio of Ki67 positive cells after manipulating DHA and/or BLBP levels in cultured astrocytes and found that 10 μ M (low-dose) DHA stimulated proliferation of astrocytes,

whereas this proliferative effect could be attenuated by downregulation of BLBP. Moreover, we found that astrocyte proliferation was directly regulated by BLBP independently of DHA. Taken together, low-dose DHA-induced astrocyte proliferation was disturbed by insufficient BLBP; and besides acting as a fatty acid transporter, BLBP was also involved in the proliferation of astrocytes directly.

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