**Medulloblastoma Tumor Growth is Inhibited by LCPUFA DHA and EPA**

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**Introduction**

Medulloblastoma is the most common malignant brain tumor in children with a poor 5-year survival of only 50-60%. It is a highly invasive embryonal neuroepithelial tumor that arises in the cerebellum and has a tendency to disseminate throughout the CNS early in its course. Multimodal treatment is necessary including surgery, radiotherapy and chemotherapy. However, treatment often results in significant neurological sequelae. The neuroprotective and antitumoral properties of the omega-3 fatty acids DHA and EPA could therefore be of great benefit in this patient group.

Previously work in our group has shown that DHA is a novel treatment option in neuroblastoma, an embryonal tumor similar to medulloblastoma. It is also suggests that both COX-2 and PGE2 play an important role in medulloblastoma tumor growth.

**Aim**

Investigate the potential of omega-3(DHA and EPA) as a novel therapeutic strategy for malignant medulloblastoma tumors.

**Results**

Five different human medulloblastoma cell lines incubated with DHA or EPA for 72h. Cell viability measured by WST-1. IC_{50} range from 2.8µM (DHA) and 6.13µM (EPA).

Three different human medulloblastoma cell lines initially incubated with Arachidonic acid for 24h and thereafter DHA for 24h and analyzed by ELISA for PGE2.

**Conclusions**

The omega-3 fatty acids DHA and EPA exhibit cytotoxic effects on human medulloblastoma cells lines in *vitro*.

The cytotoxic effect is possibly due to decreased production of PGE2, an inflammatory and proliferative eicosanoid, in response to treatment with DHA.

In nude mice with medulloblastoma xenografts, treatment with DHA and EPA decreases the growth of established tumors.

**References**


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