Synergic antitumor activity of DPE, a polyphenol of extra virgin olive oil, and cetuximab in colon cancer

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Colorectal cancer is the third most commonly diagnosed cancer and the second leading cause of cancer death worldwide. Many risk factors may increase chance of developing colorectal cancer, in particular some lifestyle-related factors have been linked to colorectal cancer. In fact, the links between diet, weight, and exercise and colorectal cancer risk are some of the strongest for any type of cancer. In particular, natural products derived from foodstuff have assumed a large role in the preventive approach in the treatment of colon cancer. A polyphenol of olive oil, 2-(3, 4-dihydroxyphenil) ethanol (DPE), has been reported to possess scavenging properties, and anti-inflammatory and antithrombotic activities.
In this work, we delineate the molecular mechanism by which DPE may inhibit colon cancer progression, interfering with inflammation and angiogenesis. We provide the framework in which compounds possessing antioxidant, anti-inflammatory, and antiangiogenic properties might be combined with chemotherapeutic agents.
The epidermal growth factor receptor (EGFR) is recognized as an important player in colorectal cancer initiation, progression and malignancy. This membrane-bound receptor tyrosine kinase (RTK) has therefore become a key target of therapeutic strategies designed to treat colorectal cancer, in particular with monoclonal antibodies (mAbs) against the extracellular domain of the receptor, such as cetuximab.
Here, we observed that a combination of low doses of DPE plus low doses of cetuximab reduced colon cancer (HT-29 and HCT-116) cells survival and colony formation. Interestingly, the low doses of single drug have not efficacy on colon cancer cell growth.
These preliminary results, show that the combination of low doses of both DPE and cetuximab may improve the efficacy colon cancer therapy, and the use of a reduced dose of the mAb, could improve the life-style of the patients, reducing its side effects.

References
Terzuoli E et al (2010) Clin Cancer Res. 16(16):4207-16.

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