

An aptamer against MNK1 as antitumoral agent in lung cancer.

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Abstract

Lung cancer is the most common cancer and the world-leading cause of cancer-related death. Histologically, lung cancer is divided into two main types: small-cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC). NSCLC is more frequent and is divided into three subtypes: adenocarcinoma, squamous cell carcinoma and large cell carcinoma. MNK1 is increased in lung cancer and correlate with poor overall survival of NSCLC patients. In addition, high levels of MNK1 might act as an independent poor prognostic biomarker for these patients. In our laboratory, we identified and optimized an aptamer against MNK1 (apMNKQ2) which is being currently validated in breast cancer. The aim of this study is to confirm whether apMNKQ2 could be used as a therapeutic tool in lung cancer. With this purpose we test the aptamer in the NSCLC cell lines A549, SW900 and H460, representative of the three NSCLC types. Tumor progression assays show that apMNKQ2 produces apoptosis in lung tumor cell lines decreasing cell viability and colony formation. ApMNKQ2 also shows a reduction in metastatic processes. These results confirm the antitumoral activity of apMNKQ2 and its potential as therapeutic tool in NSCLC.

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