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miRNA as a promising specific bio marker for ovarian cancer and targeted therapy

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Abstract

Epithelial ovarian cancer (EOC) accounts for 25% of all malignancies in women and considered the most lethal gynecological malignancy, accounting for 4.2 % of all cancer-related deaths in women. Most EOC patients are diagnosed at late stages, leaving little chance for survival due to the lack of effective treatments. During the past century, incidence of EOC has been slowly yet steadily increasing, while development of more effective treatment has lagged behind, leading to little, if not none, improvement in overall survival. Current standard treatment for EOC includes a combination of surgical resection and chemotherapy, which acts efficiently as initial treatment. However, most EOC patients recur after a few years and turn to be resistant to existing treatments. Despite the use of aggressive treatment, recurrence is frequently seen among EOC patients, and cancerous metastasis is one of the predominant causes of mortality. Therefore, exploration of novel biomarkers for early diagnosis, prognosis prediction, and effective therapies will definitely contribute to current EOC treatment and management. Recently, noncoding RNA molecules, microRNAs (miRNAs) are drawing a lot of attention for both physiological and pathological processes because of its stability, differ from RNA that is very fragile. By imperfect complementary sequence pairing between miRNA seed region and the 3'-untranslated region (UTR) of target genes, miRNAs negatively regulate target genes by either mRNA degradation or translational repression, thus directly or indirectly affecting almost all cellular pathways. Our group have analyzed the profiles of ovary cancer using Nano string. Almost 800 miRNA genes were analyzed, it showed the expression profiles of 10 most upregulated and 1 most down regulated. For the predicted signaling pathways, we have had validation on several miRNA from plasma of Ovary cancer for several oncomiR and tumor suppressor. The targeted development using chitosan to develop Ago-miR and mimicking miRNA are underway to be tested in *in vitro* study *SKOV3* cell lines.

Keywords: ca ovary; miRNA expression profile; targeted therapy

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