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(54) **MICRO-RNA PROFILING IN OVARIAN CANCER**

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(58) **Field of Classification Search**
None
See application file for complete search history.

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(57) **ABSTRACT**

MicroRNAs (miRNAs) represent a novel class of genes that function as negative regulators of gene expression and have recently been implicated in several cancers. However, aberrant miRNA expression and its clinicopathological significance in human ovarian cancer have not been well documented. Numerous miRNAs are shown altered in human ovarian cancer, significantly miR-214, -199a*, -200a, -100, -125b, -30d, -221, -222, -126, and -24. Four miRNAs (miR-221, miR-222, miR-126, and miR-24) were found to be deregulated in all four histological types of ovarian carcinoma (serous, mucinous, endometrioid, and clear cell). Frequent deregulation of miR-214, -199a*, -200a and -100 was demonstrated in ovarian cancers. Significantly, miR-214 induces cell survival and cisplatin resistance through targeting down-regulation of proteins activating the Akt pathway. Inhibition of Akt using Akt inhibitor, API-2/triciribine, or PTEN cDNA lacking 3'UTR largely abrogates miR-214 induced cell survival. These findings indicate that deregulation of miRNAs is a recurrent event in human ovarian cancer and that miR-214 induces cell survival and cisplatin resistance primarily through targeting the PTEN/Akt pathway.