Scientists identify microRNA as possible cause of chemotherapy resistance

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Scientists may have uncovered a mechanism for resistance to paclitaxel in ovarian cancer, microRNA-31, suggesting a possible therapeutic target for overcoming chemotherapy resistance.

Mohamed K. Hassan, Ph.D., a postdoctoral fellow at Hokkaido University in Japan, completed the research as a collaborative study with his colleagues when he was a professional assistant in South Valley University in Egypt. Results of this study were presented at the second AACR Dead Sea International Conference on Advances in Cancer Research: From the Laboratory to the Clinic, held March 7-10, 2010.

"MicroRNAs do not code protein, but they regulate other proteins' expression," said Hassan. "So identifying any microRNA as responsible for chemoresistance is, in fact, introducing a real reason for the mechanism."

Ovarian cancer is typically responsive to chemotherapy with paclitaxel, but sometimes cancer cell lines become resistant, which renders chemotherapy useless. Hassan's research team analyzed a set of microRNAs and identified microRNA-31 as being responsible for this chemoresistance. MicroRNA-31 regulates the protein IFITM-1.

"We need to further verify this observation in clinical ovarian cancer samples and find a way to inhibit this target protein to improve the effect of paclitaxel and prevent the risk of recurrence," he said.