



PRESS RELEASE

Therapeutic targets in ovarian cancer?

A combined computational/experimental approach discovers novel biomarkers and potential therapeutic targets in epithelial ovarian cancer.

Vari - Athens, Greece - 16 May 2008. Epithelial Ovarian Cancer (EOC) is the most common ovarian malignancy and continues to be the leading cause of death among gynaecological malignancies. Researchers from Greece and the US studied in a collaborative effort the changes in gene expression on different ovarian tumor stages.

The study not only included protein coding genes but also a novel class of non-coding genes called microRNAs. MicroRNAs (miRNAs) are an abundant class of small RNAs that function as gene regulators. They were first described in 1993 in worm, but it was only in 2001 when researchers discovered them in several organisms including humans and the term microRNA was introduced.

Up to date we know that miRNA deregulation is involved in the initiation and progression of human cancer, however the underlying mechanisms in cancer are still largely unknown.

The findings of the study indicate that numerous miRNAs are globally downregulated in EOC due to genomic copy number loss and/or epigenetic silencing.

In particular, the combined effort between the computational biology group of Dr. Hatzigeorgiou at the Institute of Molecular Oncology at the BSRC Alexander Fleming and their partners at the "Center for Research on Early Detection and Cure of Ovarian Cancer" at the University of Pennsylvania and the Department of Medical Genetics at the Ohio State University led to the identification of a cluster of microRNAs located at chromosome 14 as potential tumor suppressors. They report in the high profile scientific journal *Proceedings of National Academy of Science* that tumors with lower expression of eight miRNAs in this cluster were associated with a higher proliferation index and significantly shorter patient survival. These findings may lead to new biomarkers and therapeutic targets in cancer.

L. Zhang*, S. Volinia, T. Bonome, G.A. Calin, J. Greshock, N. Yang, C. Liu, A. Giannakakis, P. Alexiou, K. Hasegawa, C. N. Johnstone, M. S. Megraw, S. Adams, H. Lassus, J. Huang, S. Kaur, S. Liang, P. Sethupathy, A. Leminen, V.A. Simossis, R. Sandaltzopoulos, Y. Naomoto, D. Katsaros, P.A. Gimotty, A. DeMichele, Q. Huang, R. Bützow, A.K. Rustgi, B.L. Weber, M.J. Birrer, A.G. Hatzigeorgiou*, C.M. Croce* and G. Coukos* Genomic and Epigenetic Alterations Deregulate microRNA Expression in Human Epithelial Ovarian Cancer. *Proc. Nat. Acad. Sci USA 2008 May 13;105(19):7004-9. Epub 2008 May 5* (*corresponding author).

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About BSRC Fleming

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