

ER-60 (PDIA3) protein is highly expressed in a newly established serous ovarian cancer cell line, YDOV-139

Doo Byung Chay, Jae Hoon Kim

*Department of Obstetrics and Gynecology, Yonsei University College of Medicine,
Korea*



Doo Byung Chay

Objective: To characterize a newly established serous ovarian cancer cell line (YDOV-139) and to evaluate ER-60, which was highly expressed in YDOV-139, as a novel biomarker for ovarian cancer.

Methods: YDOV-139 was established from the patients with recurrent ovarian cancer and characterized by various biological and genetic features. Gene and protein expression profiles were analyzed using cDNA microarray and 2-dimensional gel electrophoresis (2DE) and matrix assisted laser desorption ionization- time of flight peptide mass fingerprinting (MALDI-TOF PMF). Four candidate markers (3 from cDNA microarray and 1 from protein profiling), which were strongly up-regulated in YDOV-139, were validated by real-time PCR and immunohistochemistry (IHC).

Results: The epithelial-like characteristics of YDOV-139 were evident from morphologic studies and the average population doubling times were 120 hours. When transplanted into three nude mice, the cells successfully induced tumor masses in all three mice. 2520 genes and 23 protein spots were differentially expressed in YDOV-139 by cDNA microarray and proteomic study. Real-time PCR showed that mRNA expressions of LCN2, MDK, SLCO4A1, and ER-60 were strongly elevated in EOC cell lines. In IHC analysis, ER-60 was significantly overexpressed in both borderline and invasive ovarian cancer ($p < 0.001$).

Conclusions: Our findings suggested that biological characteristics of YDOV-139 could be an important research resource for studying ovarian cancer and ER-60 should be investigated further as a potential biomarker for ovarian cancer.