

HOXB9 AS A POTENTIAL TARGET GENE FOR OVERCOMING PLATINUM RESISTANCE IN MUCINOUS OVARIAN CANCER

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Although ovarian cancer is heterogeneous with various histologic types, current treatment guidelines are generally the same for all histologic types. Expression of HOX genes in epithelial ovarian cancer (EOC) was known to be histology-specific. We performed a series of in vitro and in vivo studies to find out a tailored strategy of inhibiting HOXB9 expression for overcoming platinum resistance in mucinous EOC. HOXA10 and HOXB9 showed exclusively high expression in SKOV-3 and RMUG-S, respectively. HOXA10 siRNA treatment made a significant decrease in cell viability of SKOV-3, but not RMUG-S. By contrast, HOXB9 siRNA treatment made a significant decrease in cell viability of RMUG-S, but not SKOV-3. HOXA10 siRNA and HOXB9 siRNA treatments: increased the expression level of cleaved PARP and caspase-3 in SKOV-3 and RMUG-S, respectively; expression of vimentin was decreased while expression of E-cadherin was increased; SOX-2, Nanog, and Oct-4 also decreased in both cell lines after specific siRNA treatment. When injected with RMUG-Sko HOXB9 and SKOV-3oe HOXB9 in mouse models, we clearly showed that the tumours from RMUG-Sko HOXB9 grew significantly slower than those from control. By contrast, the tumours from SKOV-3oe HOXB9 grew significantly faster than those from control. After harvesting, the cells from the SKOV-3oe HOXB9 were characterized with resistance to cisplatin and higher expression of vimentin than those from the control. Our findings suggest that platinum-resistance of mucinous ovarian cancer might be defeated by inhibiting HOXB9, which could be a target of tailored strategy for overcoming the resistance to platinum in mucinous EOC.

Biography

Dong Hoon Suh is a Clinical Professor of the Department of Obstetrics and Gynaecology in Seoul National University Hospital. He is a Gynaecologic Oncology Specialist. He has graduated from Seoul National University School of Medicine at 2002 and completed his PhD at the same university, postgraduate school in 2014. He has published more than 50 papers in reputed journals of his field. He is a Vice Secretary General of organizing committee of the Asian Society of Gynecologic Oncology (ASGO) and a Principal Editor of its official journal, Journal of Gynecologic Oncology. He has been also deeply involved in other medical journal activities as a Committee Member for Planning and Evaluation of Korean Association of Medical Journal Editors, KAMJE.

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