

MicroRNAs and the target genes in early tumorigenesis of fallopian/ovarian carcinoma

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The histogenesis of ovarian cancer has been facing challenges both clinically and molecular-histologically. This is due to the fact that most so-called ovarian carcinomas are neither from ovaries nor from the cell types of ovarian surface epithelia. Recent recognition of precursor lesions in high grade serous ovarian carcinoma (HGSOC), defined as serous tubal intraepithelial carcinoma (STIC) in fimbria provide new venue for the study of early tumorigenesis of HGSOC and for searching for molecular changes responsible for the early carcinogenesis of HGSOC. Currently only a few oncogenic/tumor suppressors are identified to be associated with STIC, including *P53*, *BRCA1*, and *HMGAA2*. MicroRNAs are either the targets of or are regulated by these genes. To investigate the role of microRNAs in early tumorigenesis of HGSOC, we examined global microRNA expressionin STICby the tissue microdissection. We identified a subset of microRNAs specifically dysregulated in STIC, including *MIR182*, *MIR106* family, *MIR34* and *MIR375*. After validated our finding of microRNA dysregulation in a large cohort of STIC and HGSOC patients, we further investigated the oncogenic role of these microRNAs and their target genes *in vitro* and *in vivo*. We found that *MIR182* is an Onco-miR and it impaired DNA damage response through dysregulation of *BRCA1-HMGA2* pathway. Overexpression of *MIR106* family resulted in poorly differentiated and aggressive HGSOC through negative regulation of *RBL2-P21* pathway. Our findings provide new and the valuable tools for the potential therapeutic targets in preventing and treating the early disease of HGSOC.

Biography

Jian-Jun Wei is an AP/CP board certified physician scientist after five years of resident and fellowship training in New York University. He is currently appointed as Associate Professor in Northwestern University, specialized in Gynecologic Pathology. His major research interests include ovarian carcinogenesis. He also obtained his research training and early research faculty position in Indiana University School of Medicine for six years. He has published more than 65 peer-reviewedarticles in reputed journals and serves as the editorial board member in several journals.

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