

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

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### Abstract

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 HMGA2. 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 expression in STIC by 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. Dr. Wei 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-reviewed articles in reputed journals and serves as the editorial board member in several journals.