# ADAMTS family of genes may be the next 'thing' in ovarian cancer treatment

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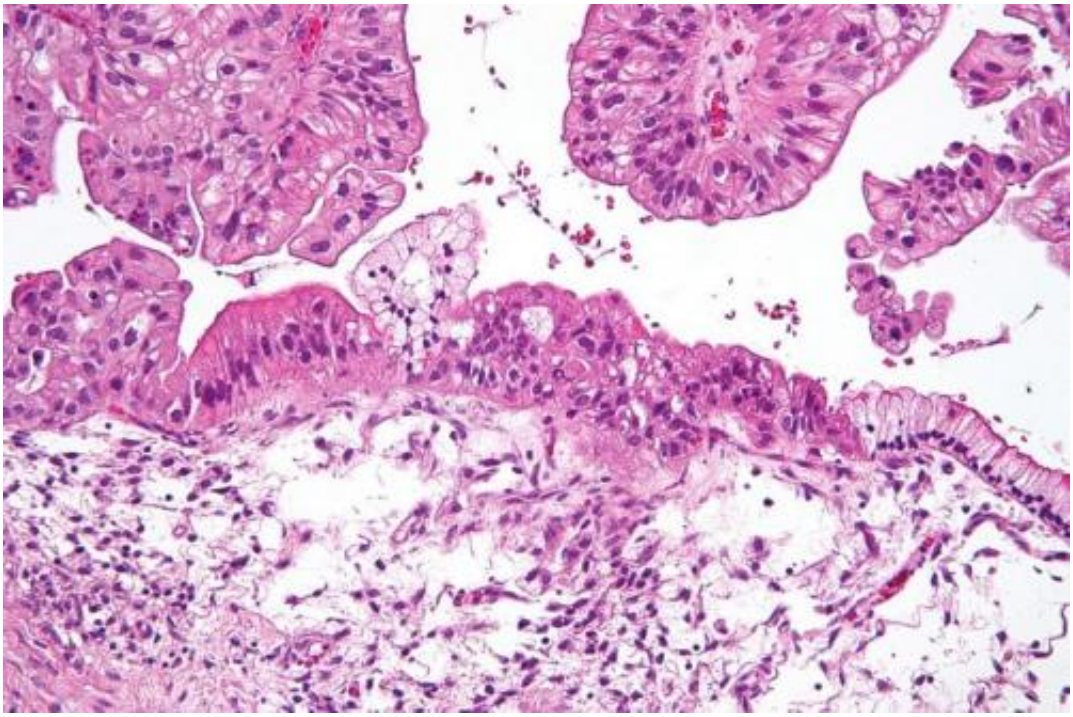

Intermediate magnification micrograph of a low malignant potential (LMP) mucinous ovarian tumour. H&E stain. The micrograph shows: Simple mucinous epithelium (right) and mucinous epithelium that pseudo-stratifies (left - diagnostic of a LMP tumour). Epithelium in a frond-like architecture is seen at the top of image. Credit: Nephron /Wikipedia. CC BY-SA 3.0

There is the Addams Family. And then there is the ADAMTS family. While one is mindless entertainment, the latter may prove to be a new genetic avenue for designing ovarian cancer treatment.

Scientists at The University of Texas MD Anderson Cancer Center have identified a new class of gene mutations in the ADAMTS gene family that may contribute to outcomes in ovarian cancer without BRCA1 or BRCA2 mutations. BRCA1/BRCA2 are tumor-suppressing genes involved in DNA repair that are well known for increasing risk for ovarian and breast cancer when mutated.

Patients with BRCA1/BRCA2 mutations generally respond better to chemotherapy with longer survival. However, these mutations are found in only 20 percent of ovarian cancer patients. This doesn't account for the 70 percent of patients who respond well to platinum-based chemotherapy.

Wei Zhang, Ph.D., professor of Pathology, whose study results appeared in the June 11, 2015 issue of the *JAMA Oncology*, believes that ADAMTS mutations may be one reason.

"This suggests that events other than BRCA1 or BRCA2 mutations exist that predict chemotherapy response," said Zhang, who has previously published in *JAMA* on the significance of BRCA2 mutations in ovarian tumors. "In this study, we examined data from The Cancer Genome Atlas to determine the association between novel gene mutations in ovarian cancer and patient overall survival, progression-free survival and chemotherapy response."

Zhang's team looked at data for the years 2009 to 2014 and identified mutations from eight members of the ADAMTS family among the 512 cases studied. The data revealed a significantly higher rate of chemotherapy sensitivity within this group.

"We concluded that ADAMTS mutations may contribute to outcomes in ovarian cancer cases without BRCA1 or BRCA2 mutations and this may have important clinical implications," said Yuexin Liu, Ph.D., assistant

professor of Pathology, the first author of the study. "We found no statistical correlation between ADAMTS and BRCA1 or BRCA2 mutations."

Ovarian cancer remains the leading cause of mortality from gynecological cancer. Despite aggressive surgery and chemotherapy, most patients eventually experience relapse with generally incurable disease mainly due to chemotherapy resistance, said Zhang.

"The study's findings are exciting because early identification and differentiation of patients with chemotherapy-resistant disease could allow enrollment in clinical trials with alternative therapeutics rather than ineffective chemotherapy," he said. "This new information on ADAMTS mutations may be a useful addition to BRCA mutation assessment for patients with ovarian cancer."

Provided by University of Texas M. D. Anderson Cancer Center