

CK5 marks cisplatin-resistant ovarian cancer

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CU Cancer Center study shows that CK5 marks cisplatin-resistant ovarian cancer. Image: Credit: Flickr/Peter Rosbjerg cc license.

A University of Colorado Cancer Center study recently published in the *International Journal of Gynecological Cancer* shows that protein

cytokeratin 5 (CK5), known to be a marker of poor prognosis in breast cancer, also marks ovarian cancers likely to be resistant to the common chemotherapy cisplatin.

"Cisplatin is one of the mainstays of ovarian [cancer](#) treatment. We know that [ovarian cancers](#) may develop resistance to cisplatin and when that happens the clinical course can take a turn for the worse," says first author Bradley Corr, MD, gynecologic oncology fellow at University of Colorado Hospital, who collaborated on the study with the lab of senior author Carol A. Sartorius, PhD, investigator at the CU Cancer Center and associate professor of Pathology at the CU School of Medicine.

CK5 is a structural protein involved in forming the cytoskeleton of epithelial cells. Cells with cytoskeletons that include high levels of CK5 are likely to be progenitor or "stem-like" cells, able to produce many kinds of mature tissue cells. In cancer these cells are undesirable as they can reform a tumor after treatment. Previous work by the Sartorius lab has shown the protein to be a marker of [poor prognosis](#) in estrogen receptor positive (ER+) [breast cancer](#). The current study extends this finding to ovarian cancer.

"There's a big push to detect ovarian cancer early through screening. And the other big push is in understanding the mechanisms of platinum resistance. This study could be a piece of that puzzle. Right now we see CK5 as a potential marker that down the road could be combined with other markers to predict and analyze platinum resistance," Corr says.

His words highlight the fact that while a body of work is developing around CK5 as a marker of [resistant cancer cells](#), the mechanism of this resistance is still largely unknown.

"It's interesting that CK5-positive cells pop up as bad actors across many cancer types. Now the challenge is to find a functional role for the

protein in cancer. What's functionally different about those cells?" Sartorius says.

Determining the action whereby CK5 confers this immunity to platinum-based chemotherapies including cisplatin could someday help researchers design ways to resensitize these [cells](#) to treatment.

"Platinum-based chemotherapy remains the standard of care for ovarian cancer. Our goal is to predict in whom and why therapy resistance occurs. This will help us treat patients with improved efficacy and hopefully improve outcomes," Corr says.

Provided by University of Colorado Denver

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