OVARIAN SUPERFICIAL EPITHELIAL CELLS AND OVARIAN CANCER

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There are two types of epithelial ovarian cancer (EOC); endometrioid (Type 1) and serous (Type 2). The origin of Type 1 EOC is unknown, but clues point to the ovary, itself: EOC risk is related to ovulation, decreasing ovulation protects against EOC and EOC has been demonstrated in the clefts of the human ovary. Recently, mouse superficial ovarian calls have been transformed to EOC by repeated passages in serum-containing medium, and, analogs of the ovarian clefts have been shown to be niches for stem cells that can be induced to undergo transformation to EOC.

Our hypothesis is that human Type 1 EOC is formed in the ovarian clefts from transformed mesenchymal stem cells and that this is related to ovulation.

We showed that ezrin is a marker of the degree of malignancy of EOC cells and is not expressed by normal ovarian superficial ovarian cells. We showed that the squamo-cuboidal cells of the human ovary are contiguous with cells lining the ovarian clefts that are progressively more columnar, rapidly proliferating and overexpress ezrin. We also have transformed ovarian superficial cells into malignant phenotypes through repeated passages, and addition of insulin or estradiol.

We are presently studying the relationship of these changes to human stem cell marker expression and the transformation of ovarian cleft cells into EOC.

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