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TITLE: Could LARP1 be a driving force in ovarian cancer transformation?

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ABSTRACT BODY:

Objectives: In the majority of cases, women with ovarian cancer are not diagnosed until the disease is at an advanced stage and is usually incurable; 60% die of ovarian cancer within 5 years of their diagnosis. The search for new and early diagnostic markers is mandatory. In this respect, the evaluation of serous tubal intraepithelial cancers (STIC) is of great importance. STIC lesions, identified within fallopian tubes, are believed to be the pre-invasive origin of most ovarian cancers. Despite their presence for up to five years before transforming to invasive ovarian cancer there are currently no means of detecting STIC lesions in patients. The process of transformation, whereby a premalignant lesion (like a STIC) turns into an invasive cancer, requires cells to reprogram their signaling and behaviour. As LARP1 regulates the expression of genes required for migration and invasion, we explored whether LARP1 was a component of STIC transformation.

Methods: We performed immunohistochemistry (LARP-1, P53 and CA125) on 10 STIC lesions identified in histopathological samples from women undergoing surgery for ovarian cancer or prophylactic surgery in case of BRCA mutation. In parallel, we analysed LARP-1 expression in developing ovarian cancer in an ID8-fLuc ovarian cancer mouse model.

Results: LARP-1 was expressed in all human STIC samples. P53 was positive in STIC samples, confirming the STIC nature. Compared to CA125, LARP-1 was more or equally expressed in the same STIC sample. In developing murine ovarian cancer, LARP-1 was highly expressed one week after intraperitoneal tumor inoculation. This was maintained during the first three weeks, then dropped but subsequently increased again once widespread metastatic disease was established.

Conclusions: This study demonstrates for the first time that a new protein, LARP-1, is detectable very early in the onset of ovarian cancer, earlier than CA125.

Additional details

KEYWORDS: Biochemical markers, Ovary, STIC, Cancer.

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