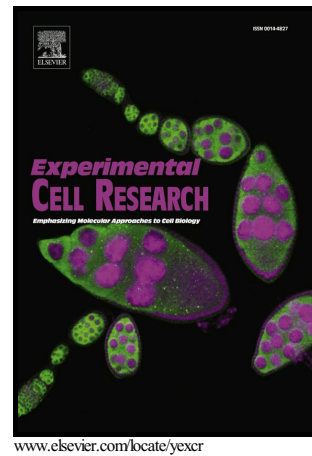


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Diagnostic and Prognostic Biomarkers in Ovarian Cancer and the Potential Roles of Cancer Stem Cells- an updated review

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Abstract

Ovarian carcinomas relate to highest death rate in gynecologic malignancies as absence of symptoms shield the disease in the early stage. Current evidences have been devoted to discovering early effective screening mechanism prior to the onset of clinical symptoms. Therefore, biomarkers are the crucial tools that are capable of predicting progression, risk stratification and overall therapeutic benefit to fight against deadly disease ovarian cancer. Although recent studies have revealed serum protein markers, CA-125, HE4, mesothelin etc have higher sensitivity and specificity at the early stages of the cancer; the critical questions arise regarding the applicability and reproducibility of genomic profiling across different patient groups. Hence, our hypothesis is that the panels of signature biomarkers will be much more effective to improve the prediction of patient survival outcome with high sensitivity and specificity. Ovarian cancer is heterogeneous in nature and contain a sub-population of stem cell-like characteristics that has the ability to grow as anchorage-independent manner and subsequently able to metastasize. Highly tumorigenic in mice, radio and chemotherapy-resistant cancer stem cells (CSCs)-specific biomarkers therefore reflects the interesting possibilities to be targeted to minimize the high frequency of relapse and resistance to drugs. Several putative ovarian CSC markers such as CD24, CD44, CD133, SSEA have already been proposed in recent studies, yet, a large panel of updated biomarkers have high clinical relevance to define the prospective isolation of true and viable circulating CSCs. Therefore, this review highlights current evidence based updated ovarian cancer specific prognostic and diagnostic biomarkers and potential importance of CSCs in context of tumorigenicity and metastatic activity for fundamental biological and clinical implications.

Key words: Ovarian Cancer; Diagnostic and Prognostic Biomarkers; Cancer Stem Cells; Metastasis; Tumor recurrence.

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