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Correlation between cancer stem cell-like cells markers and clinical assessment in breast cancer patients

P. Apostolou [1], M. Toloudi [1] , M. Chatziioannou [1] , I. Papasotiriou [1]

[1] Research Genetic Cancer Centre Ltd. (R.G.C.C. Ltd). 115 M.Alexandrou str, 53070 Filotas, Florina, Greece

Abstract Id: 42

Background: Circulating tumor cells (CTCs), are cancer cells that have been detached from a primary tumor and flow into bloodstream. Many literature and experimental data have pointed out the predictive value of the above cells. A recent study has demonstrated that cancer stem cell-like cells (CSC-like cells) are included in the vast majority of CTCs. The present study aims to find out the correlation between CSCs's markers (Nanog, Oct3/4, SOX2, Nestin and CD34) and clinical assessment of patients with breast cancer.

Materials & Methods: In the first panel, CTCs from 12 patients with breast cancer have been isolated. The second panel included the quantification of CSC-like cells in CTCs cultures. A molecular analysis of these cells followed with RT-qPCR, by using spesific primers for each marker and for endogenous control gene (18S rRNA). The Livak comperative method has been used for the analysis of relative quantification.

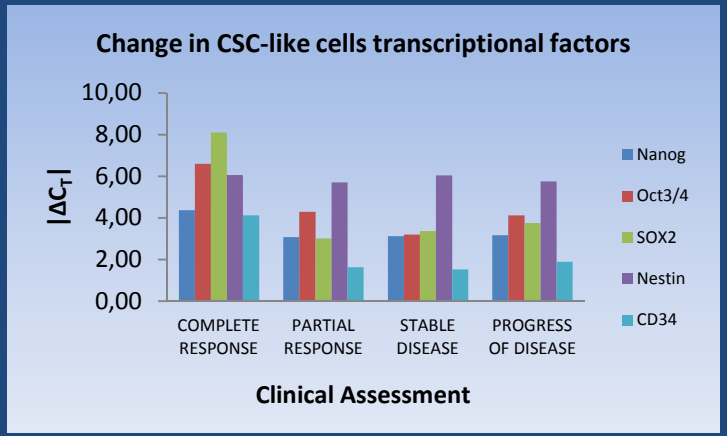

Table 1: CSCs Markers in correlation with clinical assessment

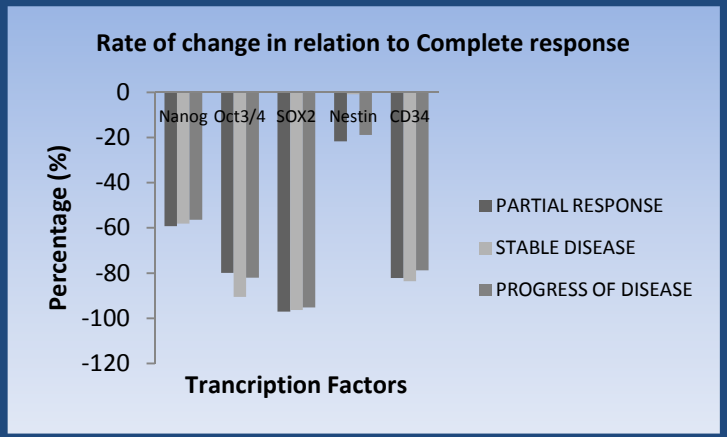

Table 2: Decrease fold of transcriptional factors

Results: There have been observed different gene expression levels of each marker, depending on clinical assessment of patients. SOX2 is overexpressed in cases of complete response (CR), while Nestin has higher levels in cases of stable disease (SD). CD34 transcription factor is also decreased in SD. The Nanog expression varies depending on the clinical assessment. In cases of progress of disease (PD) it has been observed an increase of Oct3/4, SOX2 and Nestin expression.

Conclusion: The results showed that there may be a correlation between clinical evaluation and CSC-like transcriptional factors in patients with breast cancer, as gene expression of the markers was different in each clinical assessment. It may be possible to avoid cases of relapse which are not obvious at prima facie. Concluding, it is imperative for further studies to be performed to a greater number of samples, in order the results to be applied at clinical level.

Selected References:

•Toloudi, M., P. Apostolou, et al. (2011). "Correlation between Cancer Stem Cells and Circulating Tumor Cells and Their Value." Case Rep Oncol 4(1): 44-54.

•Tewes, M., B. Aktas, et al. (2009). "Molecular profiling and predictive value of circulating tumor cells in patients with metastatic breast cancer: an option for monitoring response to breast cancer related therapies." Breast Cancer Res Treat 115(3): 581-590.

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