Evaluation of Stem Cell Markers, CD44/CD24 in Breast Cancer Cell Lines

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Background

Cancer stem cells play crucial roles in resistance to therapeutic schemes and relapse of disease, so it is important to find targeted therapies that kill them selectively. Breast cancer is the most common cancer in females living in all part of the world including Iran and it has an important burden in public health with direct impact on patients' families. Breast cancer in young adults occurs in Iran more frequently than western countries and they usually show higher aggressiveness and poor prognosis. It is postulated that such cancers are consisted of stem cell like cells, so called cancer stem cells that confer severe aggressiveness and poor prognosis.

The current study was sought to find of a good in vitro model of cancer stem cells that might be a shortcut to better understanding of molecular events in them and may leads us to find new opportunities for molecular manipulations and design of new therapeutics.

Methods:

Four breast cancer cell lines, MCF-7 ، T47D ، MDA-MB231 and MDA-MB468 were purchased from National cell Bank of Iran based in Iran Pasture Institute and were cultured in high glucose DMEM supplemented with 10% FCS. Cells were stained with antiCD44-PE and antiCD24-FITC antibodies and Status of CD44 and CD24 as markers of breast cancer stem cells were evaluated using flow cytometer and fluorescent microscopy.Evaluation of CD44 and CD24 as markers of breast cancer stem cells showed that MDA-MB231 with 97±1.2% CD44+/CD24-/low cells is significantly different from the others that they were mainly CD44 and CD24 positive cells($p<0.01$).

Conclusion:

The current study showed that MDA-MB231 breast cancer cell line is the only one among common breast cancer cell lines that could be used as breast cancer stem cell line. The findings are in close agreement with a few studies that were reported earlier.

Keywords: stem cell markers, breast cancer, CD44/CD24.

Poster Presentation

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