Pluripotency Level Identification of Breast Cancer Stem Cell Fractions Separated by Magnetic Activated Cell Sorting Through the Analysis of C-MYC gene Expression

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Abstrak

Background: According to WHO, breast cancer has the highest incidence rate among women. Breast cancer is caused by the uncontrolled growth of abnormal cells that form in breast tissue, triggered by the presence of cancer stem cells. The invasive properties of breast stem cells are closely related to the pluripotency of these cells. The pluripotency of a cell is closely related to the genes expressed. In this study, c-Myc gene expression was observed to determine the level of pluripotency of breast cancer stem cell fraction samples separated using the Magnetic Activated Cell Sorting (MACS) technique. Method: mRNA was obtained from 11 breast cancer stem cell samples which were fractionated using MACS. The expression of c-Myc in these cell fractions was analyzed using one step real time RT-PCR with SYBR Green (Bioneer®) and electrophoresis. Results: Based on the experimental results, high level expression of c-Myc was present in the CD24-/44- cell fraction, while low level expression of the c-Myc gene was found in the CD24-/44+ cell fraction. Conclusions: The c-Myc gene is expressed in all breast cancer stem cell fractions. Looking at the c-Myc gene expression, higher levels of pluripotency can be found in the CD24-/44- cell fraction compared to CD24-/44+.