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POSTER

Overexpress of CD47 does not alter stemness of MCF-7 breast cancer cells

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Abstract

Background: CD47 is a transmembrane glycoprotein expressed on all cells in the body and particularly overexpressed on cancer cells and cancer stem cells of both hematologic and solid malignancies. In the immune system, CD47 acts as a "don't eat me" signal, inhibiting phagocytosis by macrophages by interaction with signal regulatory protein α (SIRPα). In cancer, CD47 promotes tumor invasion and metastasis. This study aimed to evaluate the stemness of breast cancer cells when CD47 is overexpressed.

Methods: MCF-7 breast cancer cells were transfected with plasmid pcDNA3.4-CD47 containing the CD47 gene. The stemness of the transduced MCF7 cell population was evaluated by expression of CD44 and CD24 markers, anti-tumor drug resistance and mammosphere formation.

Results: Transfection of plasmid pcDNA3.4-CD47 significantly increased the expression of CD47 in MCF-7 cells. The overexpression of CD47 in transfected MCF-7 cells led to a significant increase in the CD44+CD24- population, but did not increase doxorubicin resistance of the cells or their capacity to form mammospheres.

Conclusion: CD47 overexpression enhances the CD44+CD24- phenotype of breast cancer cells as observed by an increase in the CD44+CD24- expressing population. However, these changes are insufficient to increase the stemness of breast cancer cells.

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Keywords

CD47, breast cancer, breast cancer stem cells, MCF-7

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