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TITLE: Human Triple Negative Breast Cancer Stem Cells Utilized for Drug Discovery Therapeutics for Triple Negative Breast Cancer Patients

AUTHORS (FIRST NAME INITIAL LAST NAME): J. Sharma¹, C. DiMaggio¹, N. ¹, M. Majdoub¹, N. Liles¹, G. Velazquez¹, S. Sharma¹, N. Amezcua¹, K. DeSimone¹, C. Sharma¹, M. Sharma¹, S. Sharma¹, R. Punzalan¹

INSTITUTIONS (ALL): 1. Stem Cell Biology, Celprogen, San Pedro, CA, USA.

ABSTRACT BODY: Breast cancer is the most common malignancy among women in developed countries, affecting more than a million women per year worldwide. Of these, triple negative breast carcinoma represents 10-17 %. Triple negative breast carcinomas, characterized by estrogen, progesterone and HER2 receptor negativity are very aggressive tumors with poor prognosis. Breast Cancer Stem derived from triple negative parental Breast Cancer tumors, are a subpopulation of cells within the parental breast cancer population within the individual which are positive for the following markers: CD133+CD44+CD24+ESA+SSEA-1+TRA-1-61+& TRA1-81+ and Oct $\frac{3}{4}$ these Breast Cancer Stem cells are highly tumorigenic and possess the stem cell-like properties of self-renewal and the ability to produce differentiated progeny. Breast Cancer Stem cells also demonstrate up regulation of SSEA3+,SSEA4+ upon differentiation into parental cancer phenotype. Individualized treatment (tailored therapy) based on molecular biology markers of tumor and patient is the trend in clinical practice these days. However, molecular targets and predictors for the treatment of triple negative breast carcinoma do not currently exist. With the identification and characterization of Breast Cancer Stem Cells from parental triple negative tumors, enables one to screen novel drug candidates for potential development of therapeutics for triple negative Breast Cancer Patients. In this study we have utilized Breast Cancer Stem Cells from triple negative Tumors to screen potential drug candidates. The Breast Cancer Stem Cell based assay system may provide novel therapeutic approaches into treatment of triple negative breast cancer patients, which are resistant to standard chemotherapy and radiation.

Author: Sharma, Jay

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