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TITLE: Human HER2+ Breast Cancer Stem Cells Utilized for Drug Discovery Therapeutics for HER2+ and Estrogen & Progesterone Negative Breast Cancer Patients

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ABSTRACT BODY: Breast cancer is the most common malignancy among women in developed countries, affecting more than a million women per year worldwide. The HER2+, Estrogen and Progesterone negative breast carcinoma is characterized by estrogen, progesterone receptor negativity and HER2 receptor positive are a sub-classification of HER2+ breast Cancers. Breast Cancer Stem derived from HER2+ and double 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 ¾ 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 effective treatment of HER2+ double negative breast carcinoma do not currently exist. With the identification and characterization of Breast Cancer Stem Cells from parental HER2+ double negative tumors, enables one to screen novel drug candidates for potential development of therapeutics for HER2+ double negative Breast Cancer Patients. In this study we have utilized Breast Cancer Stem Cells from HER2+ double negative Tumors to screen potential drug candidates. The Breast Cancer Stem Cell based assay system may provide novel therapeutic approaches into treatment of HER2+ double negative breast cancer patients, which are resistant to standard chemotherapy and radiation.

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