ImmunoTools IT-Box-139 Award 2012

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Identifying and targeting cancer stem cells of the triple-negative breast cancer subtype:

The triple-negative breast carcinoma subtype is a very aggressive tumor type with poor prognosis. Currently, chemotherapy is the only adjuvant therapy that can be offered to these patients, but in spite of treatment, many patients experience disease recurrence, probably due to a high number of cancer stem cells (CSCs).

To date identification of CSCs is based primarily on their $CD44^{+}/CD24^{-/low}$ phenotype, but few other markers have also been suggested. Our challenge is to get more detailed insight into the biology of CSCs by identifying and targeting these cells in breast cancer patients. This will improve the patient's treatment and prevent recurrence of the tumor.

We have developed and characterized a CSC model in our laboratory based on several isogenic single cell clones obtained form a triple-negative breast cancer cell line. Some single cell clones have true CSC characteristics as they are tumorigenic upon inoculation into the mammary fat pad of immunodeficient mice and are chemoresistant, while others have the opposite features and represent non-CSCs. Quantitative proteomic and transcriptomic studies of these single cell clones with different phenotypic features have identified a panel of proteins/mRNAs that are differentially expressed in the two subpopulations. Several of these proteins are potential new biomarkers that can identify triple-negative breast CSCs.

These potential new biomarkers need to be verified and we therefore intend to isolate CSCs from breast cancer cell lines and from fresh human tumor tissue through fluorescence activated cell sorting (FACS). Sorted cells will be evaluated for CSC characteristics, meaning tumorigenicity and chemosensitivity to verify if these novel biomarkers in fact can identify CSCs. However, the CSCs need to be characterized even further, and the ImmunoTools IT-Box-139 will be used to screen and characterize CSC populations.

ImmunoTools IT-Box-139 for Sidse Ehmsen includes 100 antibodies

FITC - conjugated anti-human CD1a, CD3, CD4, CD5, CD6, CD7, CD8, CD14, CD15, CD16, CD19, CD21, CD25, CD29, CD35, CD36, CD41a, CD42b, CD45, CD45RA, CD45RB, CD45RO, CD49d, CD53, CD57, CD61, CD63, CD80, CD86, HLA-DR, IL-6, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V

PE - conjugated anti-human CD3, CD4, CD8, CD11b, CD15, CD14, CD18, CD19, CD20, CD21, CD22, CD31, CD33, CD38, CD40, CD45, CD45RB, CD50, CD52, CD56, CD58, CD62p, CD72, CD95, CD105, CD147, CD177, CD235a, HLA-ABC, IL-6, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V

PE/Dy647 -tandem conjugated anti-human CD3, CD4, CD8, CD14, CD19, CD20, CD25, CD54

APC -conjugated anti-human CD2, CD3, CD4, CD8, CD10, CD11a, CD11c, CD14, CD16, CD27, CD37, CD42b, CD44, CD45, CD59, CD62L, CD69, CD71, IL-6, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V

DETAILS