ABSTRACT

ICOS (Inducible Costimulator) is a cytokine known to drive an immune response and has been shown to be overexpressed in various tumor types. We have previously shown that the expression of ICOS is upregulated in tumor-infiltrating lymphocytes in breast cancer tumors. This study sought to determine if the expression of ICOS is associated with other clinical parameters, including the immune microenvironment.

ICOS protein levels in breast cancer subtypes based on immunofluorescence were binned into high, medium, low, and absent ICOS using thresholds based on proportions observed across breast cancer tumors. ICOS expression was highest in tumors with the highest levels of intra-tumoral ICOS, suggesting a potential predictive biomarker approach for clinical trials.

In preclinical mouse tumor models, efficacy of an ICOS agonist was greatest in tumors with the highest levels of intra-tumoral ICOS, indicating that ICOS is a target of interest. In clinical studies, correlation of ICOS expression and has been selected for Phase 2 expansions in clinical trials.

RESULTS

Figure 1: Analysis of ICOS mRNA and protein expression in human tumors

Figure 2: Exploration of ICOS expression distribution across breast cancer tumors

Figure 3: BRCA-like tumors vs ICOS expression

Figure 4: Association of ICOS with key genomic alterations within breast cancer

Figure 5: Expression of ICOS within the context of the immune microenvironment

Figure 6: Contextual analysis of neoadjuvant treated TNBC

COMPANY

Integrated genomics and histology based studies of triple negative breast cancer identify ICOS as a potential target for therapeutic intervention.