Background: Invasive breast cancer is the most common malignant disease in women worldwide. HER2-targeting antibodies like Trastuzumab have achieved notable success in treatment of HER2-positive breast cancer, whereas antibody-based treatment options for HER2-negative patients remain quite limited. B7-H3 (CD276) is overexpressed in various tumor entities on both tumor cells and tumor vessels, the latter facilitating improved infiltration of immune effector cells into the tumor site upon therapeutic targeting. In this study, we investigated the potential of a novel B7-H3xCD3 bispecific antibody termed CC-3 as a therapeutic strategy for HER2-negative breast cancer.

Methods: The efficacy of CC-3 in treatment of HER2-negative breast cancer was evaluated using various in vitro assays including analysis of T cell activation, proliferation, cytokine release and tumor cell lysis.

Results: Our analysis revealed a high expression of B7-H3 on various breast cancer cell lines, regardless of the molecular subtype. Functional analysis using HER2-negative breast cancer cell lines demonstrated that CC-3 induces profound T cell activation and secretion of IL-2, IFNγ as well as TNF, and most importantly potent tumor cell lysis. Moreover, CC-3 induced strong T cell proliferation and formation of T cell memory subsets.

Conclusions: These promising results highlight the therapeutic potential of CC-3 for treatment of HER2-negative breast cancer.

Ethics Approval: The studies involving human participants were reviewed and approved by IRB (ethics committee of the Faculty of Medicine of the Eberhard Karls Universität Tübingen) at the University Hospital Tübingen and was conducted in accordance with the Declaration of Helsinki; reference number 13/2007V.

Consent: Human material was collected after obtaining informed consent. The patients/participants provided their written informed consent to participate in this study.

http://dx.doi.org/10.1136/jitc-2023-SITC2023.1366