00530 Immune Response of IgG Kappa-expressing Plasma Cells in Triple Negative Breast Cancer

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Aims: We have previously reported that high densities of tumour-associated plasma cells and IgG gene, IGHG1 expression predict improved prognosis in triple negative breast cancer (TNBC). However there is still a lack of knowledge on the phenotype of TNBCs-infiltrating plasma cells and how these tumourinfiltrating plasma cells influence tumour biology. Thus, we aim to characterize the phenotype of tumour-associated plasma cells found in the TNBC tumour microenvironment.

Methodology: We stained CD38, IgG Kappa (IGKC), IgA, Granzyme B and PD-1 on whole tissue sections of 20 cases from our TNBC cohort using Opal-Vectra multiplex IHC (Perkin Elmer, Waltham, Massachusetts, USA). 9 random images were selected from each case (200X magnification, 669 um X 500 um) and analyzed with inForm 2.3 for co-expression of the markers in the study. A p value <0.05 was considered statistically significant.

Result: Our results showed that of all CD38+ plasma cells, co-expression of IGKC+ CD38+ plasma cells, PD-1+ CD38+ plasma cells and IgA+ CD38+ plasma cells accounted for 10.0%, 8.7% and 2.6% respectively. Importantly, IGKC+ CD38+ plasma cells were significantly higher in patients harbouring high CD38+ plasma cells compared to patients harbouring low CD38+ plasma cells (p<0.0001). No Granzyme B granules were detected on CD38+ plasma cells.

Conclusion: IGKC has been shown to be an immunologic biomarker of good prognosis and therapeutic response in breast cancer and hence, implies that humoural immunity plays an important role in tumour progression. Our data showed that TNBCs with high CD38+ plasma cells density also exhibit increased expression of IGKC. The presence of IGKC-expressing plasma cells in TNBC tumour microenvironment could postulate that higher level of IgG antibodies is a possible mechanism to suppress tumor development in this group of patients. However, further studies with a bigger patient cohort is warranted to investigate the key role of humoural immune response in TNBC tumour biology.