941 TUMOUR DRAINING LYMPH NODES CONTAIN IMMUNOSUPPRESSIVE B CELL PHENOTYPES

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Background Check point inhibitor (CPI) treatment has revolutionized cancer management. However, many patients do not respond or do not show long-lasting remission. Therefore, we need to understand the mechanisms behind the anti-cancer response to increase CPI treatments clinical benefit. The anti-tumor immune response has mainly focused on T cells and their regulatory functions, while the contribution of B cells has been overlooked. B cells are critical in a functioning immune response and a substantial amount are residing in the tumor draining lymph nodes (TDLNs). Investigating the TDLN and the B cells could contribute to a better understanding of the anti-cancer response.

Methods Metastatic lymph nodes, TDLNs and non-TDLNs samples from 20 patients with oral squamous cell carcinoma were stimulated *in vitro* with CpG, CD40L and anti-PD-1 for 72 hours and analyzed with flow cytometry.

Results A comparison between TDLNs and non-TDLNs revealed that TDLNs had a larger B cell population which consisted of a larger proportion of naïve B cells and a larger proportion of IL-10 expressing B cells compared to non-TDLNs. In contrast, non-TDLNs contained a larger proportion of differentiated memory B cells. Lymph nodes with metastasis had a larger proportion of B regulatory cells compared to patients without metastasis in their lymph nodes. The proportion of PD-1+ B cells decreased with anti-PD-1 treatment compared to untreated cells in TDLNs but not in non-TDLNs.

Conclusions Our results indicate that TDLNs in humans differ from non-TDLNs by having more naïve cells. Moreover, the TDLNs also contained more immunosuppressive phenotypes, such as IL-10 expressing B cells and regulatory B cells. Additionally, our results pinpoint the importance of TDLNs during immunotherapy.

The study was conducted in accordance with the Declaration of Helsinki and approved by the regional Ethics Committee of Karolinska Institutet (protocol code 2019–03518 approved 2 September 2019).

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Consent Written informed consent was obtained from the patient for publication of this abstract and any accompanying images. A copy of the written consent is available for review by the Editor of this journal.

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