REGULATORY B CELLS PRODUCING IL-10 ARE INCREASED IN HUMAN TUMOUR DRAINING LYMPH NODES

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Background
The contribution of different immune cell subsets, especially T cells, in anti-tumour immune response is well established. In contrast to T cells, the anti-tumour contribution of B cells has been scarcely investigated. B-cells are often overlooked, even though they are important players in a fully-integrated immune response and constitute a substantial fraction of tumour draining lymph nodes (TDLNs) known also as Sentinel Nodes.

Methods
Samples including TDLNs, non-TDLNs and metastatic lymph nodes (LN) from 23 patients with oral squamous cell carcinoma (OSCC) were analyzed by multicolour flow cytometry with a focus on B cells populations.

Results
TDLNs were characterized by a significantly higher proportion of B cells compared with nTDLNs (p=0.0112). TDLNs associated B cells contained high percentages of naïve activated B cells, in contrary to nTDLNs which contained significantly higher percentages of memory B cells. Patients having metastases in TDLNs showed a significantly higher presence of B regulatory cells among TDLNs associated B cells (p=0.0008) compared with N0 patients. B cells derived from TDLNs were characterized by significantly higher expression of an immunosuppressive cytokine – IL-10 compared with non-TDLNs (p=0.0077).

Conclusions
Our data indicate that B cells in human TDLNs differ from B cells in nTDLNs and exhibit more naïve and immunosuppressive phenotypes. We identified a high accumulation of regulatory B cells within TDLNs which may be a potential obstacle in achieving response to novel cancer immunotherapies in HNSCC. Elevated levels of regulatory B cells in TDLNs are associated with the advancement of the disease. Detailed knowledge of pre-existing antitumor immune response in human TDLNs is needed in order to fully understand the mode of action of ICIs agents and potentially solve tumour and host-dependent mechanisms leading to resistance towards ICIs.

Ethics Approval
All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all individual participants included in the study. Regional Ethics Committee Approval: 2019-03518.