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Defining the tumour microenvironment of salivary gland malignancies: do immune and neurogenic related biomarkers predict clinical outcome?

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Scientific Outline

Summary

Background. Malignant salivary gland tumours (MSGT) are frequently managed surgically but clinical outcome can be unpredictable. The host immune system is emerging as important in determining prognosis and response for many cancers, highlighting the existence of immune hot and cold tumours, including PD-L1 and tumour-infiltrating lymphocytes as emerging biomarkers. Growing evidence shows a role for the nervous system in promoting and progression of cancer, suggesting an interaction between immune cells and neurogenic elements in the tumour microenvironment, but little is known about this interaction or the role of neurotrophins in MSGT. Reliable and accurate methods are essential for quantification and interpretation of immunohistochemistry biomarkers and digital image analysis offers a more objective mechanism.

Aims. To analyse the immune contexture and the role of neurotrophins in MSGT subtypes. We hypothesise that the tumour microenvironment may be infiltrated by immune cells and nerves which could have potential as markers of poor clinical outcome.

Methods. H&E slides will be scanned and transferred to automated tissue microarrayer and digitally annotated to make topographic tissue microarrays (TMAs). we will make a fully automated immunohistochemical analyses using inflammatory and neurogenic biomarkers. Finally, the different TMAs will be scanned making a digital archive.

Data analysis. Data sets will be subjected to statistical analysis to evaluate the relation between the expression level of the different markers and the clinical outcome, using automated pathology imaging software, to quantify and looking for co-expression of the performed markers.

Keywords: Salivary gland neoplasms, Immunohistochemistry, Tumour-infiltrating lymphocytes, PD-L1, Neurotrophins, Digital Pathology.