**PREVELANCE OF FOXP3+ CELLS IN CANINE TUMOURS AND LYMPH NODES POSITIVELY CORRELATES WITH GLUCOSE TRANSPORTER 1 EXPRESSION**

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**Introduction:** The presence of hypoxia and regulatory T cells (Tregs) in tumours are both known to be negative prognostic factors in cancer, resulting in increased malignancy, immune evasion and treatment resistance. Studies have shown an association between the two factors in cancers of humans and mice, but no previous research has shown such a correlation in canine cancers.

**Materials and Methods:** Samples of 57 canine tumours and 29 canine lymph nodes of various categorisations were obtained, and sequential sections were labelled by immunohistochemistry for glucose transporter 1 (Glut1) and FoxP3 as markers of hypoxia and Tregs respectively. Up to 21 regions of interest were selected on each sample in a representative pattern and given a semi-quantitative score based on its Glut1 labelling, and the number of FoxP3+ cells at each ROI was counted. A generalised estimating equation with negative binomial log link function was used to determine an association between Glut1 expression and FoxP3+ cell count.

**Results:** Higher Glut1 immunoreactivity was correlated with significantly higher numbers of FoxP3+ cells in both the total tumour and total lymph node sample pools. Analysis on various sub-categories of these sample pools showed this correlation was also present within samples characterised as malignant, round cell tumours, mesenchymal tumours, epithelial tumours, lymphoma, metastatic lymph nodes and reactive lymph nodes.

**Conclusions:** These results indicate that Glut1 expression and FoxP3+ cells are associated in a variety of neoplasms in dogs, prompting us to speculate that hypoxia may drive Treg expansion, infiltration or induction in the tumour microenvironment.