FIBROBLAST GROWTH FACTOR RECEPTORS: THEIR EXPRESSION AND CLINICOPATHOLOGICAL RELEVANCE IN CANINE MAMMARY GLAND TUMOURS

Kabiru Sahabi[1], Gayathri Thevi Selvarajah[1], Reuben Sunil Kumar Sharma[2], Mohammed Noordin Mustapha[2], Gurmeet Kaur Dhaliwal[1],[3]Seow Heng Fong, [3]Yip Wai Kien

[1]Department of Veterinary Clinical Studies & [2]Department of Veterinary Pathology and Microbiology, Faculty of Veterinary Medicine, University Putra Malaysia, Malaysia, [3]Department of Pathology, Faculty of Medicine and Health Sciences, University Putra Malaysia

**Corresponding author: gayathri@upm.edu.my*

Mammary gland tumour (CMT) is the most common neoplasm which occurs naturally in dogs. CMT affects mainly female dogs and can lead to metastatic disease and eventually death if untreated. Among the recent biomarkers involved in growth signaling explored in human cancers which are yet to be explored in canine mammary gland tumours are the fibroblast growth factor receptors. This study aimed to determine the expression of FGFRs in CMT and the relationship between the expression and clinicopathological parameters. Forty-six CMT were immunohistochemically probed for the expression of FGFR2, FGFR3 and FGFR4 using rabbit polyclonal antibodies. Western blotting was used to evaluate cross reactivity of the antibodies with the canine FGFR protein. The expression of FGFR2 was significantly associated with histopathology grade 3 of the tumours $p=0.027$. FGFR4 expression was associated with large breed dogs $p=0.044$, and large tumour size (>3cm), $p=0.045$. Many studies in human cancers have reported prognostic value of FGFR expression. FGFR2 expression was associated with histopathology grade, indicating the usefulness of high FGFR2 expression in CMT as an indicator of increased tumour malignancy. Large tumours have shown significantly higher FGFR4 expression. Tumour size is one of the criteria for tumour staging (TNM), which placed large tumours (>3cm) on stages 2 and above. Large breed dogs have a significantly higher FGFR4 expression in this study. Based on these findings, FGFR2 and 4 can be used as markers for advanced and aggressive CMT which further studies are warranted to evaluate for possible targeted therapy.