

Comparison of immunohistochemical expression of cyclooxygenase-2 (COX-2) in canine and equine melanomas

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Introduction

Melanomas are common in dogs and horses although have differences in clinical behavior. Canine melanomas are very invasive and have high metastatic rates. Equine melanoma has a benign behavior, characterized by large mass growth without presenting vertical invasion and rarely metastasize.

COX-2 is an enzyme implicated in oncogenesis with important role in tumor cells proliferation, angiogenesis, invasion and immune suppression.

This study compared COX-2 immunohistochemical expression in canine and equine melanomas and correlated it with the clinical behaviour of these tumors.

Materials and Methods

38 equine and 31 canine melanomas were processed by immunohistochemistry to COX-2 and scored for extension of labelled cells in 0) negative; 1) 1-19%; 2) 20-50%; 3) >50% and intensity of labelling in 0, 1-weak, 2-moderate, 3-strong. A final score was calculated by multiplying the extension by intensity of labelling with <6 being classified as weak expression and ≥ 6 as strong expression. Qui-square test was performed to evaluate the association between COX-2 expression and species. Results were considerer statistically significant when $p < 0.05$.

Results

26.3% of equine tumors had high COX-2 expression and 73.7% had low expression (Figure 1). 39% of canine melanomas had high COX-2 expression (Figure 2) and 61% had low expression. Regarding the COX-2 final score, there were significant statistical differences ($p=0.021$) between species, with horses presenting more scores of low expression (<6) and dogs showing more scores of high expression (≥ 6), but simultaneously more tumors without COX-2 immunolabeling.

Conclusions

Equine melanomas show less expression of COX-2, which agrees with their less invasive behaviour. However, in canine melanomas COX-2 immunolabeling varied between absent and very high. COX-2 might act differently between these species, having a major role in proliferation and contributing to mass growth in equine melanomas, while it might play a role in invasion and metastasis in canine melanomas

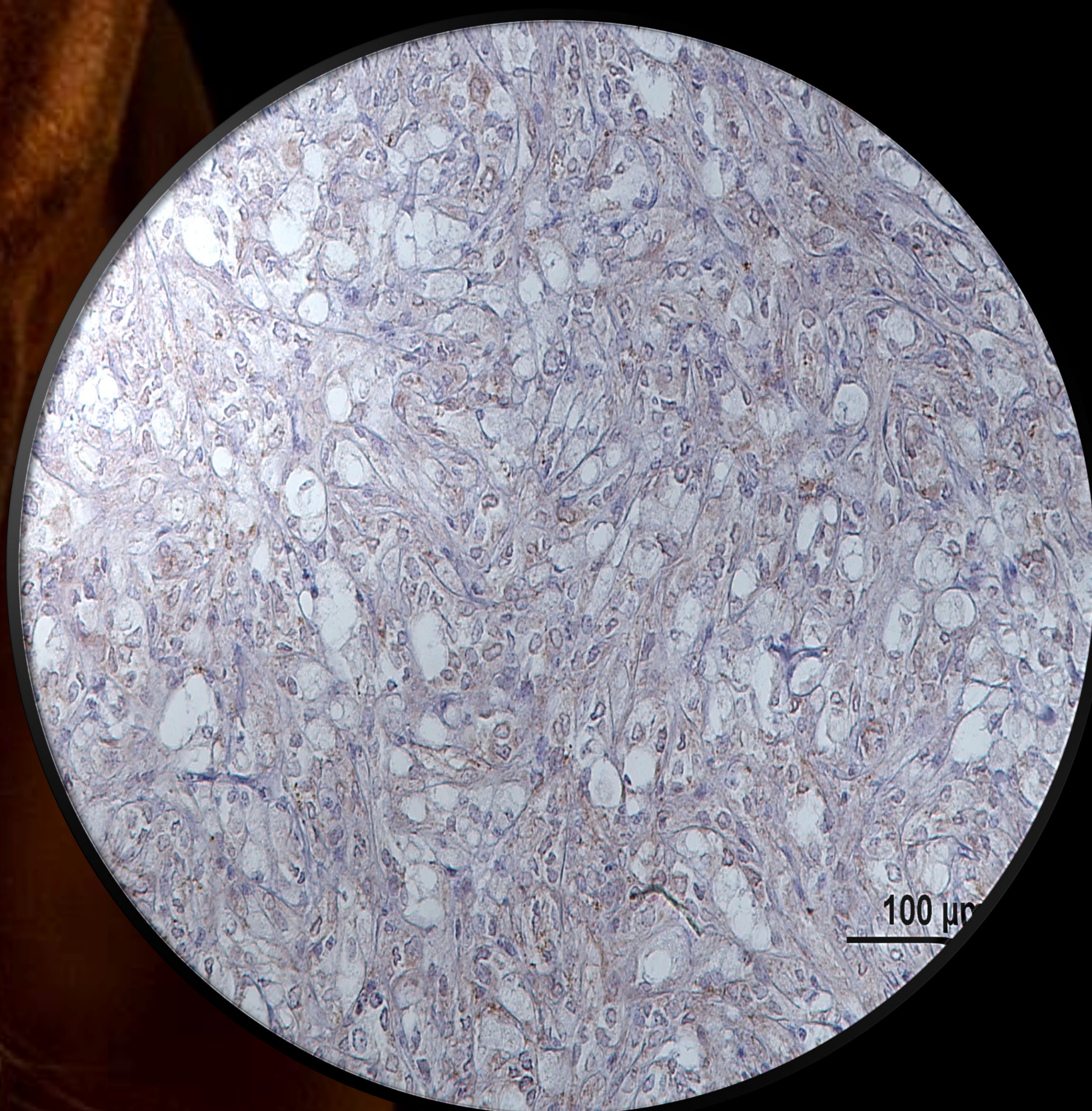


Figure 1 - Immunohistochemistry COX-2, 100X Equine. Weak immunolabeling, cytoplasmatic location

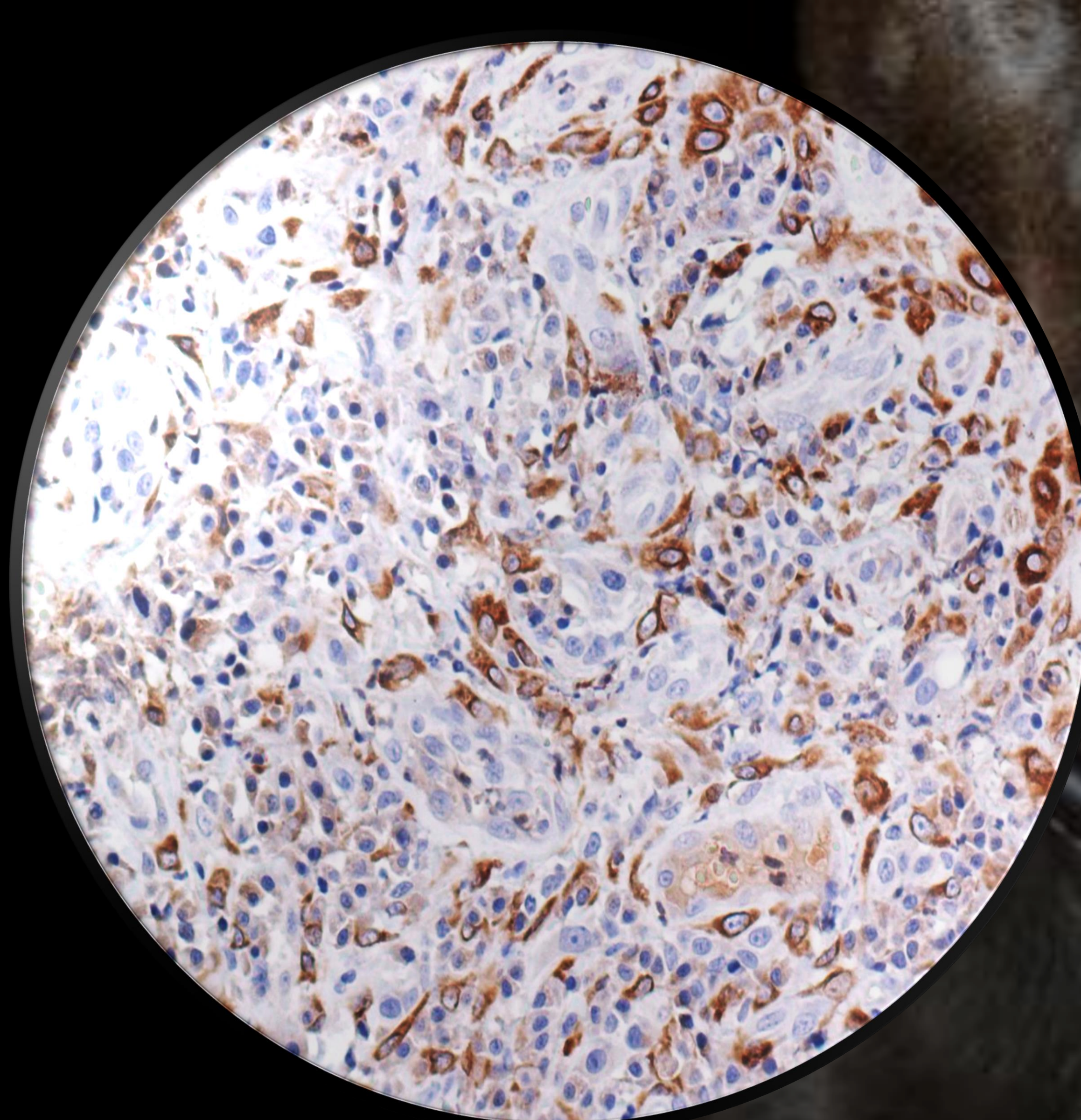


Figure 2 - Immunohistochemistry COX-2, 200X, Dog. Extension 3, Strong immunolabeling, cytoplasmatic location