Immunohistochemical and molecular analysis of caveolin-1 expression in canine mammary tumors

D.A.P.C. Zuccari¹², R. Castro¹, A.F. Gavioli⁴, U.M. Mancini³, C.S. Frade¹ and C. Leonel¹²

¹Laboratório de Investigação Molecular do Câncer, Faculdade de Medicina de São José do Rio Preto, São José do Rio Preto, SP, Brasil
²Programa de Pós-Graduação em Genética, Universidade Estadual Paulista “Júlio de Mesquita Filho”, São José do Rio Preto, SP, Brasil
³Laboratório de Marcadores Moleculares e Bioinformática Médica, Faculdade de Medicina de São José do Rio Preto, São José do Rio Preto, SP, Brasil
⁴Laboratório de Virologia, Faculdade de Medicina de São José do Rio Preto, São José do Rio Preto, SP, Brasil

Corresponding author: D.A.P.C. Zuccari
E-mail: debora.zuccari@famerp.br

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ABSTRACT. Caveolin-1 (Cav-1) is a structural protein present in invaginations of the cell membrane. In human breast cancer, the cav-1 gene is believed to be a tumor suppressor gene associated with inhibition of tumor metastasis. However, little is known about its expression, regulation and function in canine mammary tumors. Expression levels of cav-1 were investigated using real-time PCR and immunohistochemical detection with an anti-human Cav-1 antibody. Gene expression stability of different samples was analyzed using the geNorm software. Mammary tumors from 51 female dogs were
compared to normal mammary tissue from 10 female dogs. Malignant mammary cells showed a loss of Cav-1 expression by quantitative RT-PCR and weak Cav-1 staining by immunohistochemistry compared to normal mammary gland tissue. There was a significant relationship between outcome and immunostaining as well as with tumor size, indicating that caveolin subexpression has a positive predictive value and is related to higher survival and smaller tumor size. Our findings indicate that Cav-1 is a potential prognostic marker for canine mammary tumors.

**Key words:** Mammary cancer; Prognosis; Immunohistochemistry; Quantitative PCR