## **POSTER PRESENTATION**



**Open Access** 

# Immunohistochemical expression of TGFβ, E-cadherin and vimentin in benign and malignant neoplasias of canine mammary gland

Erika M Terra<sup>1\*</sup>, Geórgia M Magalhães<sup>2</sup>, Marcela MP Rodrigues<sup>3</sup>, Renée L Amorim<sup>4</sup>, Noeme S Rocha<sup>4</sup>, Mirela T Costa<sup>1</sup>

*From* São Paulo Advanced School of Comparative Oncology Águas de São Pedro, Brazil. 30 September - 6 October 2012

### Background

Epithelial-mesenchymal transition (EMT) is a fundamental biologic process whereby epithelial cells detach from the surrounding tissue and acquire characteristics of mesenchymal cells, a unique motile, spindle-shaped cell with end-to-end polarity. EMT can be induced or regulated by various growth and differentiation factors; among these, TGF $\beta$  has received much attention as a major inducer of EMT during embryogenesis, cancer progression and fibrosis. Our aim was to correlate the immunohistochemical expression of TGF $\beta$ , e-cadherin and vimentin in canine mammary tumors.

#### Materials and methods

A total of 52 canine mammary tumors, among adenomas (G1, n = 12), non-metastatic carcinomas (G2, n = 24) and metastatic carcinomas (G3, n = 16), were used to evaluate the immunohistochemical expression of TGF $\beta$ 1, E-cadherin and vimentin. Fisher's Exact Test was used for statistical analysis.

#### Results

E-cadherin was not differentially expressed in the three tumor groups. Vimentin expression was significantly higher in malignant neoplasias (G1 *vs.* G2, p=0.019) and (G1 *vs.* G3 p=0.006), with no difference in cases with and without metastasis. The expression of TGF $\beta$  was significantly higher in adenomas compared to metastatic carcinomas (p=0.01). There was no difference between adenomas and non-metastatic carcinomas.

\* Correspondence: erikamterra@hotmail.com

 $^1\text{Department}$  of Clinics and Veterinary Surgery, UNESP, Jaboticabal, SP, Brazil Full list of author information is available at the end of the article



The pathogenesis and the progression of numerous cancers have been attributed, at least in part, to disruption of normal TGF $\beta$  signaling. Here, we found that decreased expression of TGF $\beta$  in metastatic carcinomas was accompanied by the acquisition of a mesenchymal phenotype, raising the possibility that this cytokine may be involved in EMT in canine mammary neoplasias.

#### **Financial support**

FAPESP.

#### Author details

<sup>1</sup>Department of Clinics and Veterinary Surgery, UNESP, Jaboticabal, SP, Brazil. <sup>2</sup>Department of Veterinary Pathology, UNESP, Jaboticabal, SP, Brazil. <sup>3</sup>Department of Urology, Faculty of Medicine, UNESP, Botucatu, SP, Brazil. <sup>4</sup>Department of Veterinary Pathology, UNESP, Botucatu, SP, Brazil.

Published: 4 April 2013

doi:10.1186/1753-6561-7-S2-P20

Cite this article as: Terra *et al.*: Immunohistochemical expression of TGF $\beta$ , E-cadherin and vimentin in benign and malignant neoplasias of canine mammary gland. *BMC Proceedings* 2013 7(Suppl 2):P20.



© 2013 Terra et al; licensee BioMed Central Ltd. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/2.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.