

## P56

### Genomic instability in blood cells from bovine with spontaneous tumours: an OneHealth perspective

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Genomic instability is a hallmark of carcinogenesis, that acts in the conversion of a normal into a premalignant cell. The aim of this preliminary study, is evaluate DNA damage in different spontaneous tumours, as well as establish a correlation between malignancy and the DNA damage itself. OneHealth is a recent approach that links animal with human medicine which is nowadays more relevant. In order to perform this study, the alkaline comet assay was performed on blood samples from 5 animals with neoplastic disease: 2 cutaneous melanomas, 1 cutaneous papilloma, 1 vesical hemangiosarcoma and 1 undifferentiated tumour. The results obtained from DNA damage in blood lymphocytes (in arbitrary units 0-400) were  $20 \pm 5.34$  in the cutaneous papilloma;  $22 \pm 8.50$  and  $34 \pm 10.12$  in the two cutaneous melanomas;  $89 \pm 19.12$  in the vesical hemangiosarcoma and  $168 \pm 5.5$  in the undifferentiated tumour. All animals presented values below 170 A.U., compared to the other cases, the undifferentiated tumour and vesical hemangiosarcoma (which have the higher values) reflect a greater DNA damage. Interestingly, these tumours present histological features suggestive of high biological aggressiveness and distant metastasis. The papilloma, a benign tumour, presented the lowest value. So far results indicate that the damage is higher in aggressive tumours compared to non-invasive tumours. This data belongs to a far more extensive study that will be carried out with the establishment of a control group, as well as obtaining more samples and applying inquests; in order to connect the animals, owners and environmental aspects in an one health perspective of understanding cancer progression.

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#### Keywords:

DNA damage, comet assay, bovine tumours, blood cells