

## POSTER ABSTRACTS

### Veterinary Pathology: Livestock

#### 275 | ADENOMATOUS POLYPOSIS IN A COW ASSOCIATED TO MUTATIONS IN THE ADENOMATOUS POLYPOSIS COLI (APC) TUMOR-SUPPRESSOR GENE

**O. Quesada-Canales<sup>1</sup>, A. Castro-Alonso<sup>1</sup>, E. Plamenova Stefanova<sup>1</sup>, M. Andrada<sup>1</sup>, J. Díaz-Delgado<sup>2</sup>, S. Zhao<sup>3</sup>, K.L. Ho<sup>3</sup>**

<sup>1</sup> *Instituto Universitario de Sanidad Animal y Seguridad Alimentaria (IUSA). ULPGC, Arucas, Spain*

<sup>2</sup> *Texas A&M Veterinary Medical Diagnostic Laboratory, College Station, Texas, United States*

<sup>3</sup> *Department of Biochemistry and Molecular Biology. Institute of Bioinformatics. UGA, Athens, United States*

#### **Background**

Intestinal adenomatous polyps are benign epithelial proliferations. They are common tumors in humans and may occur spontaneously or as part of a familial disease caused by mutations in the adenomatous polyposis coli (APC) tumor-suppressor gene. Intestinal adenomatous polyps are relatively uncommon in animals. Adenomatous polyposis has not been previously reported in cattle.

#### **Materials & Methods**

A 3-year-old Friesian cow with a history of weight loss, chronic diarrhea and multiple polypoid nodules in the rectum was euthanized and necropsied. Representative tissue samples of the main organs were fixed in 10% neutral buffered formalin and processed for histopathological study. Intestinal tissue was frozen (-80°C) for molecular and genetic analysis.

#### **Results**

Grossly, the mucosa of the intestine, from the duodenum to the rectum, had numerous multifocal, polypoid nodules. No other relevant macroscopic lesions were observed. Histologically, these nodules were characterized by well-demarcated, exophytic mucosal growths comprising irregular, branching tubule-glandular structures lined by tall cuboidal to columnar intestinal epithelial cells. Goblet cells were reduced across the ileum, cecum and large intestine. Intestine samples were negative for bovine papillomavirus. Whole genome sequencing was performed and three germline mutations in the APC gene, N1554D, N2418S and L2506V were identified.

#### **Conclusion**

The pathologic findings and genetic mutations identified in this case are analogous to those seen in familial forms of adenomatous polyposis in humans. Except for dogs, naturally occurring adenomatous polyposis is exceedingly rare. To the authors' knowledge, this is the first report of adenomatous polyposis associated with APC-mutations in bovines.