

Title: A medium-quality colostrum processed to high-quality does not influence cell viability and wound healing capacity in vitro

Authors: Jarltoft T.^{1,2}, Yue Y.¹, Vestergaard M.¹ and Purup S.¹

¹Aarhus University, Department of Animal and Veterinary Sciences, 8830 Tjele, Denmark

²SAGRO I/S, 7190 Billund, Denmark

Key words: Bovine colostrum; Passive immunity; Cell viability; Wound healing capacity.

Abstract: Failure of passive transfer of IgG is one of the major reasons for increased morbidity and mortality among neonatal calves. The IgG concentration in medium-quality colostrum (15-50 g/L) can be increased to the level of high-quality colostrum (IgG > 50 g/L) by use of a novel processing method and in turn be used to achieve a sufficient passive transfer of IgG (>10 g/L of IgG in serum). By using this processed colostrum there is a risk of affecting the bioactive components in the colostrum and thereby influencing intestinal development in neonatal calves. This study investigated if processing of colostrum affects intestinal cell viability and wound healing capacity measured as cell migration using the intestinal epithelial cell line FHs 74 Int. Cells were treated with the whey fraction of four high-quality control colostrums (CC; mean IgG 62 g/L) and four processed medium-quality colostrums (PC; mean IgG 54 g/L). Cell viability and migration was measured by alamarBlue™ assay and xCELLigence real time technology. Results showed that cell viability increased with increasing concentrations of colostrum ($189 \pm 5\%$ - $236 \pm 6\%$), with no difference between treatments ($P=0.07$). All colostrums promoted cell migration, with no difference in migration rate between treatments ($P=0.36$). The findings indicate that processing medium-quality colostrum to obtain increased IgG levels does not affect cell growth and wound healing capacity when compared to non-processed high-quality colostrum.

November 15/18, 2022, Gran Canaria (Spain)