Comparison of Two Different Commercial Autologous Conditioned Serum Systems Using Equine Blood

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A more favorable protein expression profile was observed with autologous conditioned serum (ACS) II compared with ACS I or serum controls. Authors’ address: Gail Holmes Equine Orthopaedic Research Center, Colorado State University, 300 West Drake, Fort Collins, Colorado 80523; e-mail: dfrisbie@colostate.edu. *Presenting and corresponding author. © 2010 AAEP.

1. Introduction
Two commercially available products are available for producing equine autologous conditioned serum (ACS): ACS I and ACS II. To date, no comparisons or equine-specific testing have been published on these products.

2. Materials and Methods
Whole blood from five horses was drawn by catheter into ACS I and ACS II syringes or red top Vacutainer tubes. ACS products were processed using the manufacturer’s directions. Baseline serum (1 h after collection to allow clot formation) and incubated serum (24-h incubation) were also processed. Cytokine concentrations were measured by commercial enzyme-linked immunosorbent assay (ELISA) kits. A p > 0.05 was considered significant for analysis of variance procedures and least square means for individual comparisons.

3. Results
ACS from ACS II showed a significant increase (2-fold) in interleukin-1 receptor antagonist (IL-1Ra) compared with serum. Both ACS I and ACS II showed a significant increase in insulin-like growth factor-1 compared with serum. ACS I showed an increase in tumor necrosis factor-α compared with serum.

4. Discussion
ACS II, with an increased growth factor and anti-inflammatory cytokine profile and no significant increase in pro-inflammatory cytokines, showed a superior profile compared with ACS I. Further results of this study confirm a beneficial effect of ACS compared with cultured serum, although the magnitude of IL-1Ra stimulation does not seem to be as great when compared with human blood. Further optimization of the systems for equine blood may improve these results.

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Footnotes
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cTyco Healthcare, Mansfield, MA 02048.