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ISOLATION, CHARACTERIZATION, AND QUANTITATIVE ANALYSIS
OF SERUM AMYLOID A PROTEIN FROM HORSES

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Serum amyloid A protein (SAA) was isolated from equine serum, which was collected from horses with experimentally-induced inflammation, by repeating Sephadex G-75 gelfiltration three times.

Purified equine SAA reacted to anti-equine SAA rabbit serum (kindly provided by Dr. Pepys), migrated to the α_1 -globulin region, and had a molecular weight of approximately 11,200 from sodium dodecyl sulphate polyacrylamide gel electrophoresis.

Equine SAA concentration was measured by the single radial immunodiffusion technique using anti-equine SAA rabbit serum. In clinically normal horses, the concentration of SAA was relatively high from 1 day to 1 week old, then decreased. High levels were found again at 1 to 2 years old, they then again decreased. In horses over 6 years old levels gradually increased with aging. Mean (\pm SD) concentration of SAA in foals (\leq 12 months old) and in adult horses (\geq 18 months old) was 19.37 ± 9.41 and 21.53 ± 9.81 μ g/ml, respectively.

SAA concentration in mares during the peri-natal period was high for 1 day to 2 weeks after delivery in comparison with values before delivery. In horses with experimentally-induced inflammation SAA concentration increased rapidly after treatment, reaching maximum values 4 to 20 times pre-treatment values on the 2nd day, then decreased gradually with the disappearance of inflammation within 4 weeks after treatment. It was elevated in horses with clinical signs of inflammatory disease. These changes in SAA concentration in horses correlate with those of equine C-reactive protein.

The author concludes that equine SAA is an acute-phase reactive protein which increases in the early phase of acute inflammation.