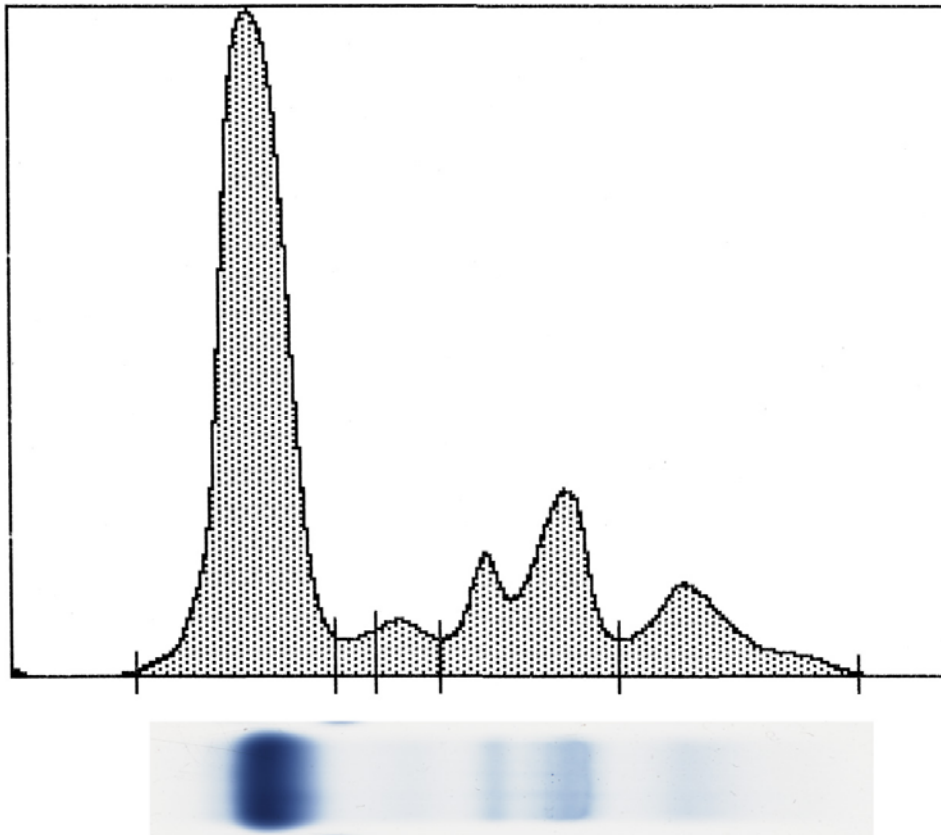


## Clinical Case 7: Beta Globulins.

### Normal EPH

This is a normal EPH pattern from an African Grey Parrot. African Grey Parrots often have low or no visible prealbumin fraction. Albumin, in a normal animal, is the predominant fraction as shown here. Albumin can decrease with acute inflammation. Alpha 1 globulins are not commonly found in significant levels in psittacines (but are a major fraction in other avian species). A small alpha 2 fraction is demonstrated below. This fraction can increase non specifically with acute inflammation. In African Greys as well as a few other parrot species, beta globulins are present as a double peak. The gamma globulins shown below conform to the normal polyclonal resting pattern.

In EPH interpretation, the clinical pathologist examines both this densitometer tracing as well as the gel itself (shown underneath the tracing below). The two give a combined impression with the quantitated fractions to lead the pathologist to give the submitting veterinarian the most accurate interpretation possible.

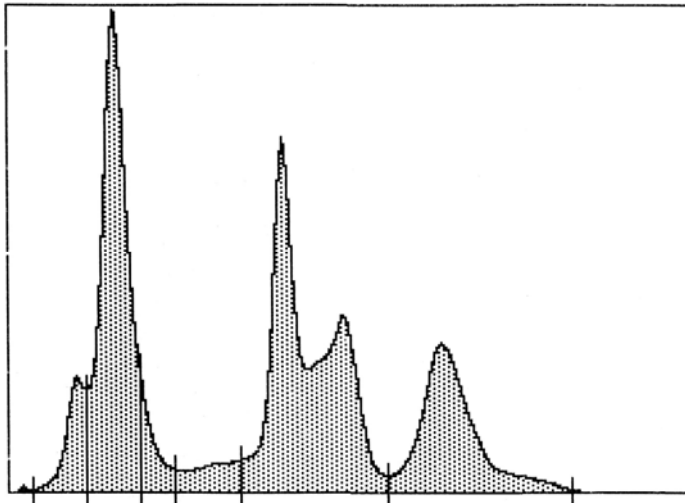


From left to right: albumin, alpha 1, alpha 2, beta, and gamma globulins. The prealbumin fraction is absent in this bird. The A/G ratio is 1.59.

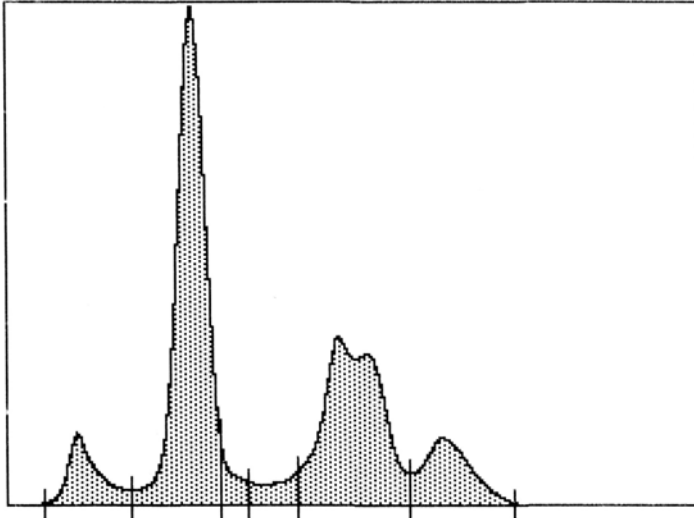
## **Beta Globulins**

Beta globulins are expressed as a single result but often represent two fractions (beta 1 and beta 2). The major component in this fraction is transferrin. This acute phase protein has been shown to be an immediate inflammatory marker and is the primary acute phase protein in inflammation and disease in poultry. Therefore, it can serve as an ideal marker for the health status in birds. Importantly, it should be remembered that since it is such a utility protein, changes in transferrin (beta globulin fraction) levels will be non specific – that is, not solely diagnostic of a particular disease. However, since the half life of the protein is 24-48 hours, prognostic indications can be garnered through monitoring the beta fraction.

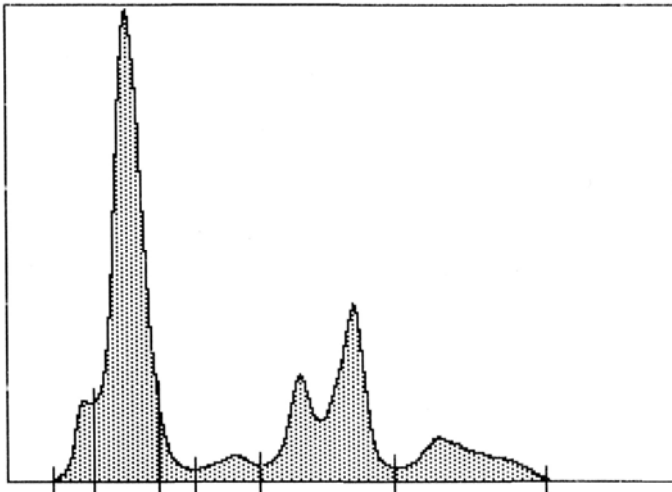
Previous clinical cases have all shown increases in beta globulins with specific diseases including chlamydophilosis, aspergillosis, and sarcocystosis. Some additional beta globulin cases are shown below.



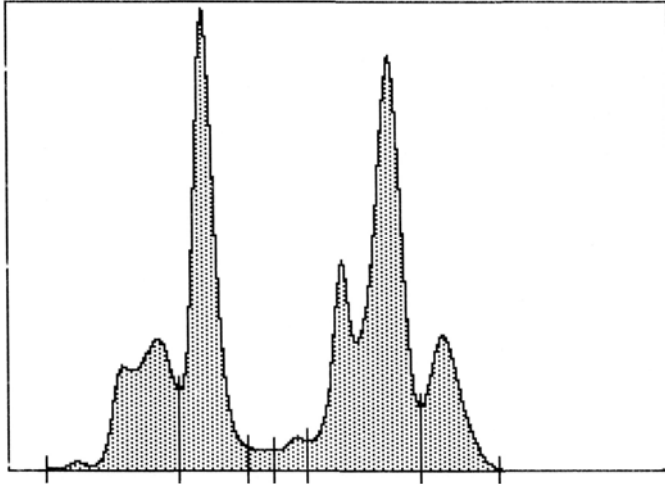
African Grey Parrot presenting with a high WBC. A/G ratio = 0.56. Beta globulins account for 38% of the total protein (up to 25% is normal). Bird responded to antibiotic therapy.



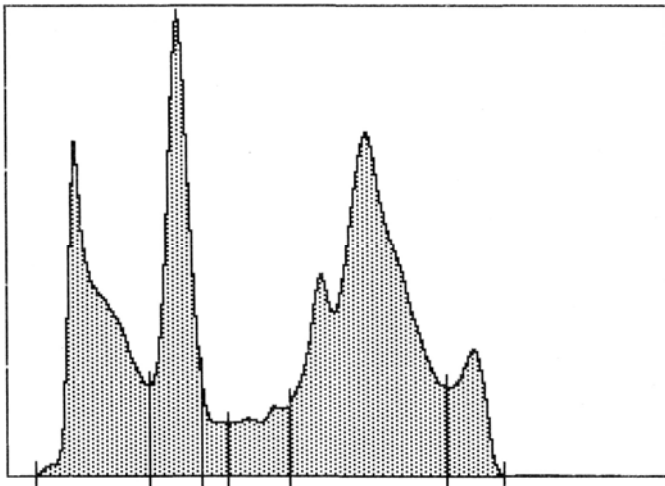
Cockatoo with normal CBC with slight decrease in HCT. Owner complained bird was lethargic. Beta globulins are mildly increased (30%) A/G ratio = 1.17. Bird responded to antibiotic therapy.



African Grey Parrot. Mild increase in beta globulins after single injection of calcium two days previous to this submission. A/G ratio = 1.16. Beta globulins = 28% (normals to 25%)



Cockatiel with an elevated WBC. Bird diagnosed with *Candida* infection. A/G ratio = 0.77. Beta globulins = 42.4% (normal to 22%). The A/G ratio normalized with treatment.



Cockatiel with liver disease. Total protein = 1.8g/dL. A/G ratio = 0.74. Albumin = 20% (more than 50% decreased from normal). Beta globulins 44% (normal to 22%).