

# **An immunoturbidimetric assay for rapid quantitative measurement of feline alpha-1-acid glycoprotein in serum and peritoneal fluid.**

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Alpha-1-acid glycoprotein (AGP) is an acute phase protein that increases in concentration in infectious and inflammatory conditions. The serum and peritoneal fluid concentrations of AGP may be useful in the diagnosis of feline infectious peritonitis (FIP), a lethal disease of cats. Currently AGP can be measured by radioimmunoassay (RIA) assays, which are time consuming and difficult. **OBJECTIVES:** The objectives of this study were to develop a rapid immunoturbidimetric assay for measurement of AGP in feline serum and peritoneal fluid and to compare the results with those obtained by RIA. **METHODS:** AGP was purified by perchloric acid precipitation and ion-exchange chromatography from a pool of peritoneal fluid obtained from cats with FIP, as determined by a panel of laboratory tests, including serum AGP concentration, albumin: globulin ratio, and total protein concentration, anti-coronavirus antibody titers, and effusion analysis. The purified AGP in a complete Freund's adjuvant and Tween 20 mixture was injected into a sheep and blood was collected at monthly intervals. Anti-AGP antiserum, as confirmed by ELISA and Western blot techniques, and a pool of peritoneal fluid from cats with FIP were used to prepare standards. Clinical samples of feline peritoneal fluid (n=55) and serum (n=59) were assayed for AGP and results from the immunoturbidimetric and RIA methods were compared. **RESULTS:** Significant correlation ( $P < .001$ ) was obtained between methods for both peritoneal fluid ( $R^2=.9259$ ) and serum ( $R^2=.9448$ ) samples. Coefficients of variation for the immunoturbidimetric method were  $<5\%$ . **CONCLUSIONS:** This rapid immunoturbidimetric assay for measurement of feline AGP in serum and peritoneal fluid may be of value in the diagnosis of FIP and possibly other inflammatory diseases in cats.

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