

COMPARISON OF GEL COLUMN, CARD, CARTRIDGE, SLIDE AND TUBE TECHNIQUES FOR AB BLOOD TYPING OF CATS. Mayank Seth, Karen V Jackson, Urs Giger. Section of Medical Genetics, University of Pennsylvania, Philadelphia, PA.

The clinical importance of the feline AB blood group system with its type A, type B and rare type AB has been well recognized. Indeed, A-B blood incompatibilities, responsible for life-threatening acute hemolytic transfusion reactions, as well as neonatal isoerythrolysis, can be avoided by prior blood typing, which may be performed by several methods.

This study directly compares a gel column diffusion assay (GEL, DiaMed, Switzerland with lectin as anti-B), a card based agglutination assay (CARD, DMS Laboratories, NJ), an immunochromatographic cartridge (CHROM, Alvedia, France) and laboratory slide (SLIDE) and tube (TUBE) agglutination techniques on samples from Ryan's Veterinary Hospital, the Penn Animal Blood Bank and external samples sent to the Transfusion Laboratory. A total of 38 EDTA blood samples from healthy cats and 20 from sick cats with an emphasis on the less common type B and rare type AB were typed using all of the above methods. In addition, samples from 432 cats were tested only with the GEL and TUBE methods; the latter being historically the gold standard. All plasma samples from cats, which express the type B antigen on the erythrocyte surface, were evaluated for the presence of anti-A alloantibodies (back-typing).

In the complete comparative typing study of 58 cats: 35, 14 and 9 samples were determined to have type A, type B and type AB, respectively. Fifty-two (90%) samples gave the same typing results with all techniques. The CHROM method misidentified 1 type A cat as type AB and 2 AB cats; 1 as type A and 1 as type B. The CARD test misidentified 1 type A cat as type AB and 4 AB cats; 1 as type A and 3 as type B. The SLIDE and GEL methods both mistyped 1 type A as an AB cat. Interestingly, samples from 2 FeLV positive domestic cats were the source of many A-B blood type discrepancies. All B cats had strong anti-A alloantibodies, while AB cats had no anti-A alloantibodies in their plasma. The reactions of the GEL and CHROM methods were generally clearest to assess and archive.

In the comparison study of GEL and TUBE typing methods: 372, 42 and 18 samples were determined to be type A, B and AB, respectively. GEL and TUBE tests gave the same results in 430 (99.5%) of cases. GEL test results were inconclusive for 2 FeLV positive type A cats.

We conclude that currently available commercial laboratory and in-clinic techniques generally provide accurate typing results. The GEL and CHROM methods made interpretation of results simple. The rare type AB posed the most discordant results and FeLV positive cats potentially represent another unique subset in terms of serological typing.