Comparison of three cross-matching methods to detect canine DEA 7 blood incompatibility

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1. Introduction
The prevalence of naturally occurring antibodies to dog erythrocyte 7 antigen (DEA 7) in DEA 7-negative dogs has been reported to be up to 50%. The potential risk of delayed transfusion reaction due to these antibodies makes it prudent to consider cross-matching (XM) before transfusion.

2. Aim of the study
To compare diagnostic performances of neutral gel column (GEL), standard tube (TUBE) and a point-of-care immunochromatographic strip (STRIP) kit cross matches to identify DEA 7 blood incompatibilities due to the presence of naturally occurring anti-DEA 7 antibodies.

3. Material & Methods
Firstly, 42 canine blood samples were typed for DEA 7 by agglutination on gel technique. Of these 2/42 samples were DEA 7+, and 40/42 samples were DEA 7-. Secondly, to identify samples with anti-DEA 7 naturally occurring antibodies, the 40 DEA 7- plasma samples were cross-matched against two samples of DEA 7+ and three DEA 7- RBCs using the GEL technique. Thirdly, the 40 DEA 7- plasma samples were cross-matched in double blind fashion with the two DEA 7+ RBCs samples using TUBE and STRIP and results were compared with those of the agglutination on GEL.

4. Results
With GEL agglutination 21/40 plasma samples showed positive XM (Fig 2A) and 19/40 showed negative XM. The same results were obtained by TUBE cross match at microscopic evaluation (Fig. 2B), whilst only 1/40 sample showed positive XM with STRIP (Fig 2C).

Agreement quantified by Cohen’s kappa coefficient (K) showed perfect agreement (K=1.00) for comparison of TUBE to GEL, but agreement equivalent to chance (K=0.04) was seen between GEL and STRIP.

5. Conclusion
GEL and TUBE XM tests are useful methods to evaluate DEA 7 blood compatibility, whereas the immunochromatographic STRIP was not able to identify DEA 7 incompatibilities due to anti-DEA 7 naturally occurring antibodies.

6. Bibliography