

COMPARATIVE TESTING FOR WEAK AND PARTIAL EXPRESSION OF D ANTIGEN: DIAGAST E.M.[®] TECHNOLOGY VS. ORTHO BIOVUE™ SYSTEM AND IMMUCOR GAMMA CAPTURE-R[®] SELECT TECHNOLOGY

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BACKGROUND

Testing for the D antigen is a very important step in the laboratory routine allowing to avoid a possible D alloimmunization and preventing the probability of hemolytic transfusion reaction.

We have evaluated and compared 3 weak D testing methods : A new solid phase method based on the Erythrocytes Magnetized Technology (E.M.[®] Technology) developed by Diagast, the BioVue™ System column agglutination technique by Ortho Clinical Diagnostics and Capture-R[®] Select technology by Immucor Gamma.

AIMS

The purpose of this study was to compare 3 fully automated weak D techniques on known weak and partial D samples: The E.M.[®] Technology, the BioVue™ System and the Capture-R[®] Select Technology.



Fig.1: QWALYS[®] 3 Diagast's fully automated system

METHODS

A total of 51 donor samples already known for having weak or partial D phenotype have been analyzed by: E.M.[®] Technology using the fully automated System Qwalys[®] 3, BioVue™ System using the fully automated system AutoVue[®] Innova and Capture-R[®] Select Technology using the fully automated system Galileo Neo™. These samples were first tested with a limited specificity anti-D typing reagent, then in weak D test.

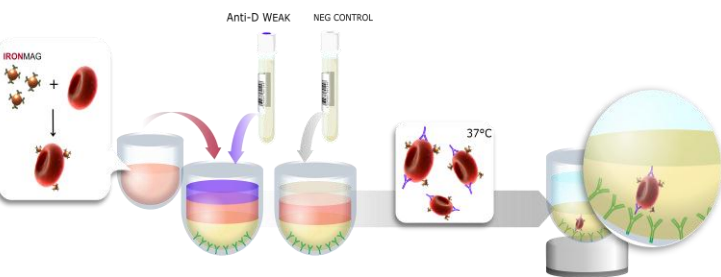


Fig.2: Weak-D test in E.M.[®] Technology

RESULTS

The 51 D samples (4 partial D and 47 weak D) were tested in E.M.[®] Technology, BioVue™ System and Capture-R[®] Select Technology and these samples were correctly identified in the three different techniques. The strength of reaction were different between E.M.T.[®] and BioVue™ System. All analysis with Capture-R[®] Select Technology showed 4+ reactions.

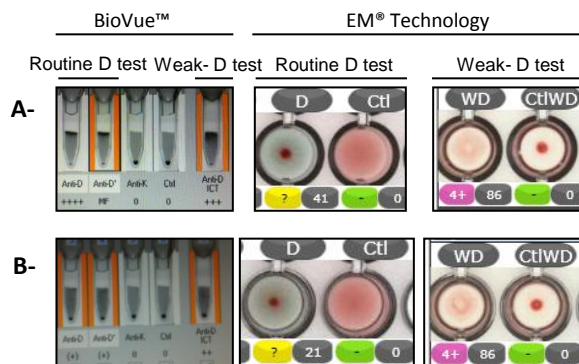


Fig 3. Examples of reactions strength BioVue™ vs. E.M.[®] T
A- Weak-D sample
B- Partial D sample

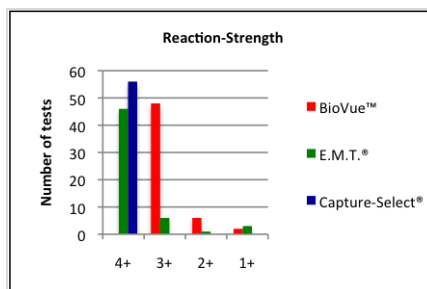


Fig 4. Distribution of reactions strength. BioVue™ , E.M.[®] T and Capture-R[®] Select Technology

CONCLUSION

With respectively 100% of concordance with the expected results, this comparative study showed that the weak D testing performed with the E.M.[®] Technology is as specific and sensitive as the BioVue™ System and the Capture-R[®] Select Technology for the detection of weak and partial D antigens.

We also observed that the automatic interpretation of the results using the limited specificity anti-D typing reagent was more accurate and discriminant with the E.M.[®] Technology than with the BioVue™ System and Capture-R[®] Select Technology.

Our results showed that E.M.T.[®] is completely adapted for the detection of weak and partial D antigens and can be used in routine testing for donors.