

RapidVet® -H

Companion Animal Crossmatch Test

MINOR (Donor Serum or Plasma / Recipient Blood)

For use on either canine or feline species

Description and Intended Use: Crossmatch is an essential procedure to be considered before most transfusions and in addition to blood typing. A crossmatch reveals serological incompatibilities between a blood donor and recipient that will not be evident from blood typing alone.

RapidVet-H Minor Crossmatch is performed using donor serum or plasma and recipient red blood cells. The test will alert the veterinarian to the existence of antigens on recipient red blood cells that correspond to antibodies, whether acquired or naturally occurring, present in the donor serum or plasma. Though generally of lesser importance, the minor crossmatch is especially important in plasma only transfusions, such as in cases of rodenticide toxicity or treatment of clotting factor disorders; species with naturally occurring alloantibodies, such as cats; or in the event a donor animal has an unknown breeding or transfusion history.

While it is generally accepted that dogs do not have naturally occurring alloantibodies to DEA 1, naturally occurring alloantibodies may exist for other canine blood types; however their role in transfusion medicine remains to be determined. Strong reactions between like blood types have been observed in situations of multiple transfusions and/or certain disease processes, especially when chronic (e.g., kidney failure). A minor crossmatch could assist in screening for such situations. In addition, minor crossmatch may assist in the detection of errors in DEA typing and in the finding of atypical donor antibodies.

The feline AB blood group system includes blood types A, B and AB. Type A and Type B cats have naturally occurring antibodies to antigens not on their red cells. Thus, cats with Type A blood have antibodies to Type B antigens and cats with Type B blood have antibodies to Type A antigens. In this species, major crossmatch should be performed prior to **every** transfusion and before breeding decisions are made. Not all incompatibilities become evident in a major crossmatch. The discovery of new feline red cell antigens including *Mik* and others increases the importance of also performing a minor crossmatch before transfusion decisions are made.

Mik-negative cats (those without *Mik* antigens on their red cells) have anti-*Mik* alloantibodies capable of causing significant transfusion reactions, even in cats whose AB blood groups are compatible. Incompatibility between a *Mik*-positive donor and a *Mik*-negative recipient will be evident in a major crossmatch. The

minor crossmatch is a way to detect incompatibility between a *Mik*-positive recipient and a donor that is *Mik*-negative. Since whole blood is often used to transfuse cats, incompatibilities in the minor crossmatch may be clinically significant.

Kit Contents: Instructions; Procedure Diagram; Photo Identifier/Crossmatch Centrifuge List; Report Cards; 3 Test Stands each containing 7 tubes; and 3 pipette bags each containing 10 pipettes.

Donor Sample: 1.0 ml serum or plasma obtained by centrifuging 2.0 ml whole blood.

Recipient Sample: **0.1 ml** (100 μL) EDTA anticoagulated whole blood or **0.05 ml** (50 μL) packed red blood cells.

Test Setup

Gel tubes should remain upright at all times. A Procedure Diagram and Photo Identifier/Crossmatch Centrifuge List for use with all tests are included in each kit. Do not discard.

- A. Remove: 1 test stand containing 7 tubes, 1 pipette bag and 1 report card.
- B. Write Recipient name/ID on all seven (7) tubes.
- C. Write Donor name/ID on Yellow Top REACTION TUBE and Lavender Top REACTION GEL tube (yellow-bordered labels)
- D. Insert Blue Top BLOOD PREP TUBE upright into well provided in test stand.

Test Procedure: [Follow bracketed numbers on Procedure Diagram.]

Use a clean pipette for every step to prevent contamination.

- [1] **PIPETTE** 2 drops (100 μL) Recipient blood to Blue Top BLOOD PREP TUBE; cap tightly and gently invert several times to mix thoroughly. Place upright in test stand.
- [2] **PIPETTE** 4 drops (200 μL) Donor Serum or Plasma to Yellow Top REACTION TUBE.

From Blue Top BLOOD PREP TUBE, using a clean pipette for each transfer:

- [3] **TRANSFER** 2 drops (100 μL) to Yellow Top REACTION TUBE. Replace cap, tighten and gently invert several times to mix thoroughly.
- [4] **TRANSFER** 2 drops (100 μL) to Green Top NEGATIVE CONTROL tube. Replace cap, tighten and gently invert several times to mix thoroughly.

- [5] **TRANSFER** 2 drops (100 μ L) to Red Top POSITIVE CONTROL tube. Replace cap, tighten and gently invert several times to mix thoroughly.
- [6] **INCUBATE:** Let all tubes stand for five (5) minutes at room temperature (20-25°C / 68-77°F).
- [7] **TRANSFER** 1 drop (50 μ L) from Yellow Top REACTION TUBE to Lavender Top REACTION GEL tube (yellow-bordered labels). Cap tightly.
- [8] **TRANSFER** 1 drop (50 μ L) from Green Top NEGATIVE CONTROL tube to Lavender Top NEGATIVE GEL tube (green-bordered labels). Cap tightly.
- [9] **TRANSFER** 1 drop (50 μ L) from Red Top POSITIVE CONTROL tube to Lavender Top POSITIVE GEL tube (red-bordered labels). Cap tightly.
- [10] **PLACE** Gel tubes in centrifuge and spin for a cumulative G force of 6,500. Refer to the included Crossmatch Centrifuge List for your model and spin setting.

If you do not have one of the listed centrifuges, refer to rapidvet.com under “Downloads” tab for a more complete centrifuge list for crossmatch; or call toll-free in US and Canada: (800) 567- 4367 or (908) 782-3353.

Results Interpretation and Reporting: Refer to the included Photo Identifier for examples of these reactions. Record your results using the report cards provided.

IMPORTANT: NEGATIVE GEL and POSITIVE GEL tubes serve as controls to ensure the test was run correctly. **If gel controls do not react as stated below DO NOT proceed with the interpretation of test.**

NEGATIVE GEL: tube should demonstrate a collection of red blood cells at the **bottom** of the gel column.

POSITIVE GEL: tube should demonstrate an agglutination of red blood cells at or near the **top** of the gel column (mid-matrix or above).

CROSSMATCH INTERPRETATION: If the REACTION GEL tube demonstrates a firm line of red blood cells at or near the top of the gel matrix, the reaction is **POSITIVE** and the Recipient is at risk for a transfusion reaction. **DO NOT TRANSFUSE USING THIS DONOR.**

If the vast majority of red blood cells are at or near the bottom of the gel matrix, the reaction is **NEGATIVE**. The Recipient is likely NOT at risk for demonstrating a transfusion reaction from this Donor at this time.

If the reaction shows a large number of cells suspended in the gel matrix without a firm line at the top, it is likely an indication of a minor incompatibility between the Recipient and this Donor. If no other more suitable donor is available, it is not likely that the Recipient is at risk for demonstrating a significant transfusion reaction from this Donor at this time.

Limitations: Test results might be affected by the age of the cells used. Stored blood may exhibit a weaker reaction than that shown in the Photo Identifier. Weaker reactions may result if the Recipient has a low PCV. The gel cannot be preserved; photographs are recommended if you desire a permanent record.

**IMPORTANT NOTES: CROSSMATCHING IS DONE IN ADDITION TO,
AND DOES NOT REPLACE, BLOOD TYPING.**

Transfusions involving incompatible BLOOD TYPES will result in the activation of alloantibodies which may cause life-threatening reactions, or the production of antibodies which may cause serious complications in subsequent transfusions. In addition, the lifespan of incompatible RBCs will be shortened, increasing the need for further transfusions.

A compatible crossmatch does not prevent sensitization or delayed transfusion reactions in subsequent transfusions from the same donor. It simply indicates that at the present time there are no significant antibodies against the red cells.

This test is not recommended if Oxyglobin® is in recipient blood, or in the event of severe hemolysis.

Storage: Shelf-life: 24 months. Store upright at room temperature until expiration date: DO NOT FREEZE.

Disposal: Dispose of all biological materials, pipettes and tubes in a biohazard container.

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