

# FELINE: GENERAL INFORMATION SHEET



## FELINE BLOOD TYPES

### Need to know

- Only 1 blood group system has been identified in cats: the AB system
- There are 3 blood types; A, B and AB.
- In 2007, an additional blood antigen was identified, Mik.
- The blood group antigens are inherited as a simple autosomal trait
  - A being dominant over B.
  - The inheritance of the AB allele is unknown (not due to codominance of A and B)
- Alloantibodies are naturally present in cats from the age of three months and they do not require prior exposure to form antigens .
  - therefore causing severe transfusion reactions and must be **typed** and **matched**
- Cats do NOT have universal donors OR recipients.
- The half-life of transfused erythrocytes in matched feline transfusions is 29 to 39 days.

### Type A

Type A blood is the most common, occurring in 95 percent to 97 percent of the general cat population.

Blood type A cats have anti-B antibodies in small titer of the Ig and IgG class (weaker agglutinins and hemolysins) causing delayed reactions.

- ➔ Delayed reactions decrease the lifetime of transfused erythrocytes (5-7 days) and lead to moderate signs of haemolytic anaemia.

For example: transfusion of type B blood into A cats produces milder clinical signs and the transfused erythrocytes have a mean half-life of 2.1 days.

Because type A cats have a wide variance in the concentration of anti-B RBCs seasonally, the intensity of the reactions is variable.

### Type B

Type B occurs in approximately 2-5% of the general feline population.

Blood type B cats have anti-A antibodies in large titres of the IgM class (strong agglutinins and hemolysins) causing severe acute reactions.

- Acute severe reactions cause haemolysis of transfused erythrocytes (mean half life of 1.3 hours) and lead to Hypotension, vomiting, haemoglobinemia, neurological signs and death

For example: Transfusion of even 1ml of Type A blood into a Type B cat can be fatal

Type B frequency	Breeds
None	Siamese and related breeds, Burmese, Tonkinese, Russian Blue
1-10%	Maine Coone, Norwegian Forest, DSH, DLH
11-20%	Abyssinian, Birman, Himalayan, Persian, Somali, Sphinx, Scottish Fold
20-45%	Exotic and British Shorthair cats, Cornish and Devon Rex
Type AB	DSH, Scottish Fold, Birman, British Shorthair, Somali, Bengal, Abyssinian

<https://eclinpath.com/hemostasis/transfusion-medicine/blood-types/>

## Type AB

AB cats are quite uncommon.

Type AB cats lack naturally occurring antibodies. Considered "universal recipients".

- However if type B is used, the anti-A alloantibodies present in the donor blood can cause a significant transfusion reaction.
- Type AB cats should be transfused with type-specific blood, if available, or type A blood if it is not.

## Type Mik

The Mik antigen is found in approximately 94% of domestic shorthaired cats. Reports of hemolysis indicated by hemoglobinemia and hyperbilirubinemia 1 to 2 days post-transfusion without an appreciable increase in the recipient cat's packed cell volume immediately post-transfusion have been published, suggesting hemolysis of the transfused cells. Visible agglutination in crossmatch reactions performed involving *Mik*-positive cats have also been reported.

In the limited number of cats that lack this antigen

- If Mik positive blood is given to a Mik negative cat a transfusion reaction may occur
- Even if the donor and recipient cats have the same blood type.
- BE SAFE AND CROSSMATCH

## Summary of Blood types and where to find them

<b>A</b>	Most DSH and DLH (98%) All Siamese are type A.	In theory, crossmatching type A cats is not required if transfusing with blood from another type A cat but <b>STILL RECOMMENDED</b>
<b>B</b>	Exotic breeds like Himalayan, Abyssinian, Somali, Birman, British shorthair, Devon Rex, and Persian.	<b>ALWAYS CROSSMATCH</b>
<b>AB</b>	Scottish fold, Birman, British Shorthair and DSH.	Use AB blood if possible, if not use type A blood.
<b>Mik</b>	Reaction reported after using compatible A blood	Pre-existing antibodies exist. Hard to detected with typing. Advise to crossmatch as if sufficient titer will be positive and if not unlikely to cause significant in vitro reaction

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## Neonatal Isoerythrolysis

Neonatal isoerythrolysis can occur in kittens with Type A or AB blood following:

- Mating of a B type queen with an A or AB Tom.

Ab are passed through the colostrum and kittens should not be allowed to nurse from the mother. Kittens are born healthy, but clinical signs appear within the first few hours to days of life and may range in severity from sudden death to kittens that develop tail-tip necrosis from vessel obstruction by agglutinating erythrocytes. Some kittens develop dark-colored urine. These kittens may fail to thrive, develop anemia and icterus, and usually die within the first week after birth. The diagnosis is confirmed by blood-typing the queen and affected kittens.

## Feline Blood Typing

Commercial feline blood-typing cards are available for in-house testing.

- Another option has been described if blood typing kits are not available.  
Using one drop of known Type B serum on one drop of the patient's blood will help determine blood type due to the acute reaction observed.  
Type A → acute visible agglutination.  
Type B → no agglutination.  
*NB always check your slides under the microscope*
- If blood type B is suspected the so-called "back typing" can be performed

EDTA blood is centrifuged at 1000 g for 2 minutes; 30  $\mu$ l of the plasma is mixed with 15  $\mu$ l EDTA whole blood of a type A cat on a glass slide.