

Feline Blood Transfusions: UK

Feline blood types

Cats have 2 major blood groups (A and B) and a third group (AB, ab allele sometimes referred to as 'c') expresses both A type and B type glycoproteins. Type A is most common and Type B prevalence varies according to breed and geographical region. AB type is rare but is more prevalent in Ragdolls.

The blood type is inherited as a simple dominant type and the order of dominance of the alleles is A>c>b.

A phenotype cats can be genotype: A/a, A/c or Ab

B phenotype cats are always genotype: b/b

AB phenotype cats can genotype; c/c or c/b

Why is blood typing important in cats?

Most cats have naturally pre-formed antibodies against the other blood type and there is serious risk of potentially fatal transfusion reaction even on the first transfusion if an incorrect type is administered.

Type A cats have low-levels anti-B antibodies, so the transfused cells do not last as long when a type A cat receives type B blood, but rarely is reaction fatal. In comparison, B cats have high-levels of anti-A antibodies and the potential for a fatal transfusion reaction is significant when a type B cat, receives type A blood. As type A cats are most prevalent in the general population, and also as donors, this can be the more common cause of a transfusion reaction if blood typing was not performed prior.

AB cats do not have either alloantibody and ideally receive AB blood or if not available A blood.

		Recipient blood group		
		A	B	AB
Donor blood group	A	√	May be fatal	Possible reaction
	B	Reaction	√	Reaction
	AB	Reaction	May be fatal	√

If a type B queen is bred to type A tom some kittens will be type A or AB phenotype and as queens colostrum contain high anti-A antibodies, neonatal isoerythrolysis can result in severe haemolysis in these kittens and potentially death.

There are other minor blood groups e.g. *Mik* and some cats may have naturally occurring anti-*Mik* antibodies resulting in acute haemolytic transfusion reaction. Cross-matching can help reduce this possibility but is not always practical.

How to blood type?

Blood typing is based on identification of an agglutination reaction. In house testing kits are available e.g. Alvedia, DMS laboratories

In severely anaemic patients, a lack of red cells may result in a lack of visible agglutination. Spinning the sample and removing the 50% of the plasma supernatant, then resuspending the red cell in the remaining plasma before repeating the test, can be effective. Cold-agglutination disease and severe icterus can also affect results and Alvedia troubleshooting guide provides some tips.

How to crossmatch?

This is a test to determine serologic compatibility between donor and recipient cells and plasma at that time point. Ideally performed alongside typing for the first transfusion, it becomes essential if subsequent transfusions are to be given >4 days after first transfusion. This can be performed at reference laboratories or using in-house kits e.g. EmMaTest from Alvedia or RapidVet-H or via a more laborious method. A crude slide crossmatch can be done: add 1 drop donor cells to 2 drops recipient plasma on slide (major) and 1 drop recipient cells to 2 drops donor plasma on another slide (minor), mix gently and rotate for 1 minute then observe under microscope for haemolysis or agglutination.

Feline blood banking does not currently exist in the UK. Most practices collect fresh whole blood from donors, some practices import feline blood products from BSA Animal Blood Bank in Portugal (<http://bsanimal.co.uk>).

For more information about how you can access specialist support 24/7, please visit www.vet-ct.com.