Info shared by Pitbull SA.

Manjaro APBT kennel.

South Africa.

My Website www.pitbullsa.co.za

My E mail "manjaro@pitbullsa.co.za"

My Facebook "Gawie Manjaro"

My Facebook page "Manjaro Kennel"

My mobile +27827838280.

Zello.com "VoIP" – ask for info.

Black - the dominant gene.

Overview appeared in the January-February, 1975 issue of Bloodlines.

Black is the "default" eumelanin colour for dogs.

A dog which isn't homozygous for liver (bb) or for dilution (dd) will have black eumelanin.

This means that it will have a black nose and, usually, brown eyes (eumelanin affects eye colour too), and any eumelanin in its coat will be black.

Eumelanin is one of two types of pigment that occur in dogs.

The other is phaeomelanin, which doesn't affect the eyes or nose and is only visible in the coat.

It produces the colour "red", which is anything from deep Irish Setter red to light cream -buckskin.
Phaeomelanin doesn't "naturally" occur in the coat - it only appears if the dog has genes which allow it to occur.

There are two basic choices for a dog's markings - solid (no tan markings, just eumelanin) or non-solid (tan markings of any sort).

Whether a dog has a solid eumelanin (black) coat or a coat with tan markings (caused by phaeomelanin) depends almost entirely on the K locus.
K consists of three alleles:
K - dominant black (solid black, no red)
k - recessive non-black (will still have black nose pigment and may have black markings, but may also have red markings too)
k^{br} - brindle (we won't deal with this here - see the brindle page for more info on this allele)
A dog with even just one K gene will be solid black.
A dog with two k genes (i.e. homozygous for k) will be able to show tan markings.
These tan markings are determined by another locus, A.

So basically, a genotype of kk allows a dog to show whatever it has on the A locus.

A Kk or KK dog may be genetically tan-pointed or sable on the A locus, but won't be able to show those markings because of its dominant black genes.

Dominant black dominates the whole of the A locus, but it can be overridden by other genes, such as liver, dilution, greying and merle.

All of these will alter the way a dominant black dog looks, but the one thing they cannot do is add phaeomelanin (red) to the coat.

Only way phaeomelanin can be added to the coat of a dog with the dominant black gene is through the e gene (E locus) - recessive red. This turns a dominant black dog (or indeed, any dog) into a solid red dog with black nose pigment.

A kk dog may have some black in its coat, but it won't usually be solid black.

Those of you who do have a background in genetics through studying other species of animal may be interested to hear that dogs are one of the only species known to have a dominant black gene.

Black in most animals is recessive (there is a recessive black gene in dogs - see below - but it is fairly rare).

Dominant black in dogs is caused by a gene known as "beta-defensin", which is associated primarily with the immune system. Beta-defensin has only been proven to affect coat/pigment colour in two mammals so far - dogs and cattle.