

## COAT COLOUR NOMENCLATURE with EXPLANATIONS

### Breed Specific Medicine

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#### **E LOCUS - MC1R – All Variants**

$E^m/E^m$  – 2 copies of mask – dog has mask

$E^m/E$  – 1 copy of mask and 1 copy of black dog dog has mask and carries black

$E^m/e$  – 1 copy of mask and 1 copy of red/yellow – dog has mask and carries red/yellow/cream

$E/E$  – 2 copies of black

$E/e$  – 1 copy of black and 1 copy of red/yellow/cream/apricot/white

$e/e$  – 2 copies of red/yellow are present. Dog is red/yellow/cream/apricot/white

#### **D LOCUS - DILUTE (MLPH)**

$D/D$  – Full color, no dilute gene present.

$D/d$  – Full color, carries 1 copy of the dilute gene.

$d/d$  – Dilute, 2 copies of the dilute gene.

#### **K LOCUS - DOMINANT BLACK – Black/brindle or fawn**

$K/K$  – Two copies of dominant black are present, no brindle or fawn offspring will be produced, will not express Agouti phenotype.

$K/N$  – One copy of dominant black is present, brindle or fawn offspring can be produced, depending on the genotype of the mate. Note: with some breeds of dog this result is associated with the brindle pattern.

$N/N$  – Dog does not have the dominant black mutation. Dog's coat colour will be determined by the agouti gene – may be brindled or not brindled.

#### **A LOCUS - AGOUTI**

$a^y/a^y$  – Homozygous for fawn/sable (no hidden colour) *pure factoring/no white factor*

$a^y/a^w$  – Dog has fawn and carries wild sable (hidden colour wild sable)

$a^y/a^t$  – Dog has fawn and carries black-and-tan (hidden colour tri or tan points) *tri factored*

$a^y/a$  – Dog has fawn/sable and carries recessive black (hidden colour solid black or bi) *bi factored/white factoring*

$a^w/a^w$  – Homozygous for wild-sable (no hidden colour)

$a^w/a^t$  – Dog has wild-sable and carries black-and-tan ( hidden colour tri/tan points)

$a^w/a$  – Dog has wild-sable and carries recessive black (hidden colour solid black or bi)

$a^t/a^t$  – Homozygous for black-and-tan/tricolor (no hidden colours) *Tri factored/white factored*

$a^t/a$  – Dog has black-and-tan and carries recessive black. *Bi factored/white factored*

$a/a$  – Homozygous for recessive black – solid black/bi (no hidden colour)

#### **B LOCUS - BROWN (TYRP1)**

$B/B$  – Does not carry brown – cannot have brown offspring.

$B/b$  – One copy of brown present – carrier.

$b/b$  – Two copies of brown present – black pigmented (if present) is diluted to brown, red/yellow dogs have brown noses and foot pads (liver pigment).

Many genes are involved in production of coatcolour and fur type. The results above are specific for known variants in ASIP, MC1R, TYRP, MLPH, CBD103, KRT71, RSPO2, MITF, and FGF5. The results do not completely describe the color and fur type of a dog.