

COAT AND COLOUR GENES IN DACHSHUNDS

(by Laura Ranza & Mario Masneri, July 2007)

<p>COAT TYPES</p>	<p>x^W x^S x^L</p>	<p>Wire-hair, DOMINANT to the Smooth and the Long, NOT carried RECESSIVELY.</p> <p>Smooth-hair, RECESSIVE to the Wire, DOMINANT to the Long.</p> <p>Long-hair, RECESSIVE to the Wire and the Smooth.</p>
<p>COLOURS</p> <p>“A” GENE SERIES (“Agouti”) It controls the synthesis and the distribution of eumelanin and feomelanin (black pigments and red pigments)</p>	<p>a^y a^W a^t</p>	<p>Red, DOMINANT to ALL colours. Dachshunds with even one “a^y” allele are red. Dachshunds with both alleles “a^y” (“true reds”) give only red puppies. Dachshunds called in Italy “carbonati” (still having black hairs in the red coat) have an eumelanin residual in their coat.</p> <p>“Agouti”. Wildboar. DOMINANT to ALL colours, RECESSIVE to the red “a^y”.</p> <p>Tan-point gene. Tan-pointed Dachshunds have always BOTH alleles “a^t”. RECESSIVE to the red “a^y” and to the agouti a^W.</p>
<p>“B” GENE SERIES (Black)</p>	<p>B b</p>	<p>Black, DOMINANT to ALL colours, except red and wildboar.</p> <p>Brown (Chocolate), RECESSIVE to red, wildboar and black. “bb” dilution makes it impossible produce any black pigment. Therefore chocolate Dachshunds MUST have liver-coloured nose, nails and eyes rims. To have chocolate puppies both parents must be chocolate and/or carry for chocolate. Two chocolate Dachshunds can ONLY produce chocolate offspring, UNLESS they both carry for the blue dilution, in which case they can also have fawn (“isabella”) puppies.</p>
<p>“D” GENE SERIES It makes a dilution of the colour both in the dark and in the light pigments</p>	<p>D d</p>	<p>DOMINANT to “d”. It allows the full coat pigmentation.</p> <p>Dilution of dark pigments responsible for blue, fawn (“isabella”) and dilute red. RECESSIVE to “D”. Due to an altered distribution of pigment granules in coat. Puppies born already with the diluted colour. Two blue Dachshunds can ONLY have blue offspring, UNLESS they both carry for chocolate, in which case they can also have fawn (“isabella”) puppies.</p>
<p>“E” GENE SERIES It controls the extension or not extension ONLY of the dark pigments in coat</p>	<p>E e^{br} e</p>	<p>Surely DOMINANT to “e”. Less clear the relation to the other alleles of the series. Solid coat colour. It doesn’t change the extension of dark pigments in coat.</p> <p>Surely DOMINANT to “e”. Less clear the relation to the other alleles of the series. “Brindle” pattern. Black stripes may appear ONLY on a red background (body or tan markings). Requires only one gene “e^{br}” for reproduction, but one parent must be “brindle” to produce “brindle” offspring.</p> <p>RECESSIVE. When doubly present will prevent any dark pigment in coat. Dachshunds which carry “ee” are “recessive reds”.</p>
<p>“C” GENE SERIES It controls the production of pigments in the whole body</p>	<p>C c^{ch}</p>	<p>DOMINANT to “c^{ch}”. It warrants the presence of both pigments eumelanin and feomelanin.</p> <p>RECESSIVE to “C”. Dilution of light pigments due to a loose of pigmentation, it doesn’t ABSOLUTELY involve the dark ones. “Chinchilla”. In Dachshunds we have the colour “Cream”, where dark pigments (nose, nails and eyes rims) aren’t involved in the dilution.</p>
<p>“M” GENE SERIES (“Merle”) It modifies the colouring of the coat in an incomplete way</p>	<p>M m</p>	<p>DOMINANT to “m”. “Merle” - “Dapple” gene. One parent must be Merle to produce Merle offspring. A “Double-Merle” - “Double Dapple” (“MM”) can only produce Merle offspring. The mating of two Merles may bring serious problems.</p> <p>RECESSIVE to “M”. It doesn’t modify the dark colouring of coat.</p>
<p>“S” GENE SERIES (“Spot”-“Pache”) It causes the presence in coat of areas without pigments which appear WHITE. IT DOESN’T bring albinism -(given by the “C” gene series)</p>	<p>S sⁱ s^P s^W</p>	<p>DOMINANT to all “S” gene series. “Self”. Full pigmentation, no white or very little white in coat.</p> <p>RECESSIVE. Better known as “Irish White Spotting”. Responsible for the small solitary white patches mostly found on the chest and toes.</p> <p>RECESSIVE. “Piebald” pattern. White base coat with patches of colour. It is the type in which mostly appear “S” gene series in Dachshunds.</p> <p>RECESSIVE. Extreme “Piebald”. White with no or small patches of colour. It seems to be semi-lethal in Dachshunds.</p>
<p>“T” GENE SERIES (“Ticking”) It causes the presence of ticking in white areas</p>	<p>T t</p>	<p>DOMINANT to “t”. It causes the presence of ticking in white areas. When puppies born they have no ticking. Ticking has the same colour of the Dachshund base colour.</p> <p>RECESSIVE to “T”. It leaves solid white.</p>