



Chocolate silver tabby

Anything
BUT
Ordinary

The dazzling spectrum of feline colors and patterns

by ARNA COHEN



Platinum, chocolate, champagne, silver, cameo, ebony. Elegant, luxurious words that conjure up visions of sparkling jewels, designer gowns, and cocktails on a custom yacht.

Except, in this case, we're talking about cats.

Feline genes have created such an impressive spectrum of colors and patterns that simple words won't suffice. The world of pedigreed cats borrows terms from lifestyles of the rich and famous to express the fascinating variation in feline facades. Even "ordinary" cats inspire their owners to wax eloquent in their descriptions: A striped cat becomes a tiger, an orange cat a ginger or marmalade, a black-and-white cat a tuxedo or a cow kitty.

But all is not as it seems. You may think your cat is white, or brown with black stripes, or gray with streaks of peach. On the outside, yes. Under the skin, however, all cats—be they alley cats or show ring champions; red, white, or blue (the official term for gray)—are the same. They are all black, and they are all tabbies. Everything else is genetic smoke and mirrors.

Explaining these feline magic tricks is a *raison d'être* for Joan Miller, a longtime show judge for the Cat Fanciers' Association and chair of its community outreach and education committee. While Miller can easily toss off words like inhibitor, allele, and polygene, her uncomplicated presentation on the genetics of coat colors and patterns decodes even the most mysterious kitty DNA combinations.

Miller is often asked to educate animal shelter staff on the topic in order to help them accurately identify and describe the cats in their care. "A shelter should be able to say ... that's a patched tabby or a mackerel or a classic," she says; this information can be crucial when trying to reunite a homeless feline with her family. And owners should learn to describe their companions for the same reason, says Miller.

An interesting description can also be an effective marketing tool, says Jane Hoffman, president of the Mayor's Alliance for NYC's Animals, a coalition of more than 150 shelters and rescue groups. "America is a consumer society. Even though our animals are not products ... the higher you raise their worth in people's eyes, the better it is for rescue cats."

Hoffman says she invited Miller to share her knowledge with Alliance members "because I thought our shelters and groups needed to know what treasures they had." The participants were fascinated. "I know that people went away saying, 'This is something I can use.'"

So next time you look at your cow kitty, keep in mind that he's more than simply white-and-black. Inside he's a black tabby; outside he's a bicolor harlequin resulting from non-agouti dominance with medium grade spotting. But you can call him cow kitty.



Tortie and white

THIS SPREAD: CHOCOLATE SILVER TABBY: IMAGINE; CROWN: ALEXANDER SHIROKOV/ISTOCK PHOTO, TORTIE & WHITE: MEDIA BAKERY/MICHAEL KLOTH; CROWN: YEGOR TSIBA/ISTOCKPHOTO. COLLAGE: JENNIFER LAUMANN/THE MSUS. NEXT SPREAD, BLACK, TORTOISESHELL, TICKED, SHADED & TIPPED: MEDIA BAKERY; RED, CALICO, DILUTE CALICO, & BLUE-CREAM TORTIE: DAVE KING/DORLING KINDERSLEY/GETTY IMAGES; TORBIE AND WHITE & SMOKE: ANDREY KUZMIN/ISTOCKPHOTO; BLUE: MAIC HENRIE/DORLING KINDERSLEY/GETTY IMAGES; CHEAM: NICK RIDLEY/OXFORD SCIENTIFIC/GETTY IMAGES; BLUE TORBIE & WHITE: TETSU YAMAZAKI/ANIMAL PHOTOGRAPHY; MACKEREL: DORLING KINDERSLEY/GETTY IMAGES; CLASSIC: STEVE SHOTT/GETTY IMAGES; PATCHED: ANNA UTEKHINA/ISTOCKPHOTO; SPOTTED: GANDEE VASANTH/IDEV/GETTY IMAGES; WHITE: CYNOCLUB/ISTOCKPHOTO; TUXEDO: INA PETERS/ISTOCKPHOTO; VAN: LINN CURRIE/SHUTTERSTOCK; HARLEQUIN: VIC PIGULA/ISTOCKPHOTO; POINTED LONG HAIR: ERIK LAM/SHUTTERSTOCK; SIAMESE: VASILY KOVAL/ISTOCK PHOTO

Coats of many Colors

Kindergarten painting sessions teach us that the world is made up of red, yellow, and blue. Mix them in different combinations and amounts and you end up with the 2,100 squares on the Pantone color wheel. *

So it is with the modern domestic cat. He's come a long way from the sand-colored ancestor who prowled arid North Africa more than 100,000 years ago. Nature's paintbrush has created so many variations on a theme, from subtle to dramatic, that at times we are at a loss for words to describe a feline masterpiece.

A cat's design is all in his genes. You don't have to be Mendel to understand it; our summary "scratches" the surface with a rough roadmap and some fun facts that prove even the "plainest" of cats is a work of art.

COLORS

All cats are genetically black, including orange ones. A dominant red (orange) gene, carried on the X chromosome, suppresses the black coloring. Males, with only one X chromosome, are either black or orange—not both.



BLACK

All cats are genetically striped, even black ones. Their stripes are suppressed by a "non-agouti" gene.

DILUTE GENE

Like adding milk to coffee, the dilute factor changes black to gray and orange to cream. Another gene called a polygene can darken or lighten a color, creating the variety of shades found in felines.



BLUE

Gray cats are called "blue" in the cat fancy world.

AGOUTI GENE

All cats carry the wild "agouti" gene, making them all tabbies under the skin. When the agouti gene is dominant, the cats wear their stripes, which come in five basic patterns.



MACKEREL

The typical striped pattern resembles a fish skeleton when viewed from above.

PATTERNS

MASKING & SPOTTING GENES

Solid white cats result from a masking gene that suppresses color. The spotting gene suppresses color only in certain areas. Markings can vary widely, from high-grade spotting (like the Van pattern) to low-grade spotting (like the tuxedo pattern).



WHITE

Some white cats have a faint hue on their heads revealing their true color.

INHIBITOR GENE

An inhibitor gene suppresses color at the base of each hair, resulting in a white undercoat. The amount of suppression ranges from nearly all the hair follicle to just half.



SMOKE

Bottom half of each hair follicle is white.



RED (ORANGE)

The "non-agouti" gene doesn't work on red, so this color always has a tabby pattern.

Calicos have distinct solid black and red spots on white. A tortoiseshell (tortie) has a mottled black and red pattern. Patched tabbies (or torbies) are tabbies with red patches mixed in.



CALICO



TORTOISESHELL



TORBIE & WHITE

With two X chromosomes, females can display black and orange together.



CREAM/BUFF

The dilute version of red ranges from warm cream to pale buff.



DILUTE CALICO



BLUE-CREAM TORTIE



BLUE TORBIE & WHITE

Black and orange become blue and cream. Male calicos and torties—the result of a genetic defect—are very rare and almost always sterile.



CLASSIC

The stripes form a swirl, or bull's-eye, on the cat's sides.



PATCHED

Patches of red give this pattern its name.



TICKED

Each hair has bands of color, giving an overall flecked look.



SPOTTED

All tabbies, regardless of pattern, have an "M" on their foreheads.



TUXEDO

White chest, stomach, and paws create this pattern.



VAN

Color is on tail with a few patches on head or body.



HARLEQUIN

Color appears in random spots.

TEMPERATURE-SENSITIVE GENE

A temperature-sensitive albino gene gives colorpoint cats, such as Siamese, their blue eyes and distinct pattern. Because the temperature in the womb is even, colorpoint kittens are born white, but after birth, they quickly start developing darker points on cooler parts of the body. The pointed areas can show a range of colors and markings.



SHADED

Bottom three-quarters of each hair follicle is white.



TIPPED

Just the very tips of the hair follicles have color.



POINTED LONGHAIR
blue-point



SIAMESE
seal-point