

Variations of mink and pearl

BY ANNALIE PRINSLOO (APRIL 2015)

Origin

THE EUROPEAN MINK GENE (**m**)

The colour mink first appeared in 1905, but back then it was named “blue”. Bred by Genesis Stud as “mink” and in 1977 the colour was officially taken into the NFRS standards as mink (Mays, 1997). Cinnamon was introduced as “fawn agouti” in the 1920’s. Standardized in 1935 and taken over in 1976 by the NFRS as “cinnamon” (Mays, 1997). Mink was scientifically described in 1994 by Roy Robinson (Robinson, 1994).



Dumbo mink self doe
(European mink based)
(a/a m/m)



Dumbo cinnamon self buck
(European mink based)
(A/- m/m)

THE AMERICAN MINK GENE (**am**) (AKA: MOCK MINK)

In 1978 Karen Robbins found a “grey-brown” hooded rat named Hershey in a pet shop in the USA. Back then the Americans did not yet have the European mink (**m**). Hershey was a lilac rat (darker shades are called mink in the USA and lighter shades lilac). In 1979 Karen produced cinnamon from Hershey’s descendants. Today we know that American mink and European mink are genetically distinct (Royer, 1999). In 2010 American mink was scientifically studied and given the gene symbol “am” (Kuramoto, *et al.* 2010).

THE AUSTRALIAN MINK GENE (no gene symbol – we use “mo” in this article)

Australian mink is an independent mink mutation which was discovered in Australia. The Australian rat population is isolated from other rat populations around the world due to strict laws forbidding importation of fancy rats. Australian mink are unique from the other types of mink mentioned above in that the babies are born a “beige” colour which later turns into mink as they mould into their adult coats. Australian mink has not been scientifically described yet.



Mink hooded downunder rats
(two are tailless)
 (Australian mink based)
(a/a mo/mo)



Cinnamon hooded doe
 (Australian mink based)
(A/- mo/mo)

THE PEARL GENE (Pe)

In 1978 Clive Love and his daughter Sue of Genesis stud in the UK found the original pearls and cinnamon pearls as lighter coloured rats in their mink/cinnamon stock. At the same time Jackie Chapman also bred pearl. In 1978 pearl was standardized at the NFRS and in 1979 cinnamon pearl. After standardization pearl and cinnamon pearl almost became extinct as they were not as robust as other mutations. Pearl was saved from a mating by Sara Handley's cinnamon pearl buck, Jasper (had maloccluded teeth) and Anna Maria, a cinnamon hooded doe. All modern pearls and cinnamon pearls come from Jasper x Anna Maria's son Repsaj (Mays, 1997; Storey, 2007 & Storey, 2008). Pearl was scientifically described in 1994 by Roy Robinson (Robinson, 1994).



Dumbo pearl self buck (light shade)
 (European mink based)
(a/a m/m Pe/pe)



Dumbo cinnamon pearl berkshire
 buck
 (European mink based)
(A/- m/m Pe/pe)

South African History

In South Africa we only have the European mink gene (m) and the pearl gene (Pe). We did have Australian mink in the downunder stock, but today Australian mink is extinct together with the whole downunder line. Our mink (m) and pearl (Pe) came from MS Thor x MS Bushbaby from the 2006 import. MS Thor was a cinnamon pearl Essex buck and MS Bushbaby a pearl self doe.



A young Dumbo pearl self buck
(medium shade)
(European mink based)
(a/a m/m Pe/pe)



A young silvered mink irish buck
(dark shade)
(European mink based)
(a/a m/m Pe/pe)

Description

All colours resulting from the mink gene vary considerably in shade. Mink based rats are referred to as “chameleon rats” since a kitten born light can become a dark adult and visa-versa. This variation which is caused by the mink gene (m) and it affects all the colours mentioned below. On a pearl background the variation effect is most severe in that the darkest pearl rats are called silvered mink and the lightest ones pearl.



A young Dumbo pearl self buck
(medium shade)
(European mink based)
(a/a m/m Pe/pe)



A young Dumbo pearl self doe
(dark shade)
(European mink based)
(a/a m/m Pe/pe)



A young Dumbo silvered mink self
doe *(dark shade)*
(European mink based)
(a/a m/m Pe/pe)



A young Dumbo pearl self doe
(light shade)
(European mink based)
(a/a m/m Pe/pe)

When selecting mink based colours for show quality one should avoid patchiness of colour (unless it is a merle rat). Mink and cinnamon are especially prone to brown patches which should be avoided. With mink one should aim for medium shaded rats, avoiding the lightest and darkest minks when aiming for show quality. A mink should be “mid grey-brown” but not too brown. When selecting cinnamons one should pick the brightest, reddest cinnamons for show quality. With cinnamon pearl one should pick the yellowest cinnamon pearls which resemble a fawn colour the best. With pearls one should aim for the lighter shaded rats which still show the darker ticking evenly throughout the coat. With silvered mink one should aim for a colour which best resembles mink but with even silver hairs throughout the coat.

DESCRIPTION OF THE COLOURS:

MINK

“A mid-grey brown colour with a blueish tinge. Belly colour to match top. Eye colour is black.” – S.A.R.F.C. Standards



Dumbo mink self doe
(European mink based)
(a/a m/m)



Mink self kitten
(European mink based)
(a/a m/m)

CINNAMON

“A warm russet brown colour evenly ticked with chocolate guard hairs. Undercoat medium grey. Belly fur is a medium silver grey. Eye colour is black.” – S.A.R.F.C. Standards



Dumbo cinnamon berkshire doe
(European mink based)
(A/- m/m)



Dumbo cinnamon self kitten
(European mink based)
(A/- m/m)

PEARL

“A pale silver colour, evenly ticked with grey hair tips. Undercoat a cream colour. Belly fur a pale silver grey. Eye colour is black.” – S.A.R.F.C. Standards



Dumbo pearl self buck (*medium shade*)
(European mink based)
(a/a m/m P_e/p_e)



Dumbo pearl self doe (*light shade*)
(European mink based)
(a/a m/m P_e/p_e)

CINNAMON PEARL

“Colour is a pale golden fawn with a silver sheen, evenly ticked with silver guard hairs. Undercoat a cream colour. Belly colour is a pale silver grey. Eye colour is black”. – S.A.R.F.C. Standards



Dumbo cinnamon pearl berkshire
doe
(European mink based)
(A/- m/m P_e/p_e)



Dumbo cinnamon pearl self doe
(European mink based)
(A/- m/m P_e/p_e)

SILVERED MINK

“Colour is a mid-grey brown evenly ticked with silver guard hairs throughout. The coat should contain an even number of silver and grey brown hairs. Each silver hair to have as much of its length as white as possible. Eye colour is black.” – S.A.R.F.C. Standards



Silvered mink self buck (*medium shade*)
(European mink based)
(a/a m/m P_e/p_e)



Silvered mink self kitten (*light shade*)
(European mink based)
(a/a m/m P_e/p_e)

MERLE RATS

Sometimes pearl, cinnamon pearl or silvered mink rats are born with dark coloured patches in their coats. No one is sure how this is caused genetically but it is thought that it is a patchy expression of the pearl gene rather than a gene by itself. Merle rats come and go in pearl based lines. Sometimes when you have a nice merle rat, you struggle to get the merle effect back in his/her descendants and sometimes merle rats pop up in pearl lines without any merle ancestors.



An adult dumbo pearl merle self buck - Often a merle's spots fade when the rat reaches adulthood
(European mink based)
(a/a m/m P_e/p_e)



Pearl merle self kittens
(European mink based)
(a/a m/m P_e/p_e)



Pearl merle self kitten
(European mink based)
(a/a m/m P_e/p_e)



A litter with pearl and pearl merle kittens
(European mink based)
(a/a m/m P_e/p_e)

Genetics

EUROPEAN MINK AND PEARL (m and P_e)

European mink is a recessive gene located on chromosome 3 and Pearl a separate dominant gene also located on chromosome 3 which is lethal when homozygous. Pearl is a form of incomplete penetrance in that it can only express on a mink background (Robinson, 1994). Pearl cannot express on a black or any other colour background like blue for instance. Yet pearl can express with the European mink gene (m) but not with chocolate (b).



Silvered mink self buck (*light shade*)
 (European mink based)
 (a/a m/m Pe/pe)

Mink = a/a m/m pe/pe
 Cinnamon = A/- m/m pe/pe
 Pearl and Silvered mink = a/a m/m Pe/pe
 Cinnamon pearl = A/- m/m Pe/pe

AMERICAN MINK (am)

American mink was scientifically studied in 2010. It is a recessive gene located on chromosome 1 (Kuramoto, et al., 2010). American mink does not breed true to European mink showing that these two genes are unrelated. American mink x European mink = All black kittens.

Mink and lilac = a/a am/am

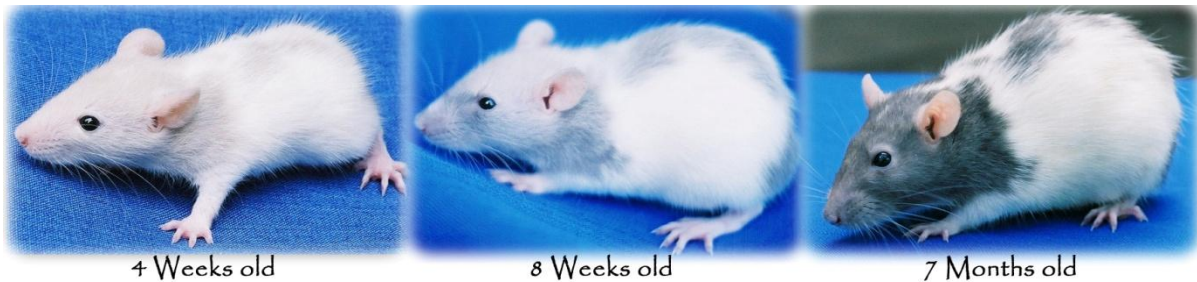
Cinnamon = A/- am/am

AUSTRALIAN MINK (mo)

Australian mink is a recessive mutation. Australian mink also does not breed true to either American mink or European mink. Black kittens are produced in both crosses showing that Australian mink is yet another unrelated "brown-grey" mutation. It is not known if pearl can express on Australian mink.

Mink = a/a mo/mo

Cinnamon = A/- mo/mo



An Australian mink based Tailless mink hooded downunder doe showing how coat changes colour from beige to mink

References

1. KURAMOTO, T.; YOKOE, M.; YAGASAKI, K.; KAWAGUCHI, T. KUMAFUJI, K. & SERIWAKA, T. 2010. Genetic Analysis of Fancy Derived Mutations. *Experimental Animals* 59 (2): 147-155.
2. MAYS, N. 1997. The Proper Care of Fancy Rats. T.F.H Publications, New York.
3. ROBINSON, R. 1994. Mink and Pearl: New Color Mutants in the Norway Rat. *Journal of Heredity*: 85 (2): 142-143.

4. ROYER, N. 1999. Cinnamon rats. AFRMA Rat and Mouse tales news magazine. Available at: <http://www.afrma.org/cinnamonrat.htm>
5. STOREY, A. 2007. The Pearl rat. AFRMA Rat and Mouse tales news magazine. Available at: <http://www.afrma.org/pearlrat.htm>
6. STOREY, A. 2008. The Cinnamon Pearl Rat. AFRMA Rat and Mouse tales news magazine. Available at: <http://www.afrma.org/cinnpearlrat.htm>



Dumbo mink berkshire buck
(European mink based)
(a/a m/m)



Cinnamon berkshire doe
(European mink based)
(A/- m/m)



Dumbo cinnamon pearl self doe
(European mink based)
(A/- m/m P_e/p_e)



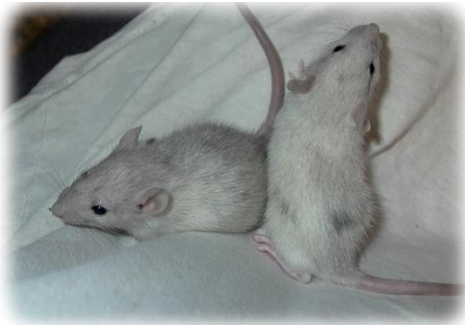
Dumbo pearl self doe (*light shade*)
(European mink based)
(a/a m/m P_e/p_e)



Dumbo pearl self doe (*dark shade*)
(European mink based)
(a/a m/m P_e/p_e)



Dumbo mink berkshire doe
(European mink based)
(a/a m/m)



Pearl merle self kittens
(European mink based)
(a/a m/m P_e/p_e)



Silvered mink irish doe (*light shade*)
(European mink based)
(a/a m/m P_e/p_e)



Chocolate
(a/a b/b)

Australian
mink
(a/a m_o/m_o)

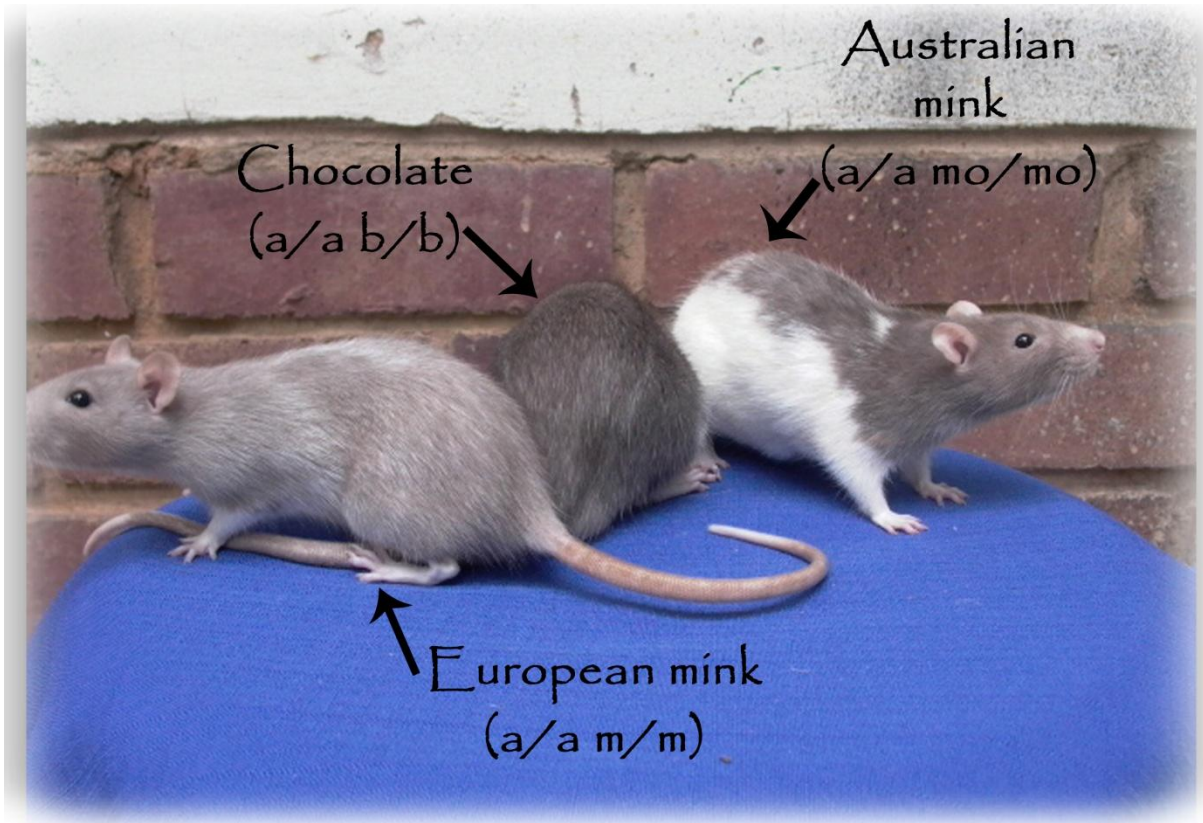
European mink
(a/a m/m)



Dumbo mink self kitten
(European mink based)
(a/a m/m)



Silvered mink self buck (*light shade*)
(European mink based)
(a/a m/m P_e/p_e)



Chocolate
(a/a b/b)

Australian
mink

(a/a mo/mo)

European mink
(a/a m/m)



Pearl self doe (*dark shade*)
(European mink based)
(a/a m/m Pe/pe)