

Supplementary Table 1 Phenotypic description of cat breed pelage types

Establishment		Phenotypic Description			
Breed/Locale	Date	MOI ^a	Coat	Whiskers	Ref. ^b
American Wirehair New York, US	1966	Dom.	Curly, wavy, medium length, very dense	Curly	CFA
Cornish Rex Cornwall, UK	1950	Rec.	Wavy, short, relatively dense	Crinkling, Curving	(Searle and Jude 1956)
Devon Rex Devonshire, UK	1960	Rec.	Curly, wavy, short, fine	Crinkling	(Robinson 1969)
German Rex Berlin, Germany	1947	Rec.	Wavy, short	Crinkling	(Robinson 1968)
Kohana Hawaii, US	2002	Dom.	Small hair follicles	No whiskers	Unpublished
La Perm Oregon, US	1982	Dom.	Curly, wavy, short-medium- long hair	Curly	CFA, TICA
Peterbald St. Petersburg, Russia	1993	Dom.	Thin, short, fine, appears hairless	Curly, Thick	FIFe
Selkirk Rex Montana, US	1987	Dom.	Curly, long, dense	Curly	CFA, TICA
Sphynx Toronto, Canada	1966	Rec.	Appears hairless, may be covered with short & fine hair	Whole/Broken Coarse	(Robinson 1973)
Tennessee Rex Tennessee, US	2004	Rec.	Wavy, long	Curly	Unpublished

^aAll modes of inheritance (MOI) are autosomal. ^bCFA is the Cat Fanciers' Association, TICA is The International Cat Association, and FiFe is the Federation Internationale Feline.

Supplementary Table 2 SNP analysis of *KRT71* in domestic cats

Breed	Nucleotide site																		
	E1 78	E1 189	E1 384	E2 577	E2 585	E2 591	E4 738	I4 +1	E5 846	I6 -4.-1	E7 1108- 1184	E7 1170	E7 1184.1-.8	E7 1188	E7 1191	E7 1196.1	E7 1315	E7 1323	E7 1530
Ref	G	T	A	T	A	T	T	G	T	Del	Del	C	Ins	T	A	Ins	G	G	A
Selkirk Rex	K	Y	M	Y	A	T	T	G	Y	-	-	C	-	T	A	-	A	A	R
Selkirk Rex	K	Y	M	Y	A	T	Y	G	C	-	-	Y	-	Y	R	-	A	A	G
Selkirk Rex	T	C	C	C	A	T	C	G	C	-	-	T	-	C	G	-	A	A	G
Cornish Rex	T	C	C	C	A	T	C	G	C	-	-	T	-	C	G	-	A	A	G
Cornish Rex	T	C	C	C	A	T	C	G	C	-	-	T	-	C	G	-	A	A	G
Devon Rex	G	T	A	T	A	T	T	G	T	+	+	/	+	T	A	T	A	A	A
Devon Rex	G	T	A	T	A	T	T	G	T	+	+	/	+	T	A	T	A	A	A
American Wirehair	T	C	C	Y	A	T	C	G	C	-	-	Y	-	Y	G	-	A	A	R
American Wirehair	T	C	C	Y	A	Y	Y	G	Y	-	-	Y	-	Y	R	-	A	A	R
Domestic short hair	T	C	C	C	A	T	C	G	C	-	-	T	-	C	G	-	A	A	G
Peterbald	K	Y	C	Y	A	T	Y	G	C	-	-	Y	-	C	G	-	A	A	G
Peterbald	G	T	A	T	A	T	T	G	T	-	-	C	-	T	A	-	A	A	A
Tennessee Rex	K	Y	M	Y	R	Y	T	G	Y	-	-	C	-	T	R	-	A	A	A
Tennessee Rex	K	Y	M	Y	A	T	T	G	Y	-	-	C	-	Y	R	-	A	A	R
Kohana	G	Y	M	Y	A	T	Y	R	Y	-	-	Y	-	Y	R	-	A	A	R
Kohana	G	T	A	T	A	T	T	A	T	-	-	C	-	T	A	-	A	A	A
La Perm	G	C	C	T	A	T	T	G	T	-	-	C	-	T	G	-	A	A	A
La Perm	T	C	C	T	A	T	Y	G	C	-	-	C	-	Y	R	-	A	A	G
Sphynx	K	Y	M	/	/	/	Y	R	T	-	-	C	-	T	A	-	A	A	A
Sphynx	G	T	A	/	/	/	T	R	T	-	-	C	-	T	A	-	A	A	A
Sphynx	T	C	C	C	A	T	Y	R	Y	-	-	C	-	Y	R	-	A	A	R
Sphynx	T	C	C	C	A	T	T	A	T	-	-	C	-	T	A	-	A	A	A
German Rex	G	T	A	T	A	T	T	G	T	-	-	C	-	T	A	-	A	A	A
German Rex	G	T	A	T	A	T	T	G	T	-	-	C	-	T	A	-	A	A	A
Amino acid change	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	S438G	-	-

Supplementary Table 3 PCR primers and conditions for the analysis of *KRT71* in domestic cats

Genomic Primers					
Exon	Exon size (bp)	Product size (bp)	Forward primer 5'-3'	Reverse primer 5'-3'	T _m /[Mg ²⁺] μ M
1	444	692	TGCCAAGCACATATAAGGAAGG	CGGGTGTAGGCTTTACTCTGTG	59/1.75
2	215	785	CCATCTTCAGCAAGGTCAAGCTTTC	CCTGGACATCTGTCCTATGTGCCA	59/2.00
3	61	815	GGACGGTGGTCAAAGGAGTA	TGTCTGAGTCAAGCCCTGTG	59/1.75
4	96	832	GTTTCACGTGGACAGGGTTT	TGATGTGGGACTGGATCTGA	59/1.50
5	165	565	GAGCCTCTAAGTTAGCATCTC	TGAGCCGGGTGAGCTCCGAGA	59/2.00
6	126	860	TGACATGTCCGTCATCCTGT	AACAATGGGGAACAAAGCAG	59/1.75
7	221	796	GTGGGATTTGGATTTGGATG	GCTGTGCTTCAGGGATTAGC	59/1.75
7[2]	221	557	CCATCTTCAGCAAGGTCAAGCTTTC	CCTGGACATCTGTCCTATGTGCCA	60/1.75
8	35	608	GCTGTGCTTCAGGGATTAGC	CCTTTGTTTCCCCTTCCCTA	59/1.75
9	212	960	GGGTAACCTCTTCTGGTCCTGCC	CTGCTCCAGTGAGTACCCAAGGAA	59/1.75
cDNA Primers					
Primer		Primer sequence		T _m /[Mg ²⁺] μ M	
KRT71-ex1FcDNA		AGCCCGTGTGGGACTTGGCCTTCAC		64/1.75	
KRT71-ex5RcDNA		TGGACAGGATGACGGACATGTCACTGA		64/1.5	
KRT71-ex8FcDNA		GATGTCAGGAGAATTTCCCTCCCC		64/2.00	
KRT71-ex8RcDNA		ACAGGGGAGGGAAATTCTCCTGACATC		64/2.00	

Supplementary Table 4 Intronic SNPs analysis of *KRT71* in domestic cats

Intron nucleotide site																			
Breed*	5'UTR -13	I1 6	I2 42	I2 -82	I3 28	I3 70	I3 80	I3 114	I3 119	I4 1	I4 61	I4 72	I4 105	I4 272	I5 108	I5 -75	I6 122	I6 -164	I6 -145
Ref	C	C	C	A	G	C	G	A	G	G	A	G	C	A	C	C	C	G	G
Selkirk Rex	C	Y	Y	A	R	C	R	A	G	G	G		T	A	C	C	C	G	G
Selkirk Rex	C	Y		A	R	C	R	A	G	G	G	R	Y	R	C	C	C	G	G
Selkirk Rex	C	T	T	A	G	C	A	A	G	G	G	G	T	G	C	Y	C	G	G
Cornish Rex	C	T	T	A	G	C	A	A	G	G	G	G	T	G	C	C	C	G	G
Cornish Rex	C	T	T	A	G	C	R	A	G	G	G	G	T	G	C	C	C	G	G
Devon Rex	C	C	C	A	G	C	G	A	G	G	A	G	C	/	C	C	C	G	G
Devon Rex	C	C		A	G	C	G	A	G	G	A	G	C	/	C	C	C	G	G
American Wirehair	C	T	Y	A	G	C	R	R	S	G	G	G	T	G	Y	C	C	G	G
American Wirehair	C	T	Y	A	G	C	R	A	G	G	R	G	Y	G	C	C	C	G	G
Domestic Short Hair	C	T	T	A	G	C	R	/	/	G	G	G	T	G	C	C	C	G	G
Peterbald	C	T	Y	A	G	C	A	A	G	G	G	G	Y	R	C	C	C	G	G
Peterbald	C	C	C	A	G	C	G	A	G	G	A	G	C	/	C	C	C	G	G
Tennessee Rex	C	Y	Y	R	G	C	G	R	S	G	A	G	C	/	C	C	Y	G	G
Tennessee Rex	C	Y	Y	A	G	C	G	A	G	G	A	G	C	A	C	C	C	R	K
Kohana	C	Y	Y	A	G	C	R	A	G	R	R	G	Y	R	C	C	C	G	G
Kohana	C	C	C	A	G	C	G	A	G	A	A	G	C	A	C	C	C	G	G
La Perm	T	T	C	A	G	A	G	G	C	G	G	G	C	A	C	C	C	G	G
La Perm	C	T	/	A	R	C	A	A	G	G	G	R	C	A	C	C	C	G	G
Sphynx	C	Y	/	A	/	/	/	/	/	R	G	G	G	C	C	C	C	G	G
Sphynx	C	C	/	A	/	/	/	/	/	R	G	G	G	C	C	C	C	G	G
Sphynx	C	T	/	A	G	C	A	A	G	R	R	G	C	A	C	C	C	G	G
Sphynx	C	T	T	A	G	C	A	A	G	A	A	G	C	A	C	C	C	G	G
German Rex	C	C	C	A	G	C	G	A	G	G	A	G	C	A	C	C	C	G	G
German Rex	C	C	C	A	G	C	R	A	G	G	A	G	C	A	C	C	C	G	G

Breed*	I6 -88	I6 -73	I6 -66	I6 -4..1	I7 4	I7 8	I7 12	I7 20	I7 35	I7 -353	I7 -167	I7 -110	I7 -81	I7 -51	I8 67.1	I8 76	3'UTR +9	3'UTR +34	3'UTR +464
Ref	T	G	G	Del	G	G	G	C	C	A	T	A	C	G	Ins [†]	C	G	C	C
Selkirk Rex	T	R	R	-	T	T	T	C	C	A	Y	R	C	G	-	C	R	S	C
Selkirk Rex	T	A	A	-	T	T	T	C	C	A	C	G	G	G	-	C	R	G	C
Selkirk Rex	T	A	A	-	T	T	T	C	C	A	C	G	G	G	-	T	G	G	C
Cornish Rex	T	A	A	-	T	T	T	C	C	A	C	G	G	G	-	T	G	G	C
Cornish Rex	T	A	A	-	T	T	T	C	C	A	C	G	G	G	-	T	G	G	C
Devon Rex	T	G	G	+	T	T	T	C	C	A	T	A	C	G	-	C	G	C	C
Devon Rex	T	G	G	+	T	T	T	C	C	A	T	A	C	G	-	C	G	C	C
American Wirehair	T	R	R	-	T	T	T	C	C	A	C	G	S	G	-	Y	R	S	C
American Wirehair	T	R	R	-	T	T	T	C	C	A	Y	R	S	G	-	Y	G	S	C
Domestic Short Hair	T	A	A	-	T	T	T	C	C	A	C	G	G	G	-	T	G	G	C
Peterbald	T	A	A	-	T	T	T	C	C	A	C	G	G	G	-	Y	G	G	C
Peterbald	T	G	G	-	T	T	T	C	C	A	T	A	C	G	-	C	G	C	C
Tennessee Rex	T	G	G	-	T	T	T	C	Y	A	Y	R	C	G	-	C	R	C	C
Tennessee Rex	Y	R	R	-	T	T	T	M	C	W	Y	R	C	G	-	C	G	S	C
Kohana	T	R	R	-	T	T	T	C	C	A	Y	R	S	G	-	Y	G	S	C
Kohana	T	G	G	-	T	T	T	C	C	A	T	A	C	G	-	C	G	C	C
La Perm	T	G	G	-	T	T	T	C	C	A	C	G	C	A	+	C	G	C	C
La Perm	T	A	A	-	T	T	T	C	C	A	C	G	C	G	-	Y	G	G	C
Sphynx	T	G	G	-	T	T	T	C	C	A	T	A	C	G	-	C	G	C	C
Sphynx	T	G	G	-	T	T	T	C	C	A	T	A	C	G	-	C	G	C	C
Sphynx	T	R	R	-	T	T	T	C	C	A	Y	R	S	G	-	C	G	C	Y
Sphynx	T	G	G	-	T	T	T	C	C	A	T	A	C	G	-	C	G	C	C
German Rex	T	G	G	-	T	T	T	C	C	A	T	A	C	G	-	C	G	C	C
German Rex	T	G	G	-	T	T	T	C	C	A	T	A	C	G	-	C	G	C	C

† reference lacks nucleotide at this position.

CAT WT	MNRQFTCKSGAAAKGGFSGCSAVLSGGSSSSSYRAGGKGLSGGFGSRSLYSLGGIRNISLN	60
DEVON REX	.....	
SPHYNX	.....	
CAT WT	MASGSGKSGYGFGFRGRASGFAGSMFGSVALGPVCPTVCPGGIHQVTVNESLLAPLNVEL	120
DEVON REX	.....	
SPHYNX	.....	
CAT WT	DPEIQKVRAQEREQIKALNNKFASFIDKVRFLQQNQVLETKWELLOQLDLNNCKNNLEP	180
DEVON REX	.....	
SPHYNX	.....	
CAT WT	ILEGYISNLRKQLETLSGDRVRLDSELRSVRDVVEDYKKKYEEEINRRTAAENEFVLLKK	240
DEVON REX	.....	
SPHYNX	.....	
CAT WT	DVDAAYANKEELQAKVDSMDQEIKFCKLYEAEIAQIQSHISDMSVILSMDNNRDLNLDS	300
DEVON REX	.....	
SPHYNX	 ISLSLHPPL*	
CAT WT	IIDEVRAQYEEIALKSKAEAEALYQTKFQELQLAAGRHGDDLKNTKNEISELTRLIQIR	360
DEVON REX	.....	
SPHYNX	.....	
CAT WT	SEIENVKKQASNLETAIADAEQRGDSALKDARAKLDELESALHQAKEELARMLREYQELM	420
DEVON REX	 AA	
SPHYNX	.....	
CAT WT	SLKLALDMEIATYRKLESEECRMSGFPPSPVSISISISSTSGSSGYGLRPSSVSGGYVAN	480
DEVON REX	.....	
SPHYNX	.....	
CAT WT	SSSCISGVCSVRGGEGRSGSTSDYKDTLGKGSSQSASSKKASR*	524
DEVON REX	.....	
SPHYNX	.....	

Supplementary Figure 1. Protein alignment of *KRT71*. Presented is the protein translation for a wild type cat with normal hair, a Devon Rex and a Sphynx. Boldfaces indicates the amino acid substitutions observed in the Sphynx cat caused by a splice site variant, Δ indicates the missing amino acid caused by a deletion in exon 7.