

Adams20 Cas9-KO Strategy

Designer:

Daohua Xu

Reviewer:

Huimin Su

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Project Overview

Project Name

Adamts20

Project type

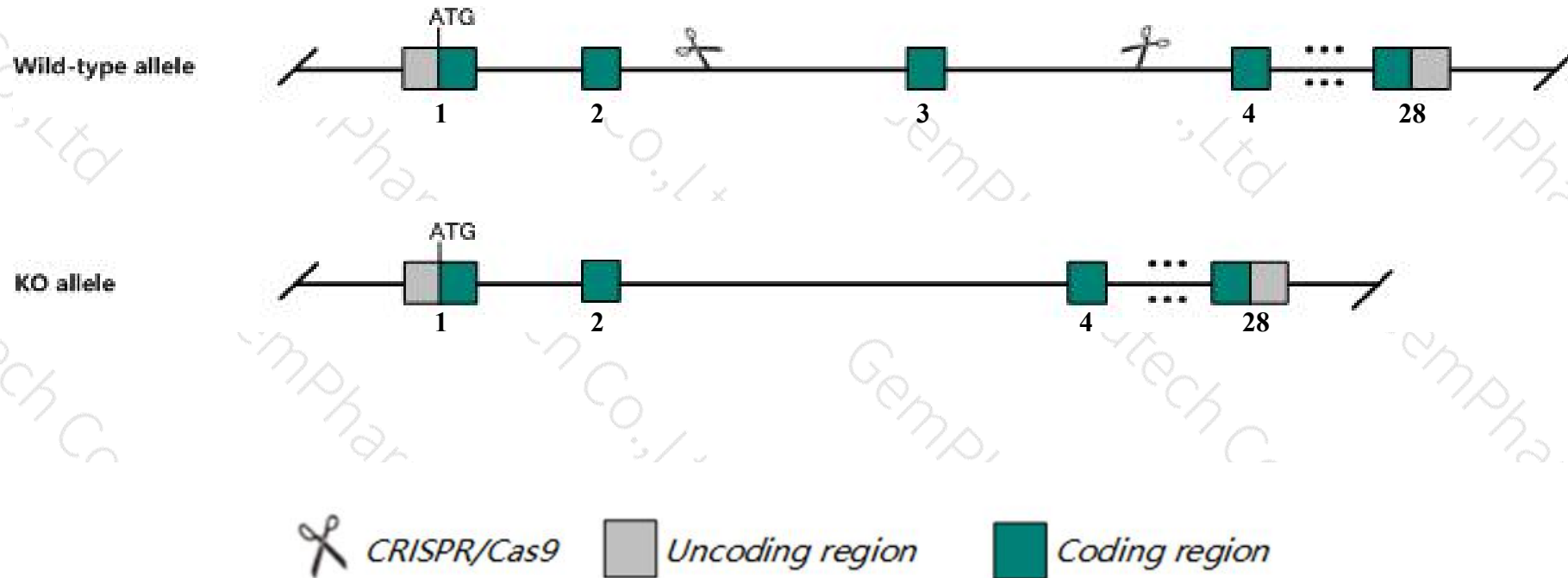
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Adamts20* gene. The schematic diagram is as follows:



- The *Adamts20* gene has 4 transcripts. According to the structure of *Adamts20* gene, exon3 of *Adamts20-204* (ENSMUST00000155907.1) transcript is recommended as the knockout region. The region contains 163bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Adamts20* gene. The brief process is as follows: CRISPR/Cas9 sys

- According to the existing MGI data, Mice homozygous for spontaneous or ENU-induced mutations exhibit abnormal coat/hair pigmentation, including a typical white belt phenotype.
- The *Adamts20* gene is located on the Chr15. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Adamts20 a disintegrin-like and metallopeptidase (reprolysin type) with thrombospondin type 1 motif, 20 [Mus musculus (house mouse)]

Gene ID: 223838, updated on 31-Jan-2019

Summary



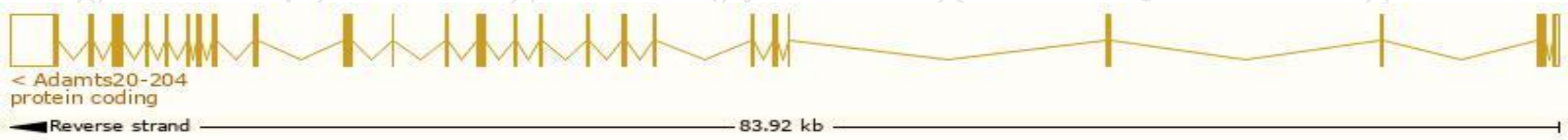
Official Symbol	Adamts20 provided by MGI
Official Full Name	a disintegrin-like and metallopeptidase (reprolysin type) with thrombospondin type 1 motif, 20 provided by MGI
Primary source	MGI:MGI:2660628
See related	Ensembl:ENSMUSG00000022449
Gene type	protein coding
RefSeq status	REVIEWED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Adamst20, bt
Summary	This gene encodes a member of "a disintegrin and metalloproteinase with thrombospondin motifs" (ADAMTS) family of multi-domain matrix-associated metalloendopeptidases that have diverse roles in tissue morphogenesis and pathophysiological remodeling, in inflammation and in vascular biology. The encoded preproprotein undergoes proteolytic processing to generate an active protease. Certain mutations in this gene cause defective development of neural crest-derived melanoblasts resulting in a "belted" phenotype that is characterized by white spots in the lumbar region. [provided by RefSeq, Jul 2016]
Expression	Biased expression in CNS E11.5 (RPKM 1.8), CNS E18 (RPKM 1.4) and 10 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

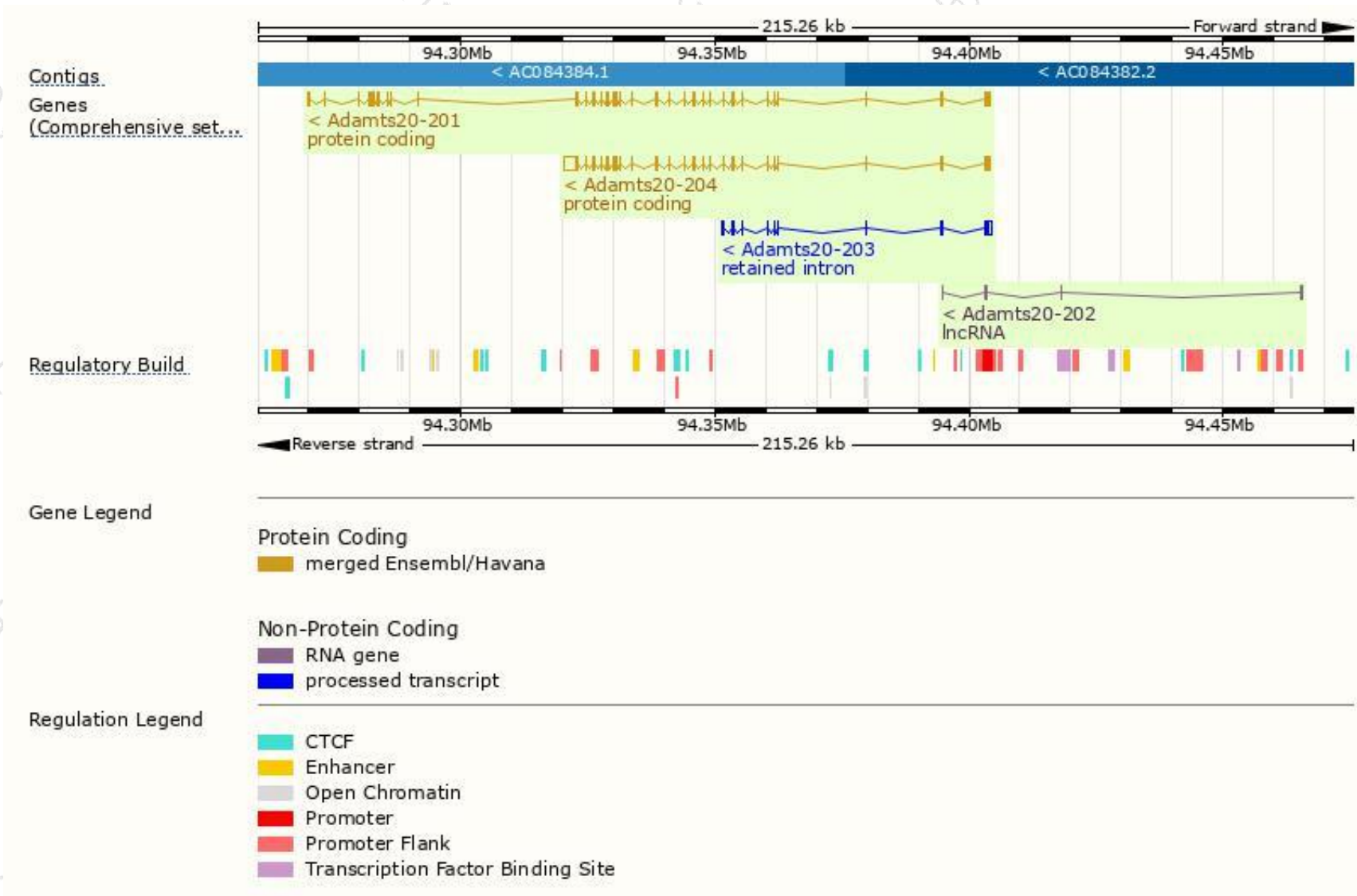
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Adamts20-204	ENSMUST00000155907.1	6886	1425aa	Protein coding	CCDS49711	P59511	TSL:1 GENCODE basic
Adamts20-201	ENSMUST00000035342.10	6027	1906aa	Protein coding	CCDS27770	P59511	TSL:1 GENCODE basic APPRIS P1
Adamts20-203	ENSMUST00000129195.7	1964	No protein	Retained intron	-	-	TSL:1
Adamts20-202	ENSMUST00000128797.1	630	No protein	lncRNA	-	-	TSL:5

The strategy is based on the design of *Adamts20-204* transcript,The transcription is shown below



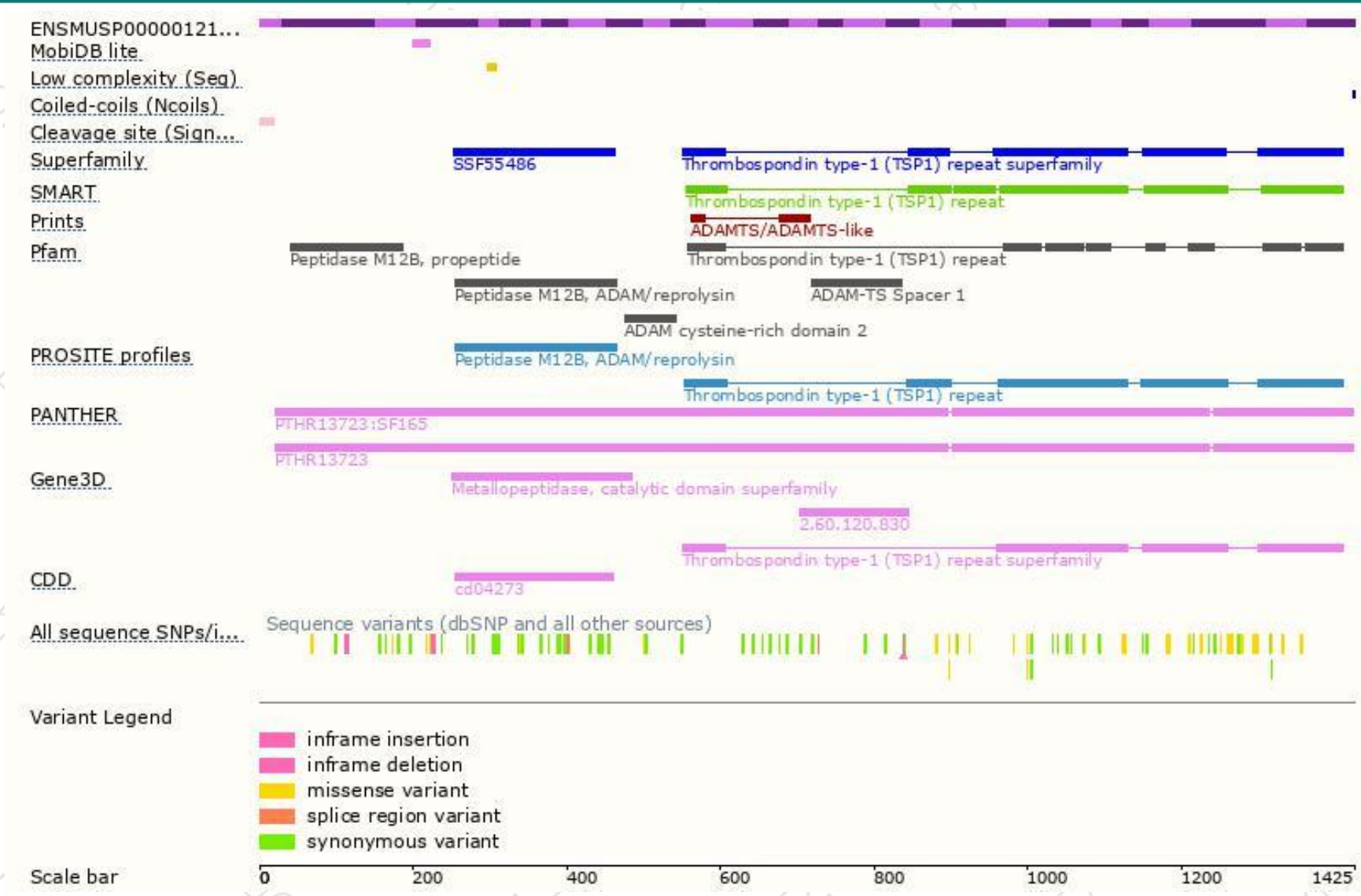
Genomic location distribution



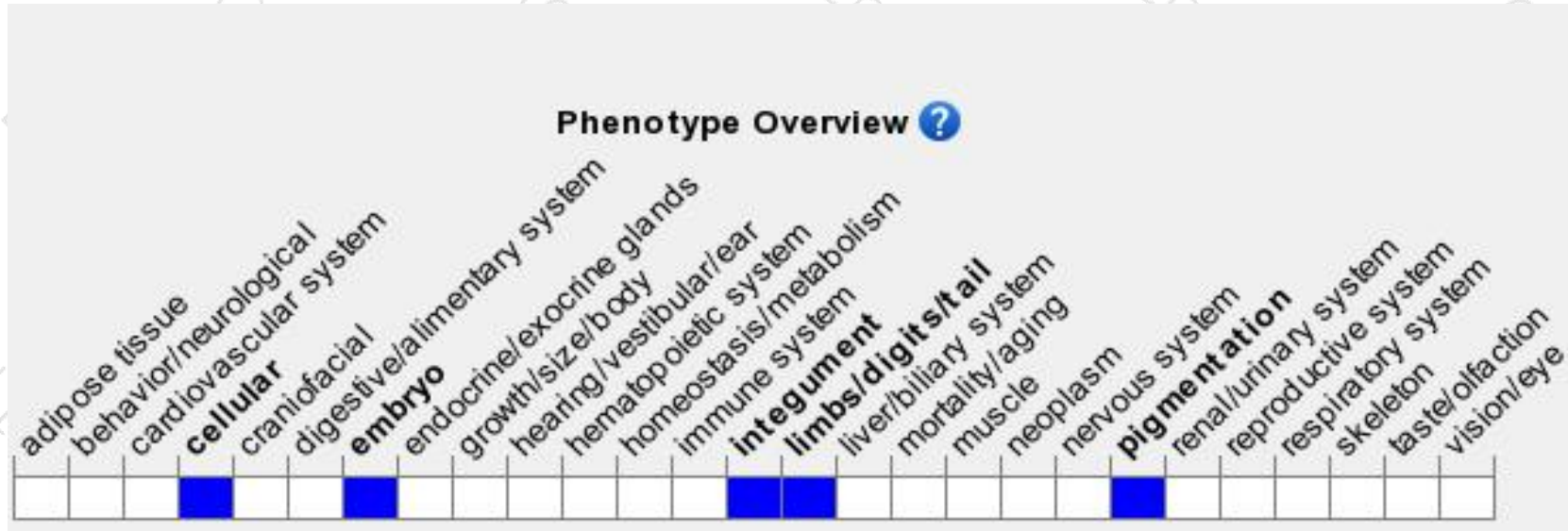
Protein domain



集萃药康
GemPharmatech



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

According to the existing MGI data, Mice homozygous for spontaneous or ENU-induced mutations exhibit abnormal coat/hair pigmentation, including a typical white belt phenotype.

If you have any questions, you are welcome to inquire.

Tel: 400-9660890

