Krt36 Cas9-CKO Strategy

Designer: Yanhua Shen
Reviewer: Xueting Zhang
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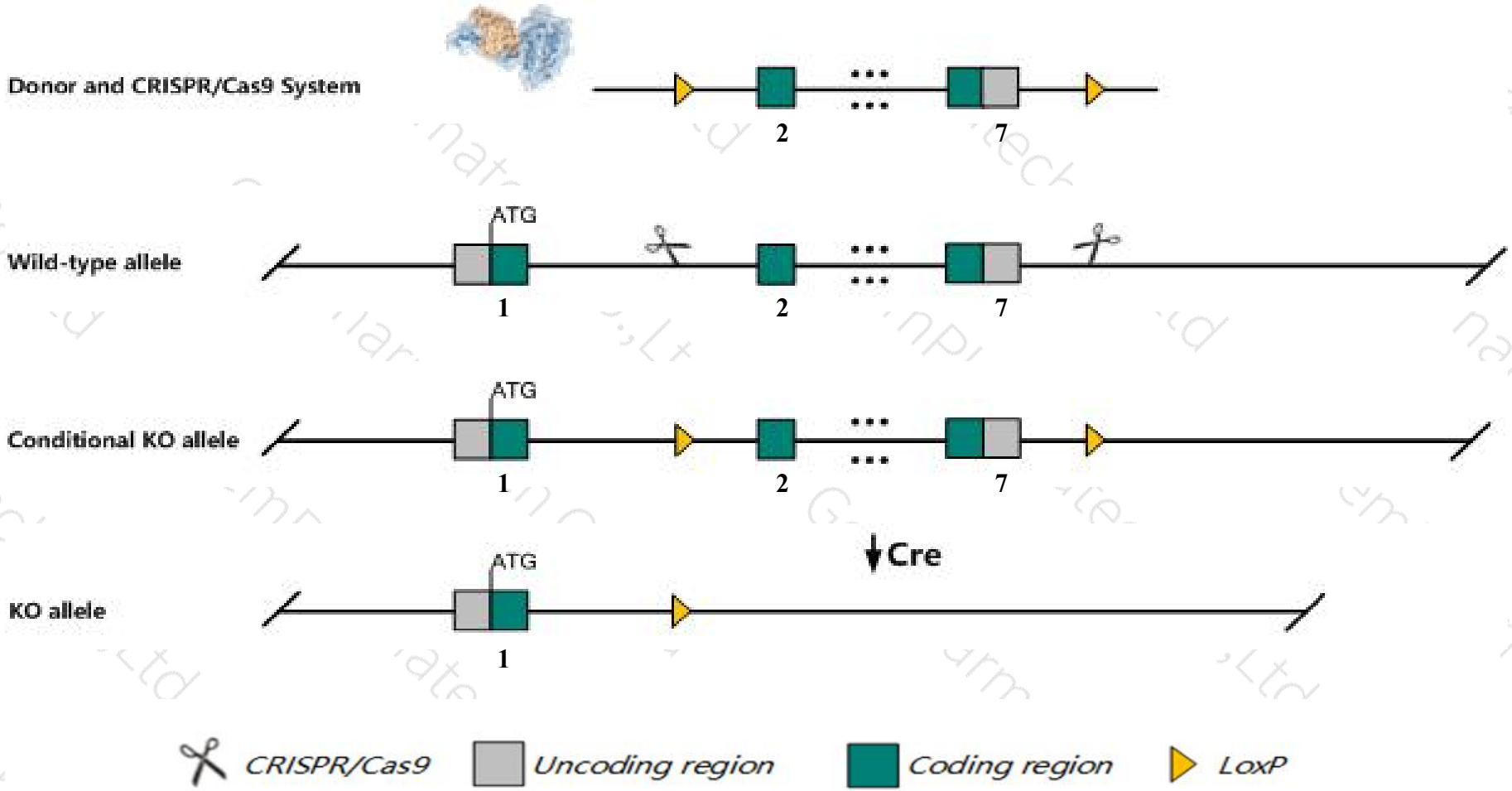
Project Overview

Project Name	***Krt36***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Krt36* gene. The schematic diagram is as follows:



Technical routes

- The *Krt36* gene has 1 transcript. According to the structure of *Krt36* gene, exon2-exon7 of *Krt36-201* (ENSMUST00000107416.2) transcript is recommended as the knockout region.The region contains most of the coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Krt36* gene. The brief process is as follows:CRISPR/Cas9 system and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice.Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

➢ According to the existing MGI data,Mice homozygous for a knock-out allele exhibit hyperkeratosis affecting the scales of the tail skin and the filiform papillae of the tongue.

➢Some amino acids will remain at the N-terminus and some functions may be retained.

➢ The *Krt36* gene is located on the Chr11. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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Krt36 keratin 36 [*Mus musculus* (house mouse)]

Gene ID: 16673, updated on 12-Aug-2019

Summary

Official Symbol	Krt36 provided by MGI
Official Full Name	keratin 36 provided by MGI
Primary source	MGI:MGI:109364
See related	Ensembl:ENSMUSG00000020916
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	K36; HRa-1; Krt1-5; MHRa-1; Krt1-22
Expression	Biased expression in mammary gland adult (RPKM 2.2), subcutaneous fat pad adult (RPKM 0.7) and 7 other tissues See more
Orthologs	human all

Genomic context

Location: 11; 11 D

See Krt36 in Genome Data Viewer

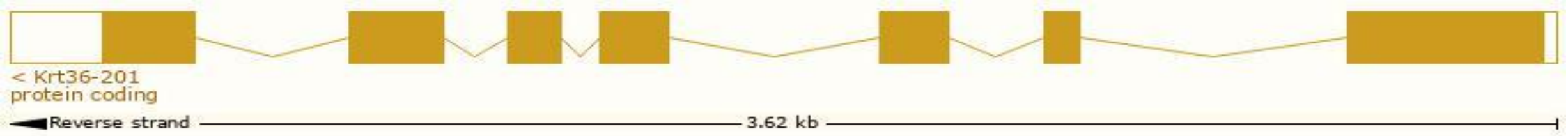
Exon count: 9

Transcript information（Ensembl）

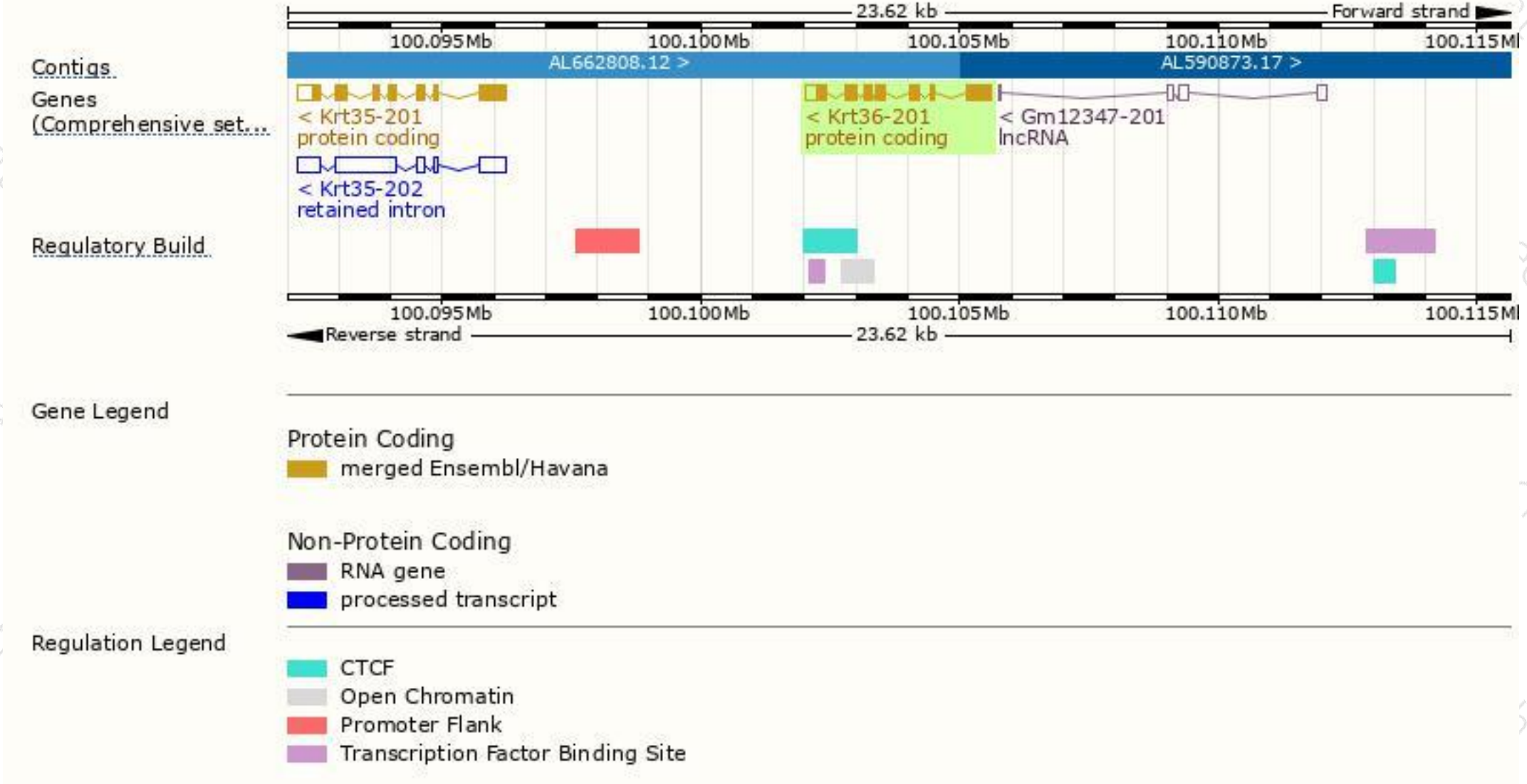
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Krt36-201	ENSMUST00000107416.2	1671	473aa	Protein coding	CCDS48929	B1AQ75	TSL:5 GENCODE basic APPRIS P1

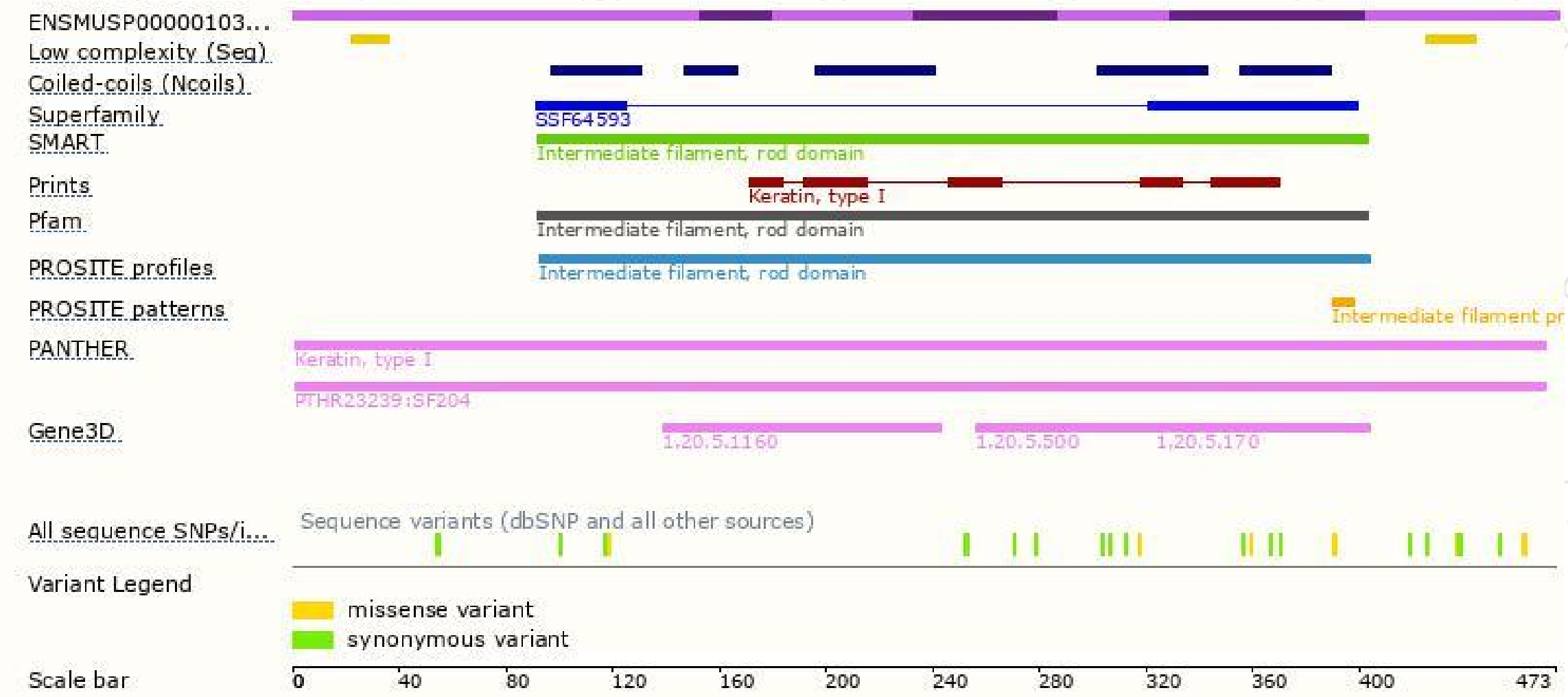
The strategy is based on the design of *Krt36-201* transcript,The transcription is shown below



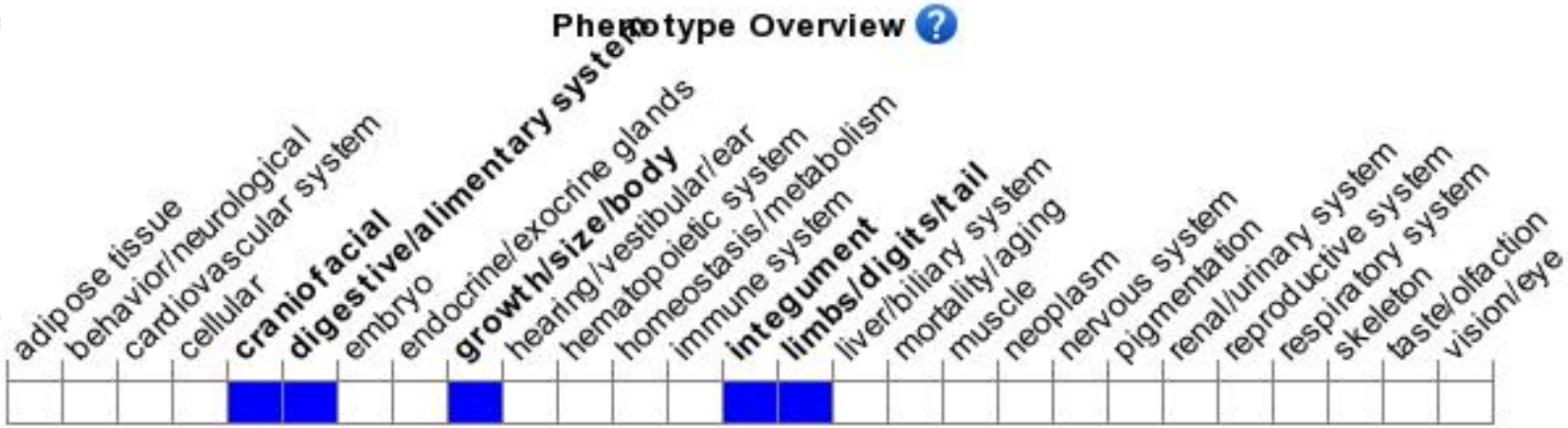
Genomic location distribution



Protein domain



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 a knock-out allele exhibit hyperkeratosis affecting the scales of the tail skin and the filiform papillae of the tongue.

集萃药康
GemPharmatech

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

Tel: 400-9660890

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GemPharmatech Co.,Ltd