

***Krt17* Cas9-CKO Strategy**

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Reviewer:

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Project Overview

Project Name

Krt17

Project type

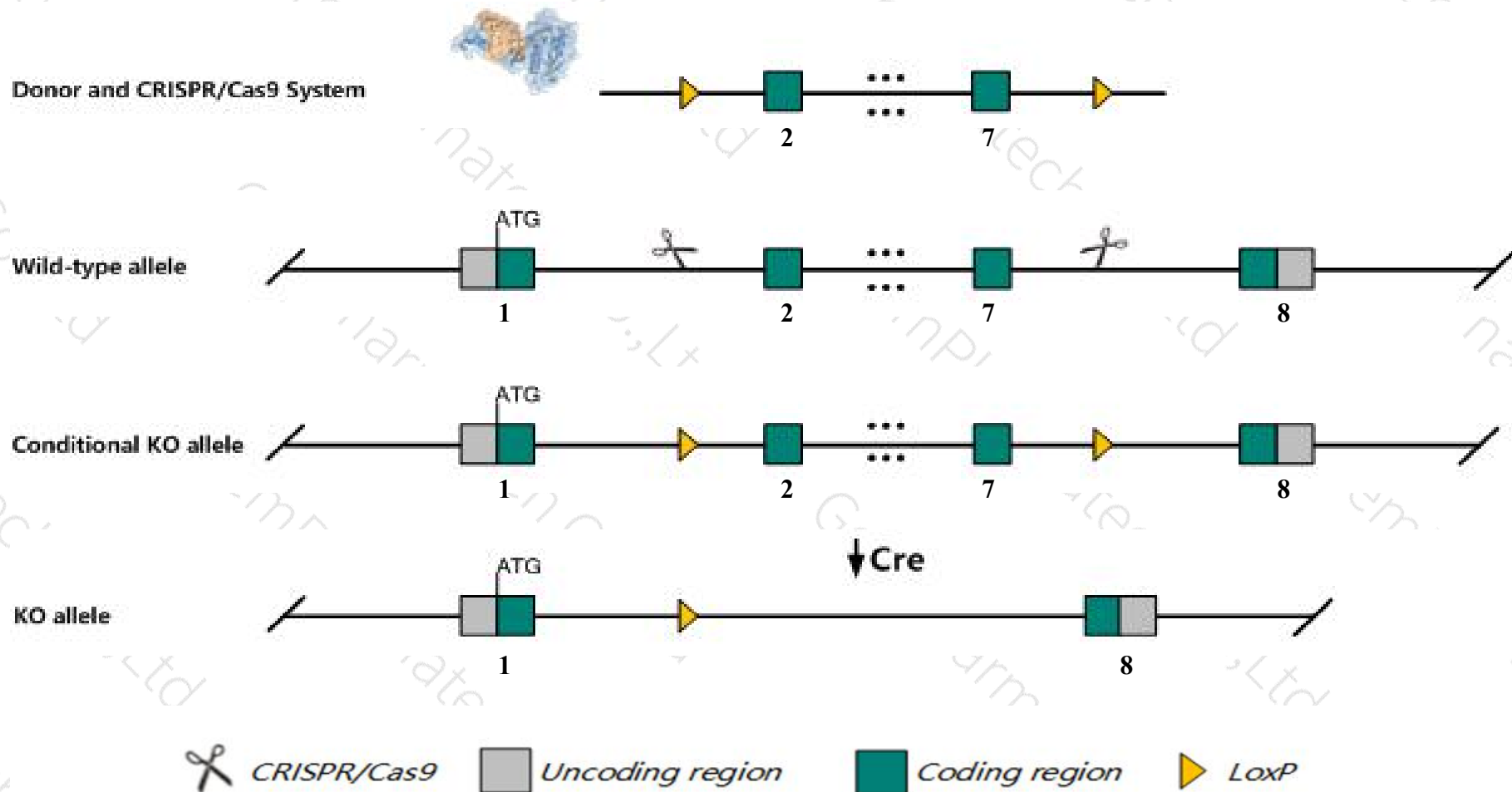
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Krt17* gene. The schematic diagram is as follows:



- The *Krt17* gene has 1 transcript. According to the structure of *Krt17* gene, exon2-exon7 of *Krt17-201* (ENSMUST00000080893.6) transcript is recommended as the knockout region. The region contains 775bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Krt17* 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.

- According to the existing MGI data, Mice homozygous for a knock-out allele display age- and strain-dependent alopecia associated with frequent absence of vibrissae, increased hair fragility, abnormal hair cycling, altered hair follicle morphology, and apoptosis in matrix cells.
- The *Krt17* 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)

Krt17 keratin 17 [*Mus musculus* (house mouse)]

Gene ID: 16667, updated on 12-Nov-2019

Summary

Official Symbol Krt17 provided by [MGI](#)

Official Full Name keratin 17 provided by [MGI](#)

Primary source [MGI:MGI:96691](#)

See related [Ensembl:ENSMUSG00000035557](#)

Gene type protein coding

RefSeq status REVIEWED

Organism [Mus musculus](#)

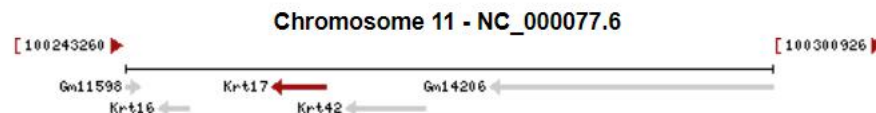
Lineage Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus

Also known as K17; Krt1-17

Summary The protein encoded by this gene is a member of the type I keratin gene family. The keratins are intermediate filament proteins responsible for the structural integrity of epithelial cells and are subdivided into cytokeratins and hair keratins. The encoded protein is a cytokeratin required for the normal growth of hair follicles and may act in psoriasis as an immunopathogenic autoantigen. [provided by RefSeq, Sep 2015]

Expression Biased expression in thymus adult (RPKM 78.2), mammary gland adult (RPKM 14.4) and 3 other tissues [See more](#)

Orthologs [human](#) [all](#)

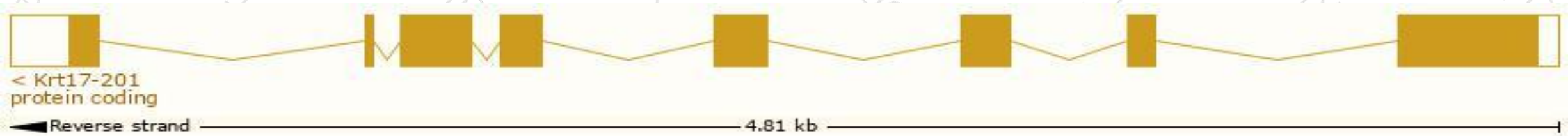


Transcript information (Ensembl)

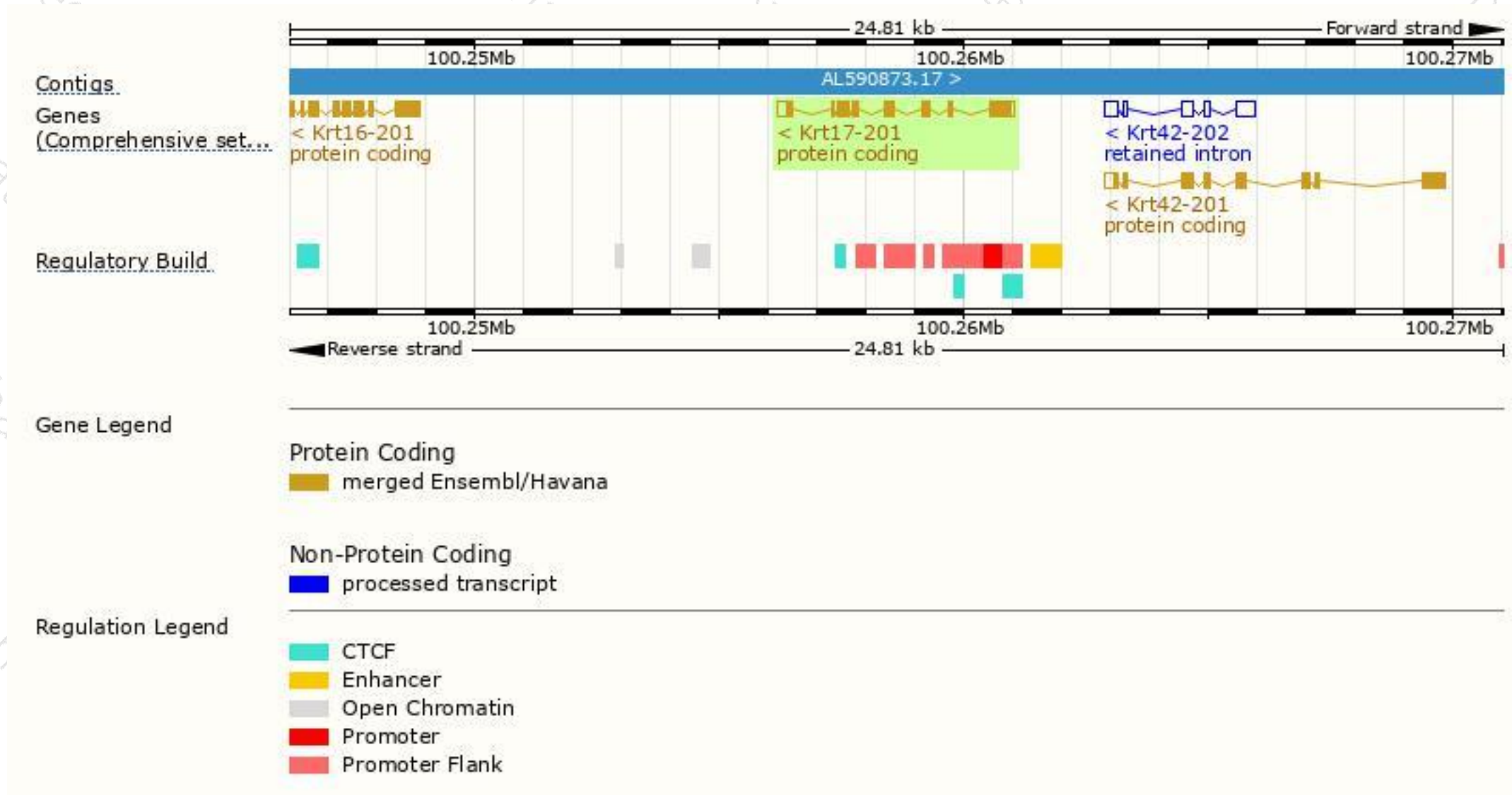
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Krt17-201	ENSMUST00000080893.6	1551	433aa	ENSMUSP00000079699.6	Protein coding	CCDS25415.6	Q9QWL7	TSL:1 Gencode basic APPRIS P1

The strategy is based on the design of *Krt17-201* transcript, The transcription is shown below



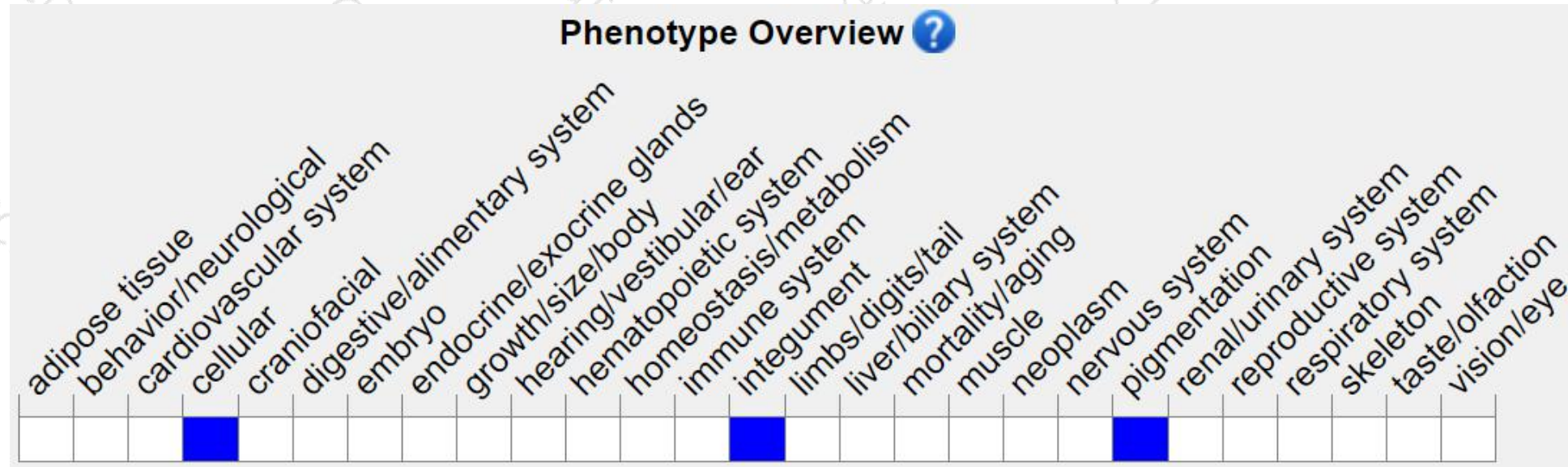
Genomic location distribution



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/>).

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

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