

# ***Krt15* Cas9-KO Strategy**

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**Reviewer:**

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# Project Overview

**Project Name**

***Krt15***

**Project type**

**Cas9-KO**

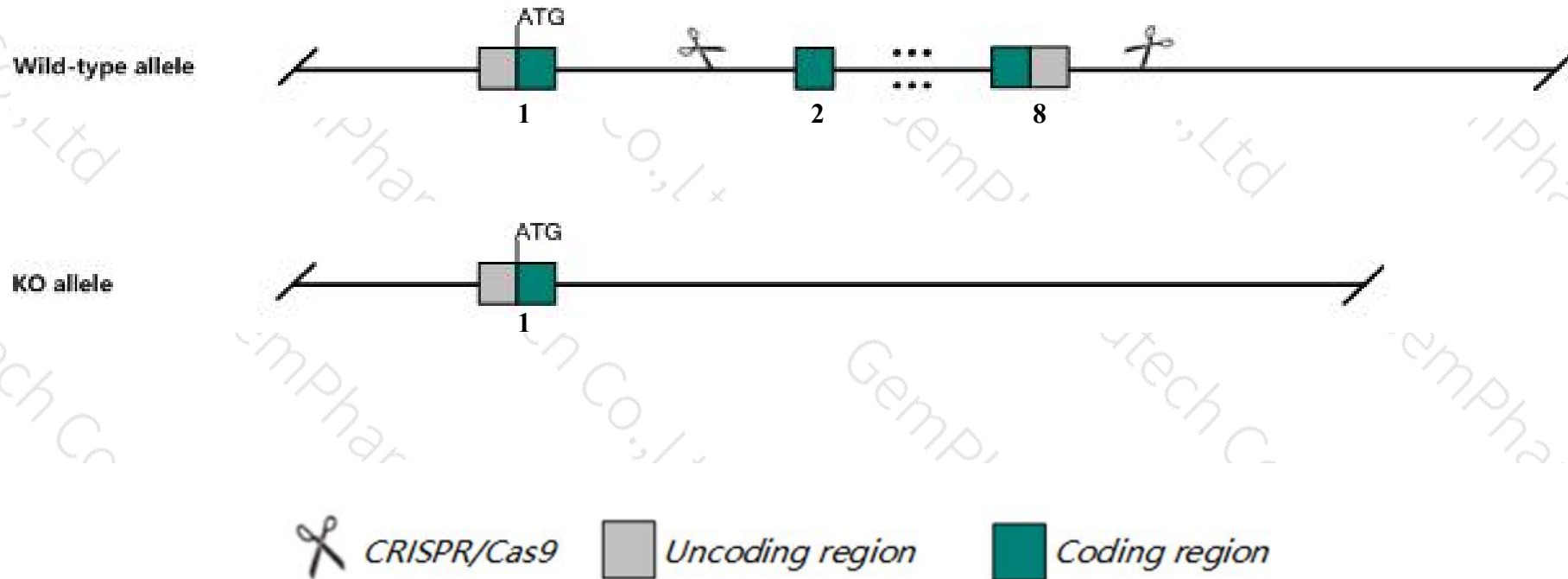
**Strain background**

**C57BL/6JGpt**



# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Krt15* gene. The schematic diagram is as follows:





- The *Krt15* gene has 2 transcripts. According to the structure of *Krt15* gene, exon2-exon8 of *Krt15-201* (ENSMUST00000107411.2) transcript is recommended as the knockout region. The region contains most of coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Krt15* gene. The brief process is as follows: CRISPR/Cas9 system we



- According to the existing MGI data, Mice homozygous for a knock-out allele exhibit impaired esophageal epithelial regeneration with thicker epithelia due to enhanced basal cell proliferation.
- The *Krt15* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.



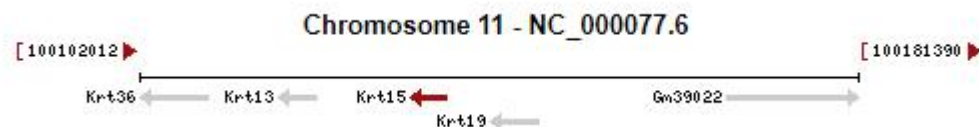
# Gene information (NCBI)

## Krt15 keratin 15 [ *Mus musculus* (house mouse) ]

Gene ID: 16665, updated on 5-Jan-2020

### Summary

Official Symbol	Krt15 provided by <a href="#">MGI</a>
Official Full Name	keratin 15 provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:96689</a>
See related	<a href="#">Ensembl:ENSMUSG00000054146</a>
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	K15; Krt1-15; AI528832
Expression	Biased expression in bladder adult (RPKM 231.5), limb E14.5 (RPKM 52.7) and 1 other tissue <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>



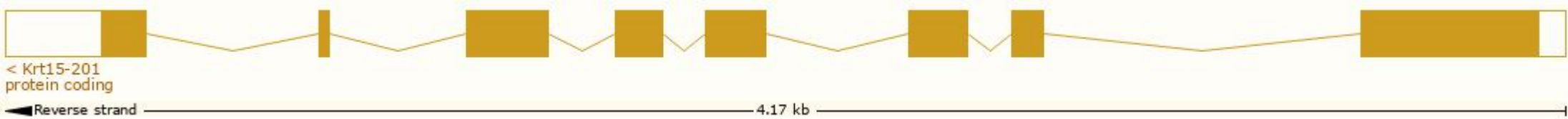


# Transcript information (Ensembl)

The gene has 2 transcripts,all transcripts are shown below:

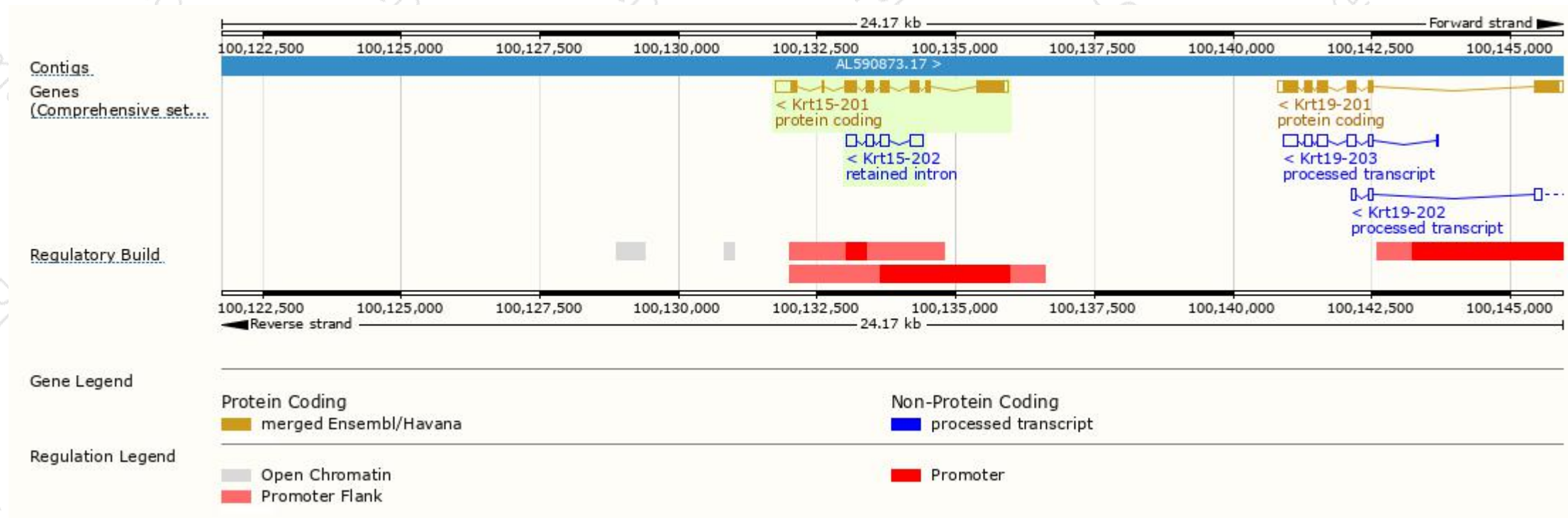
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Krt15-201	<a href="#">ENSMUST00000107411.2</a>	1700	<a href="#">456aa</a>	Protein coding	<a href="#">CCDS25410</a>	<a href="#">B1AQ77</a>	TSL:1 GENCODE basic APPRIS P1
Krt15-202	<a href="#">ENSMUST00000148502.1</a>	689	No protein	Retained intron	-	-	TSL:2

The strategy is based on the design of *Krt15-201* transcript,The transcription is shown below





# Genomic location distribution



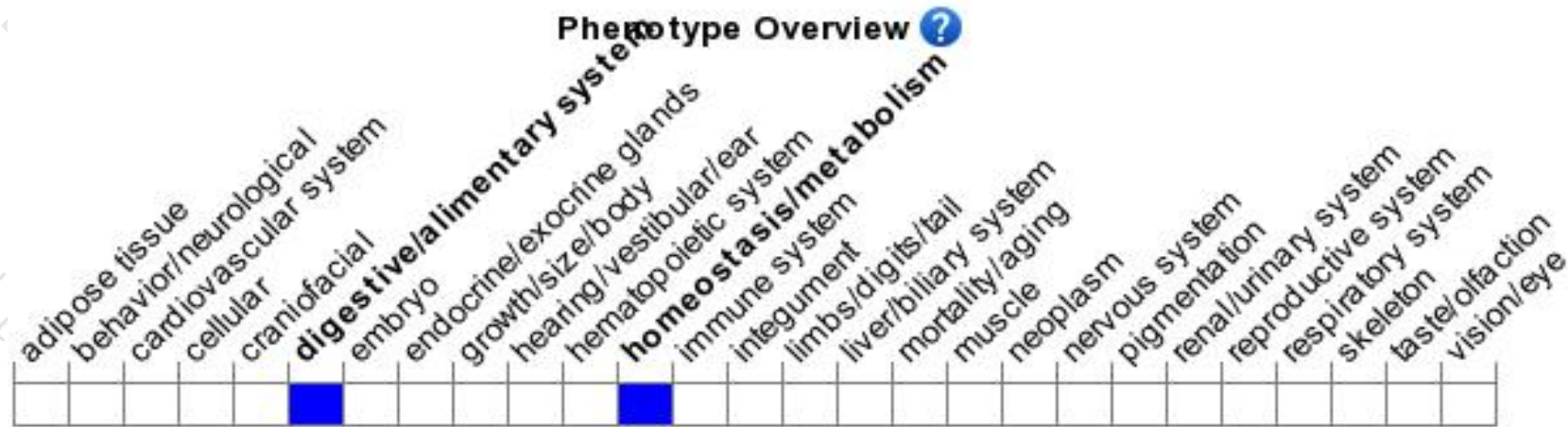


# Protein domain





# 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 impaired esophageal epithelial regeneration with thicker epithelia due to enhanced basal cell proliferation.



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

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