

# *Col9a2* Cas9-KO Strategy

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**Reviewer:**

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# Project Overview

**Project Name**

***Col9a2***

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Col9a2* gene. The schematic diagram is as follows:



- The *Col9a2* gene has 3 transcripts. According to the structure of *Col9a2* gene, exon1-exon32 of *Col9a2-201* (ENSMUST00000030372.5) transcript is recommended as the knockout region. The region contains all 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 *Col9a2* gene. The brief process is as follows: CRISPR/Cas9 system

- The *Col9a2* gene is located on the Chr4. 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)

## Col9a2 collagen, type IX, alpha 2 [Mus musculus (house mouse)]

Gene ID: 12840, updated on 3-Feb-2019

### Summary



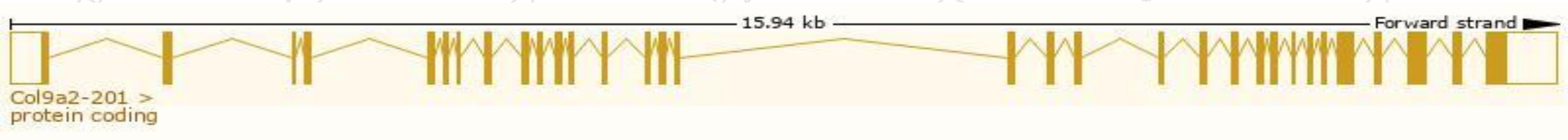
<b>Official Symbol</b>	Col9a2 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	collagen, type IX, alpha 2 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:88466</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000028626</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	AI427499, Col9a-2
<b>Expression</b>	Biased expression in limb E14.5 (RPKM 84.1), CNS E14 (RPKM 17.5) and 4 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

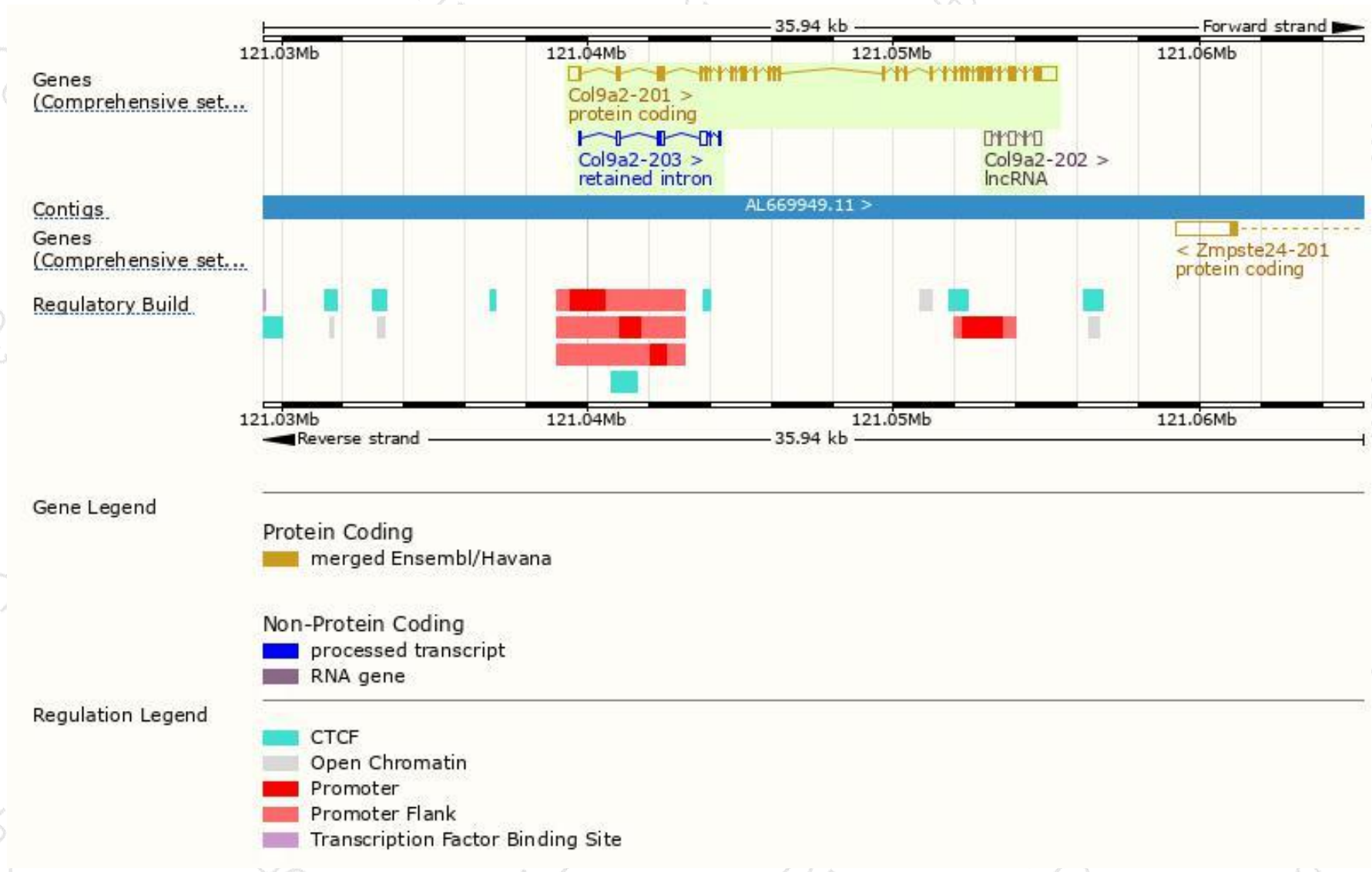
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Col9a2-201	<a href="#">ENSMUST00000030372.5</a>	2924	<a href="#">688aa</a>	Protein coding	<a href="#">CCDS18599</a>	<a href="#">I7HJR1</a>	TSL:1 GENCODE basic APPRIS P1
Col9a2-203	<a href="#">ENSMUST00000151987.1</a>	492	No protein	Retained intron	-	-	TSL:3
Col9a2-202	<a href="#">ENSMUST00000140119.1</a>	752	No protein	lncRNA	-	-	TSL:2

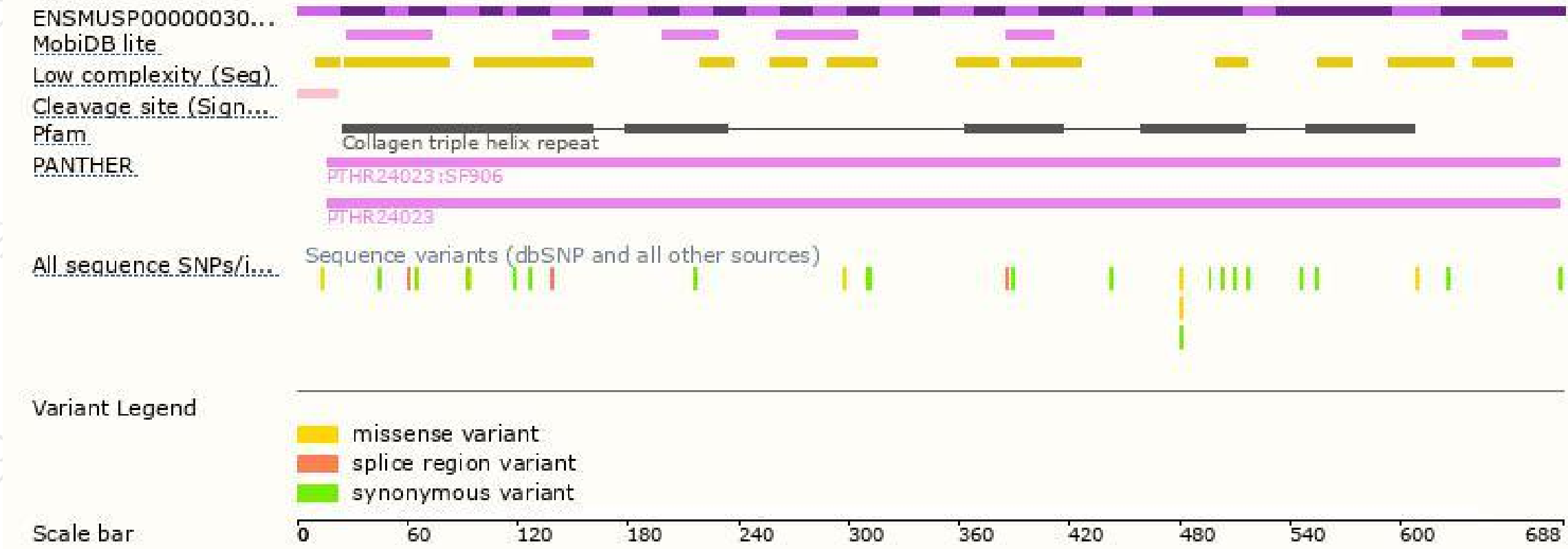
The strategy is based on the design of *Col9a2-201* transcript,The transcription is shown below



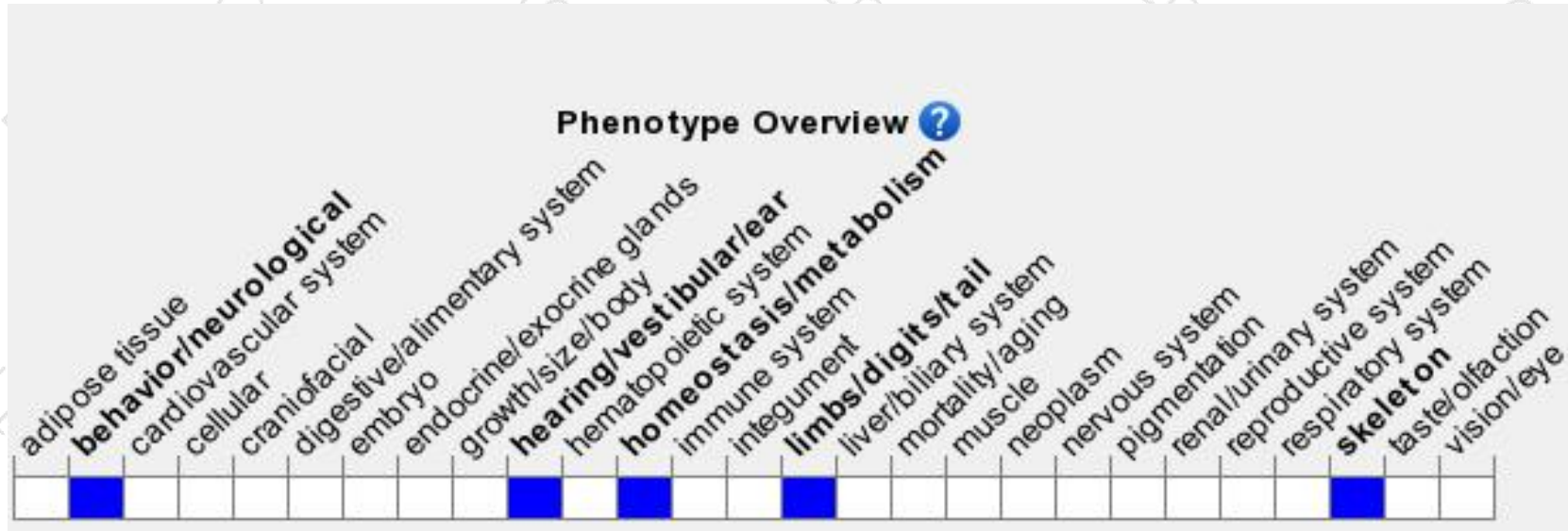
# Genomic location distribution



# 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/>).*

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

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