Cldn8 Cas9-KO Strategy

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Project Overview

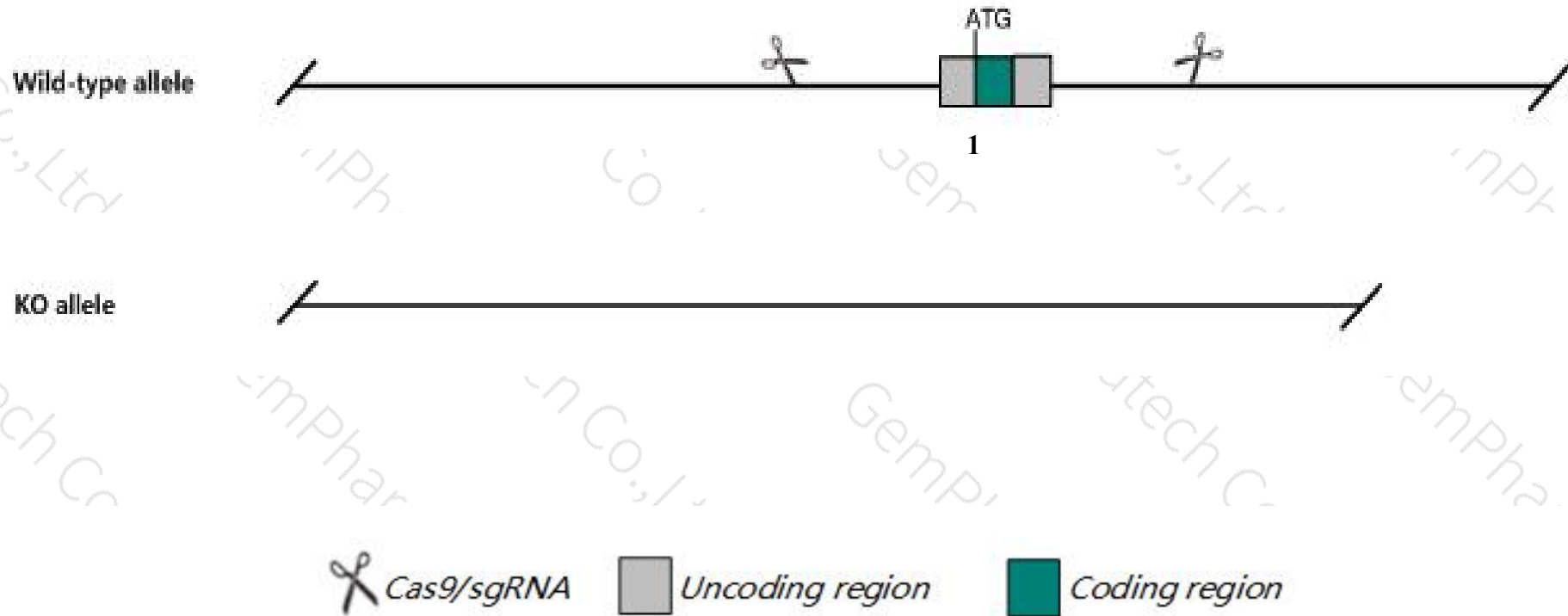|	
Project Name	*Cldn8*
Project type	**Cas9-KO**
Strain background	**C57BL/6J**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cldn8* gene. The schematic diagram is as follows:

Technical routes

➢ The *Cldn8* gene has 1 transcript. According to the structure of *Cldn8* gene, exon1 of *Cldn8-201* (ENSMUST00000049697.4) 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 *Cldn8* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

Notice

➢ The *Cldn8* gene is located on the Chr16. 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.

Cldn8 claudin 8 [Mus musculus (house mouse)]

Gene ID: 54420, updated on 31-Jan-2019

▲ Summary

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Official Symbol	Cldn8 provided by MGI
Official Full Name	claudin 8 provided by MGI
Primary source	MGI:MGI:1859286
See related	Ensembl:ENSMUSG00000050520
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	AI648025
Summary	This intronless gene encodes a member of the claudin family. Claudins are integral membrane proteins and components of tight junction strands. Tight junction strands serve as a physical barrier to prevent solutes and water from passing freely through the paracellular space between epithelial or endothelial cell sheets, and also play critical roles in maintaining cell polarity and signal transductions. The protein encoded by this gene is a paracellular cation barrier. [provided by RefSeq, Aug 2010]
Orthologs	human all

Transcript information（Ensembl）

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

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cldn8-201	ENSMUST00000049697.4	2356	225aa	Protein coding	CCDS28296	Q3UZK2 Q9Z260	TSL:NA GENCODE basic APPRIS P1

The strategy is based on the design of *Cldn8-201* transcript,The transcription is shown below

< Cldn8-201
protein coding

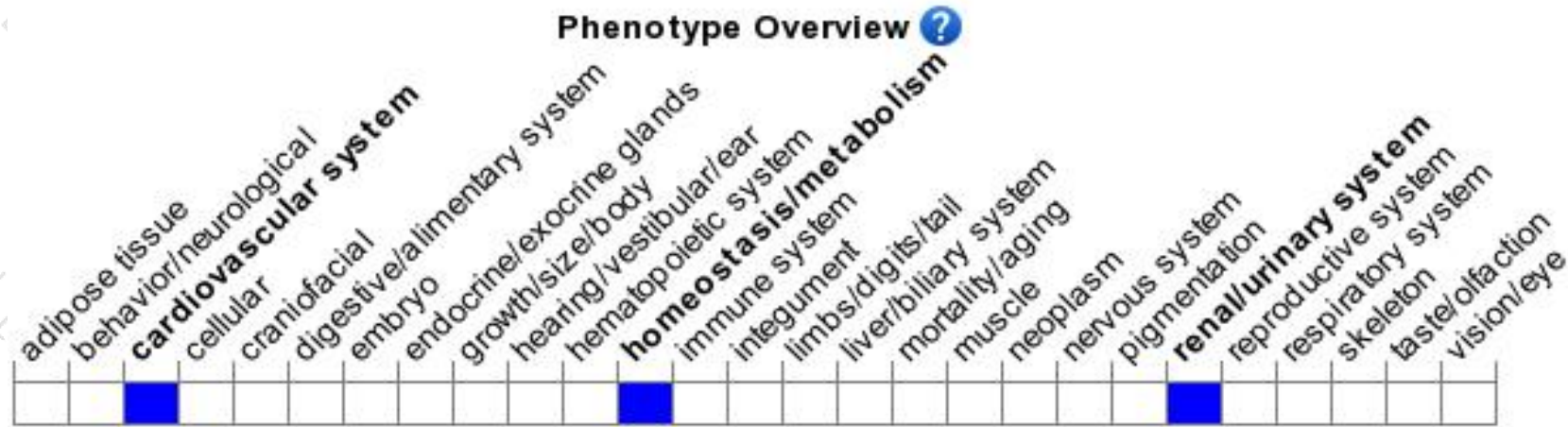◀ Reverse strand ——————————————— 2.36 kb ———————————————
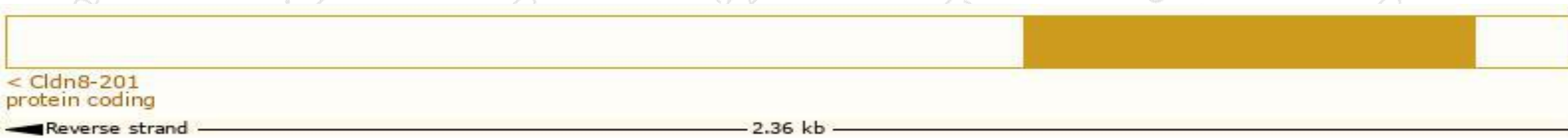
Genomic location distribution
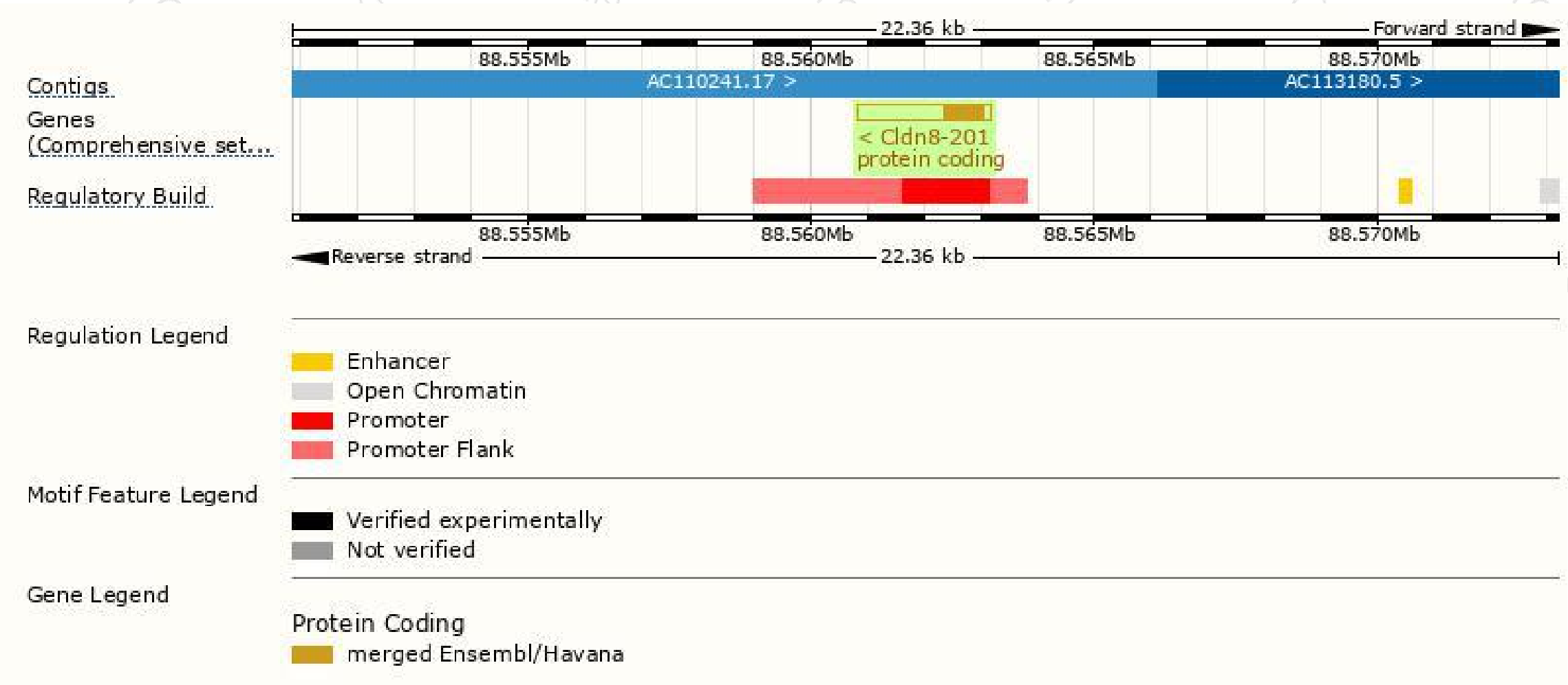
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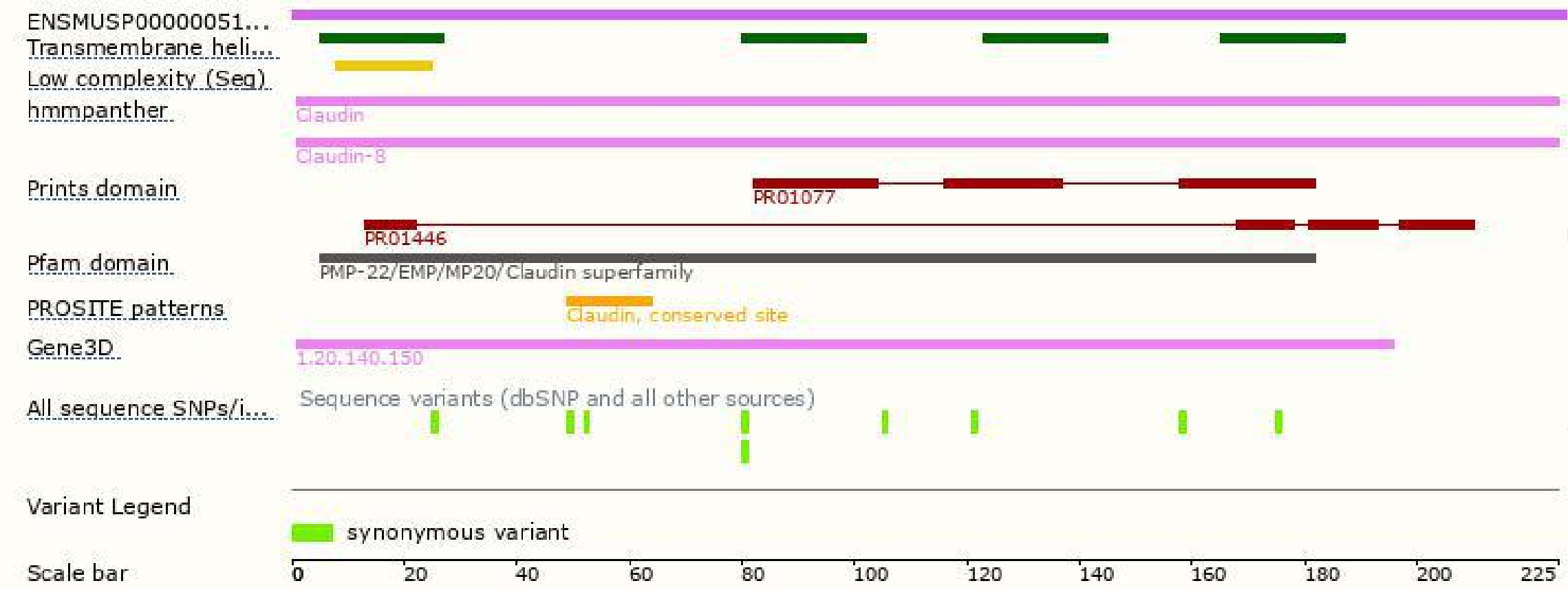
Mouse phenotype description(MGI)

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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