Chst15 Cas9-KO Strategy

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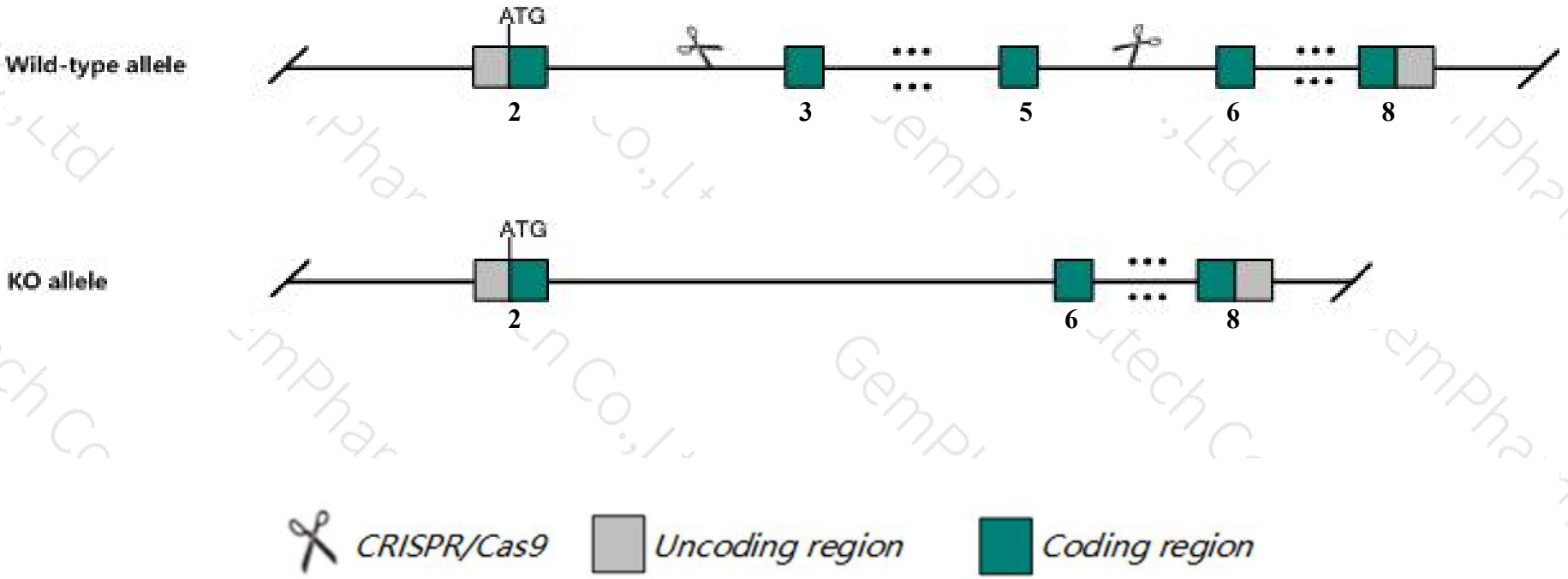
Design Date: 2020-1-23

Project Overview

Project Name	***Chst15***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Chst15* gene. The schematic diagram is as follows:



Technical routes

➢ The *Chst15* gene has 4 transcripts. According to the structure of *Chst15* gene, exon3-exon5 of *Chst15-201* (ENSMUST00000077472.9) transcript is recommended as the knockout region.The region contains 644bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Chst15* gene. The brief process is as follows: CRISPR/Cas9 systen

Notice

- According to the existing MGI data,Mice homozygous for a knock-out allele exhibit decreased litter size and abnormal bone marrow-derived mast cell morphology.

- The *Chst15* gene is located on the Chr7. 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）

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Chst15 carbohydrate sulfotransferase 15 [Mus musculus (house mouse)]

Gene ID: 77590, updated on 31-Jan-2019

Summary

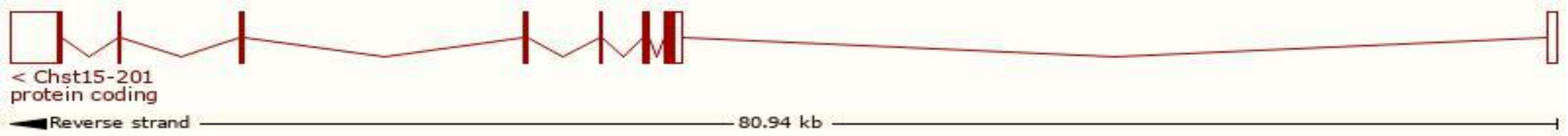
Official Symbol	Chst15 provided by MGI
Official Full Name	carbohydrate sulfotransferase 15 provided by MGI
Primary source	MGI:MGI:1924840
See related	Ensembl:ENSMUSG00000030930
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	4631426J05Rik, BRAG, GalNAc4S-6ST, GalNAcS-6ST, MAd5, mKIAA0598
Expression	Ubiquitous expression in spleen adult (RPKM 9.8), kidney adult (RPKM 5.3) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

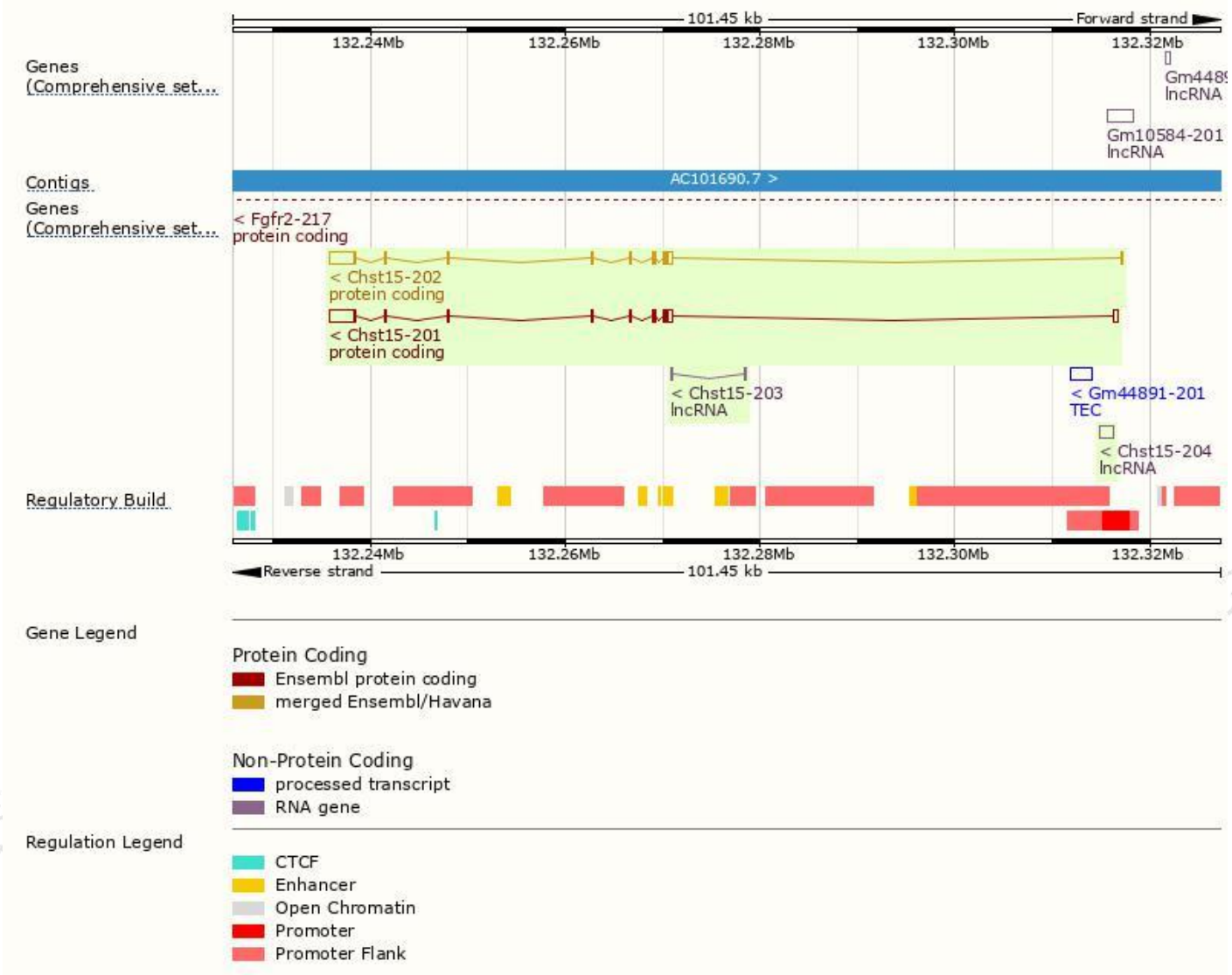
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Chst15-201	ENSMUST00000077472.9	5041	561aa	Protein coding	CCDS21922	Q91XQ5	TSL:1 GENCODE basic APPRIS P1
Chst15-202	ENSMUST00000080215.5	4813	561aa	Protein coding	CCDS21922	Q91XQ5	TSL:1 GENCODE basic APPRIS P1
Chst15-204	ENSMUST00000207068.1	1366	No protein	lncRNA	-	-	TSL:NA
Chst15-203	ENSMUST00000132508.1	348	No protein	lncRNA	-	-	TSL:2

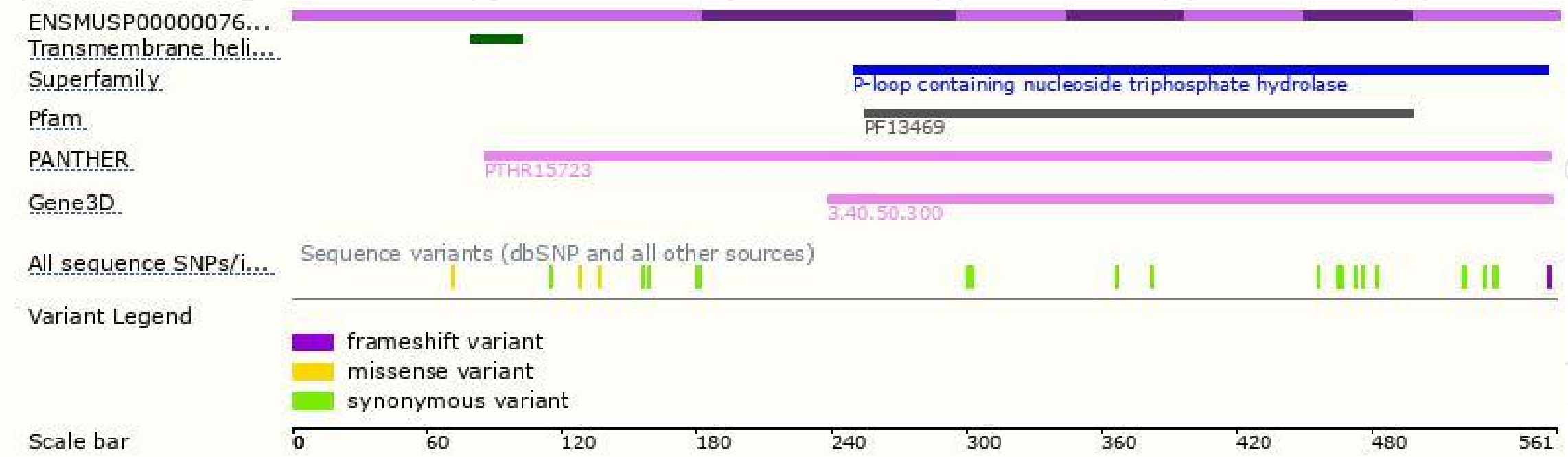
The strategy is based on the design of *Chst15-201* transcript,The transcription is shown below



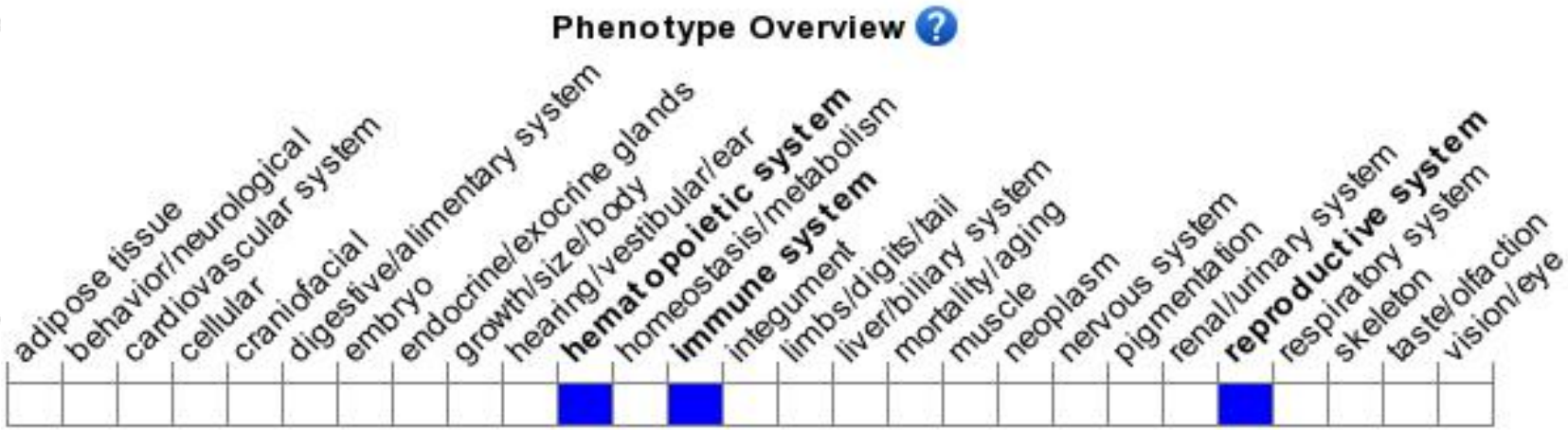
Genomic location distribution



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 decreased litter size and abnormal bone marrow-derived mast cell morphology.

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

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