Shc3 Cas9-KO Strategy

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Project Overview

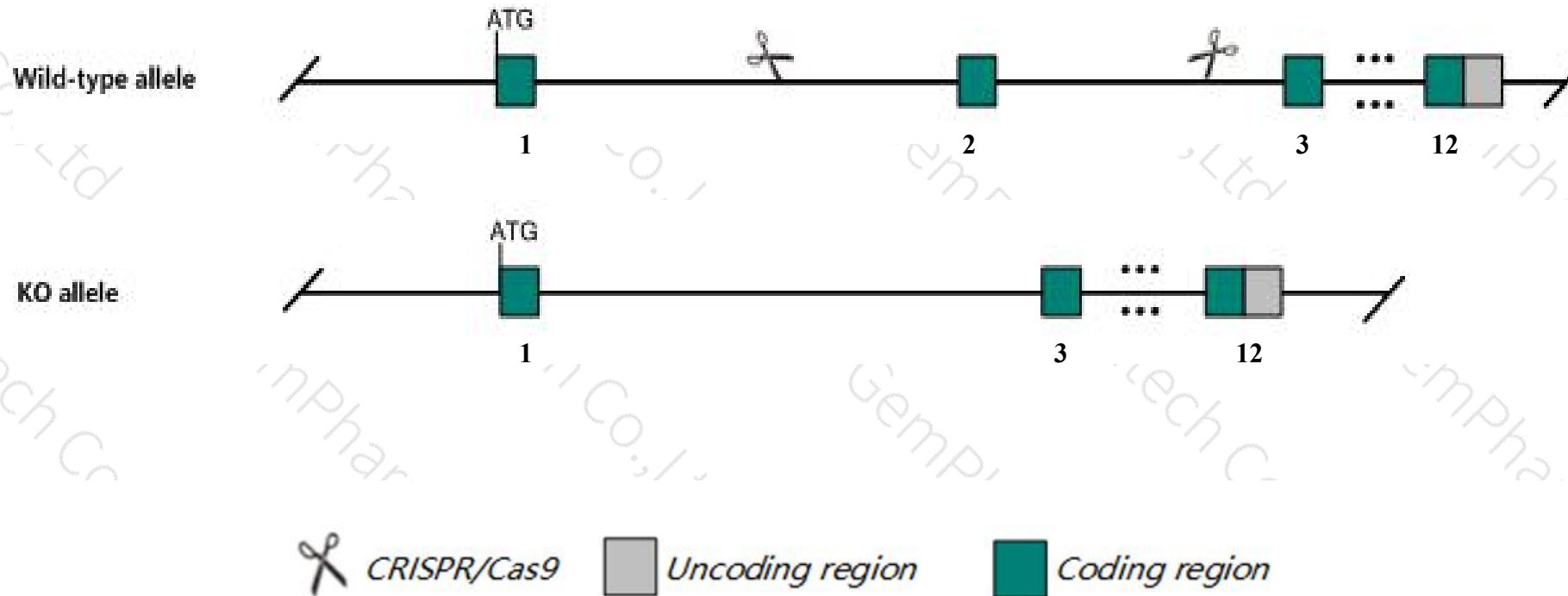|	
Project Name	*Shc3*
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Shc3* gene. The schematic diagram is as follows:

Technical routes

➢ The *Shc3* gene has 3 transcripts. According to the structure of *Shc3* gene, exon2 of *Shc3-201* (ENSMUST00000021898.5) transcript is recommended as the knockout region. The region contains 71bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Shc3* gene. The brief process is as follows: gRNA was transcribed in vitro.Cas9 and gRNA 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.

Notice

➢ According to the existing MGI data,Mice homozygous for disruptions in this gene display a normal phenotype.

➢ The *Shc3* gene is located on the Chr13. 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information （NCBI）

Shc3 src homology 2 domain-containing transforming protein C3 [Mus musculus (house mouse)]

Gene ID: 20418, updated on 3-Feb-2019

Summary

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Official Symbol	Shc3 provided by MGI
Official Full Name	src homology 2 domain-containing transforming protein C3 provided by MGI
Primary source	MGI:MGI:106179
See related	Ensembl:ENSMUSG00000021448
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	N-Shc, Rai, ShcC
Expression	Biased expression in cortex adult (RPKM 15.6), frontal lobe adult (RPKM 13.9) and 6 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

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

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Shc3-201	ENSMUST00000021898.5	1537	474aa	Protein coding	CCDS49265	Q61120	TSL:1 GENCODE basic APPRIS P1
Shc3-203	ENSMUST00000223543.1	1241	341aa	Protein coding	-	Q3ZAX3	TSL:1 GENCODE basic
Shc3-202	ENSMUST00000221850.1	3163	No protein	Retained intron	-	-	TSL:NA

The strategy is based on the design of *Shc3-201* transcript, the transcription is shown below

< Shc3-201
protein coding

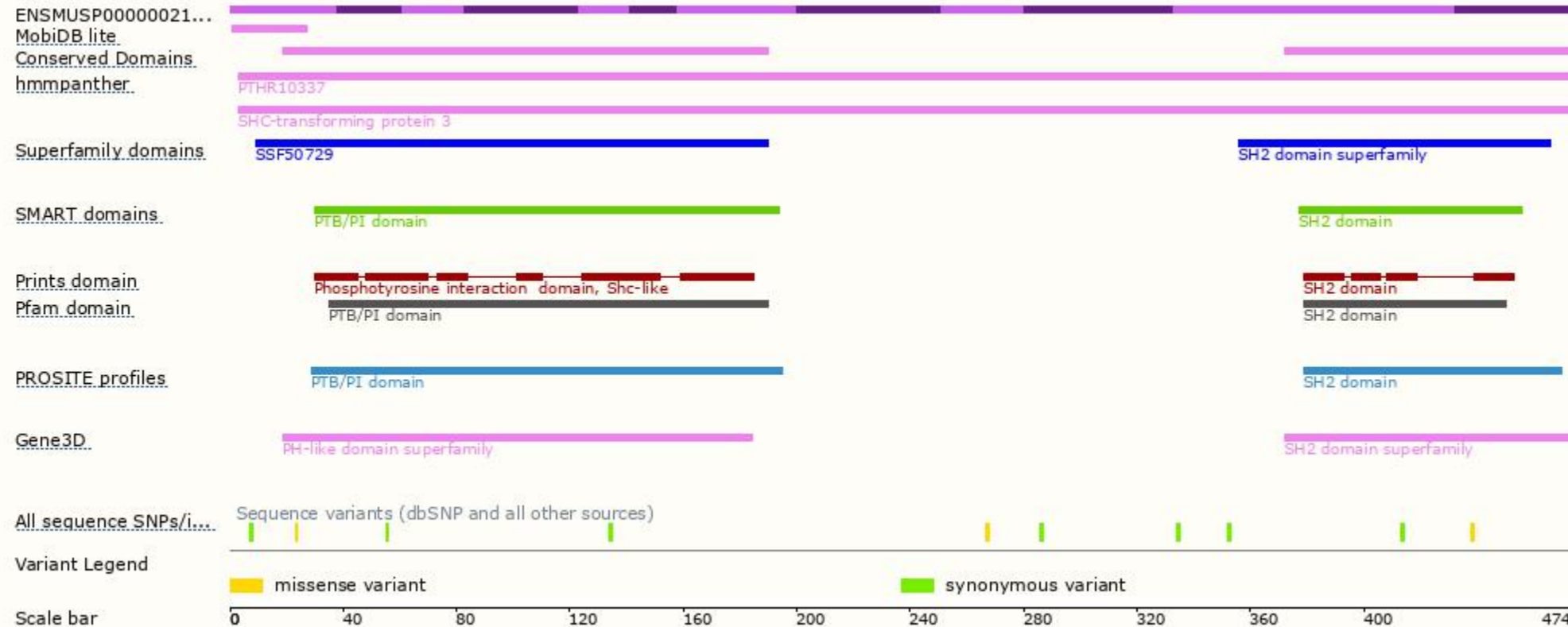◄ Reverse strand ——————————————— 136.04 kb ———————————————
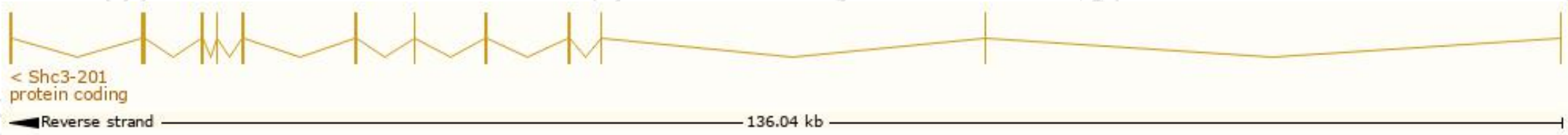
Genomic location distribution
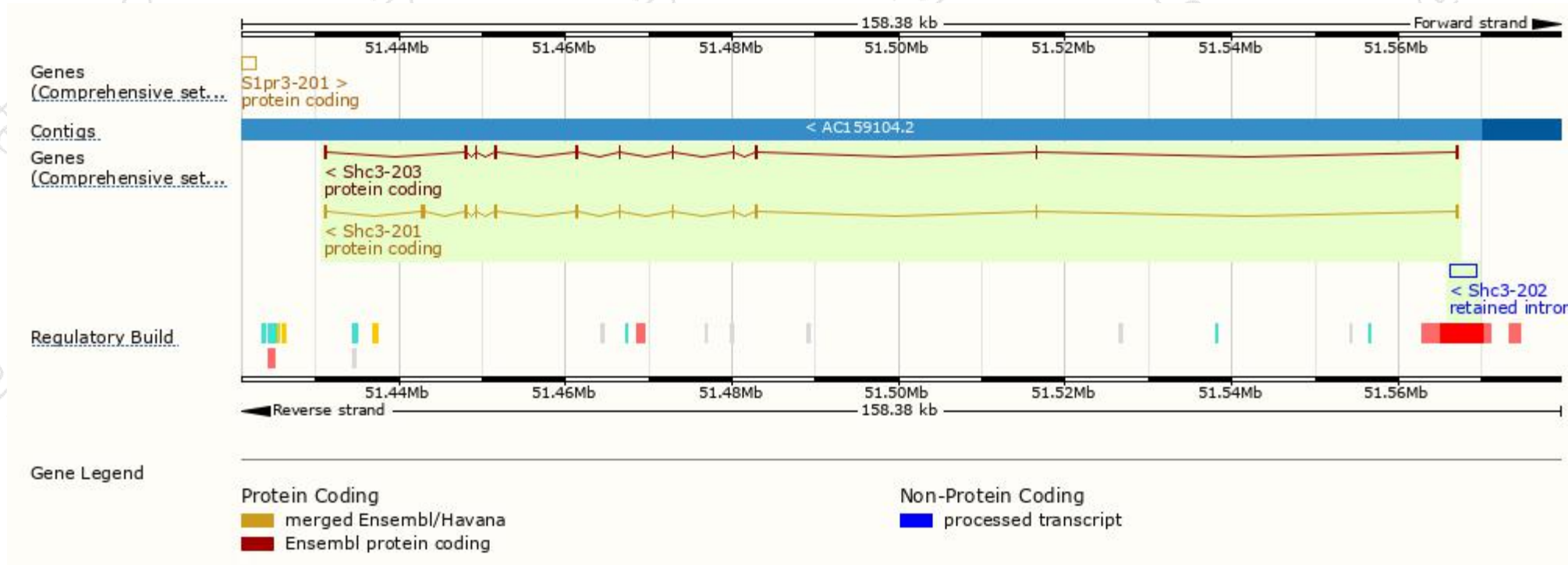
Protein domain

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