Cib2 Cas9-KO Strategy

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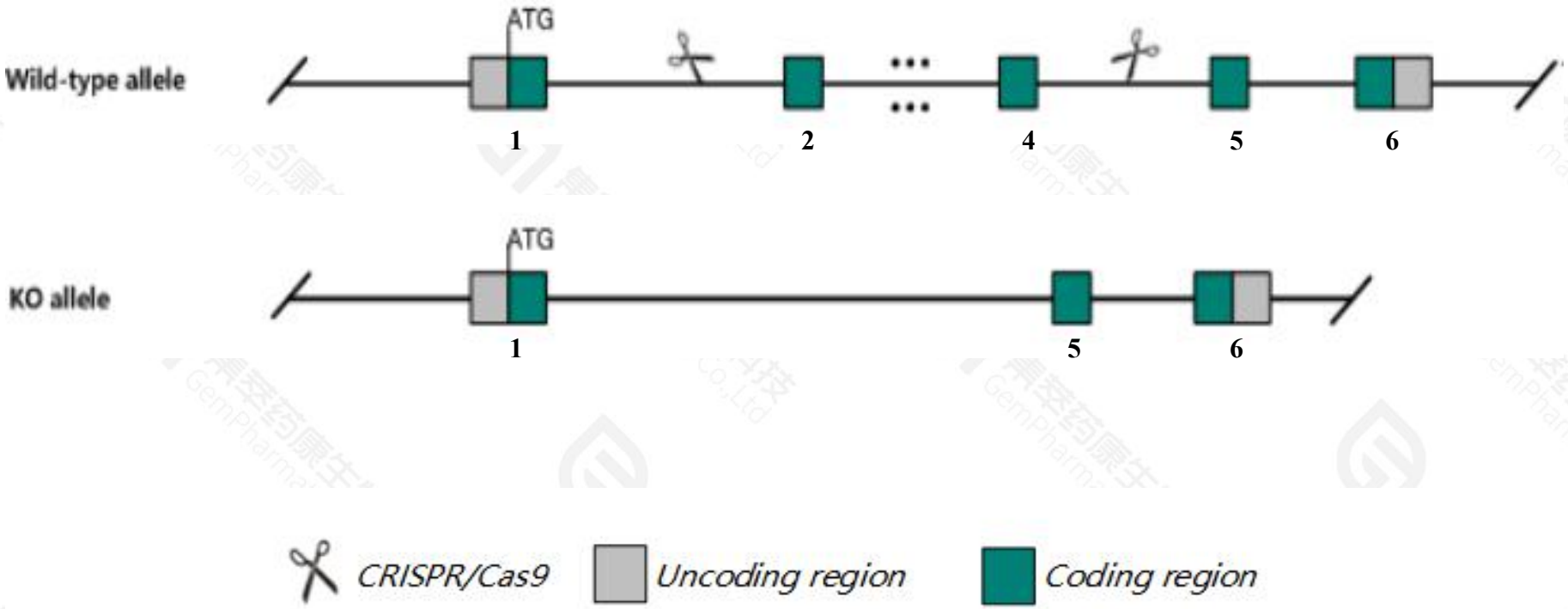
Design Date: 2021-8-23

Project Overview

Project Name	***Cib2***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cib2* gene. The schematic diagram is as follows:



Technical routes

➢ The *Cib2* gene has 1 transcript. According to the structure of *Cib2* gene, exon2-exon4 of *Cib2-201*(ENSMUST00000041901.7) transcript is recommended as the knockout region.The region contains 295bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Cib2* gene. The brief process is as follows: CRISPR/Cas9 system 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 a knock-out allele exhibit normal vestibular and retinal function but show an early onset profound deafness associated with abolished mechanoelectrical transduction currents and progressive postnatal degeneration of cochlear hair bundles.

➢ The *Cib2* gene is located on the Chr9. 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）

集萃药康 GemPharmatech

Cib2 calcium and integrin binding family member 2 [Mus musculus (house mouse)]

Gene ID: 56506, updated on 31-Jan-2019

Summary

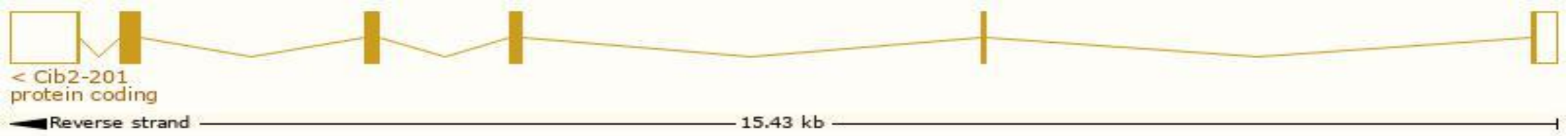
Official Symbol	Cib2 provided by MGI
Official Full Name	calcium and integrin binding family member 2 provided by MGI
Primary source	MGI:MGI:1929293
See related	Ensembl:ENSMUSG00000037493
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2810434I23Rik, AI449053, KIP 2, KIP2
Expression	Broad expression in subcutaneous fat pad adult (RPKM 48.8), mammary gland adult (RPKM 40.3) and 19 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

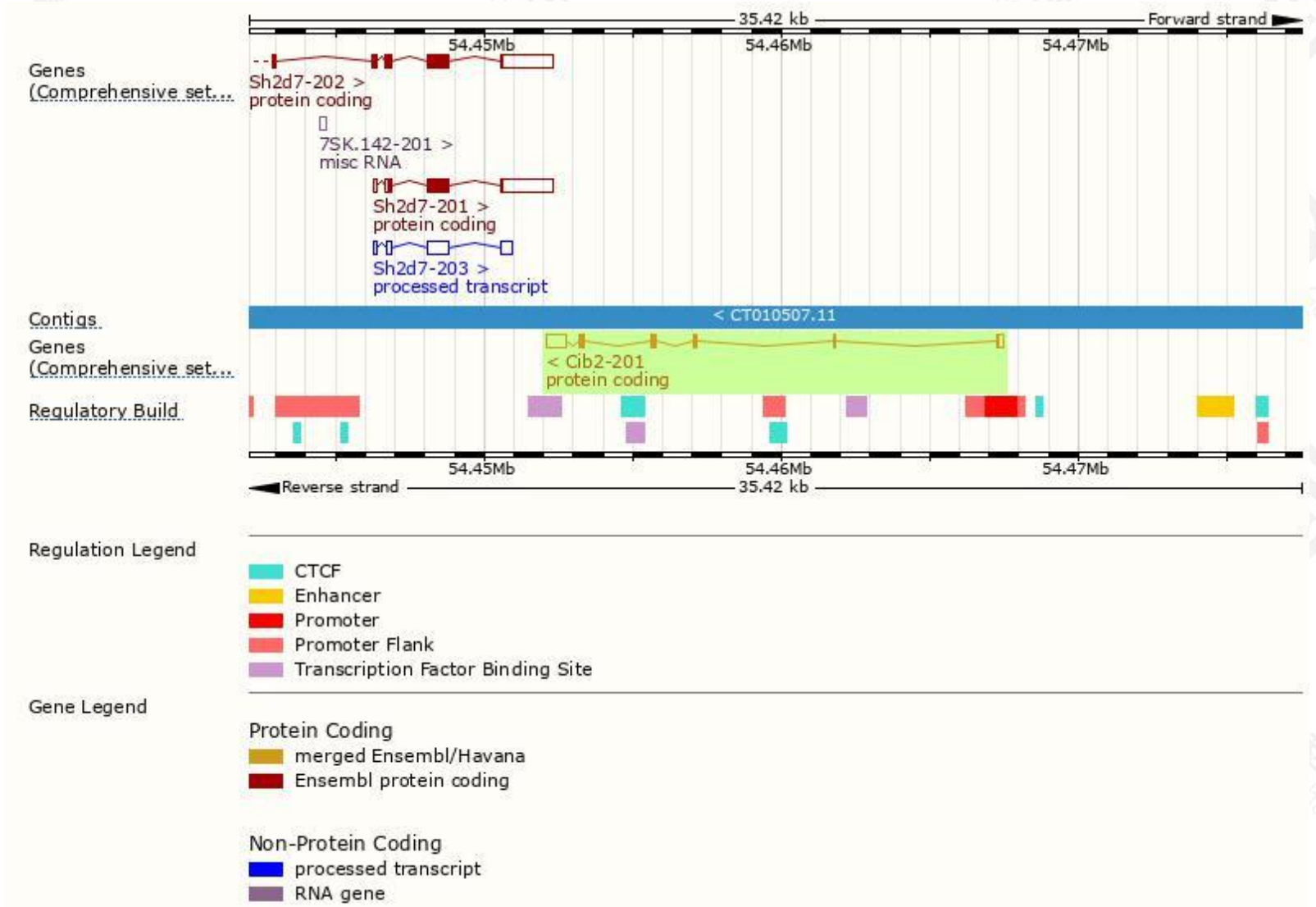
The gene has 1 transcript,and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cib2-201	ENSMUST00000041901.6	1433	187aa	Protein coding	CCDS40642	Q544Z8 Q9Z309	TSL:1 GENCODE basic APPRIS P1

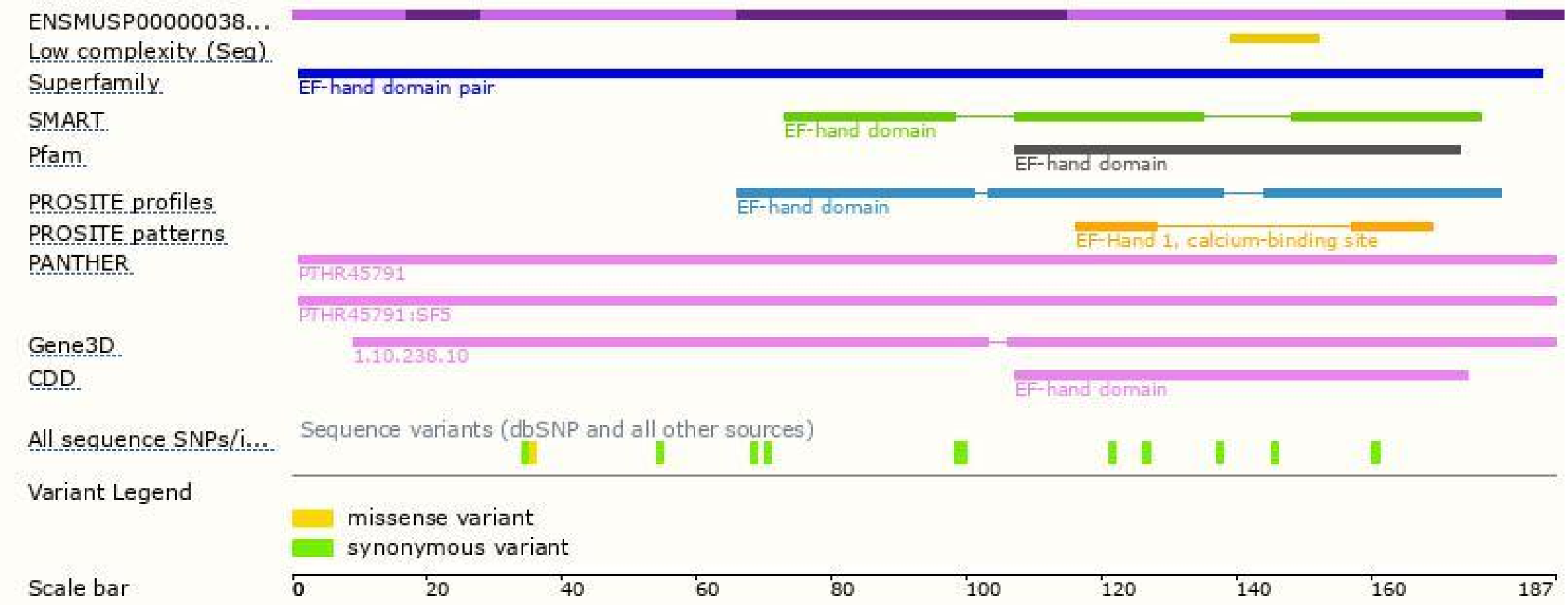
The strategy is based on the design of *Cib2-201* transcript,the transcription is shown below:



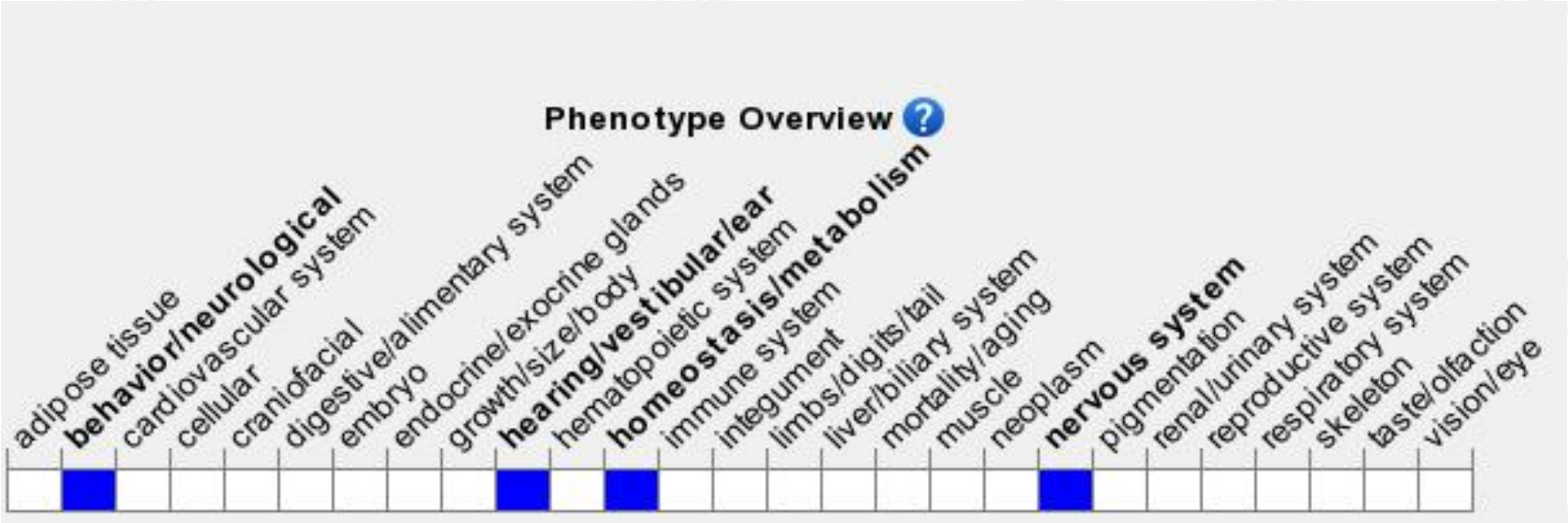
Genomic location distribution



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/).

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