Zranb2 Cas9-CKO Strategy

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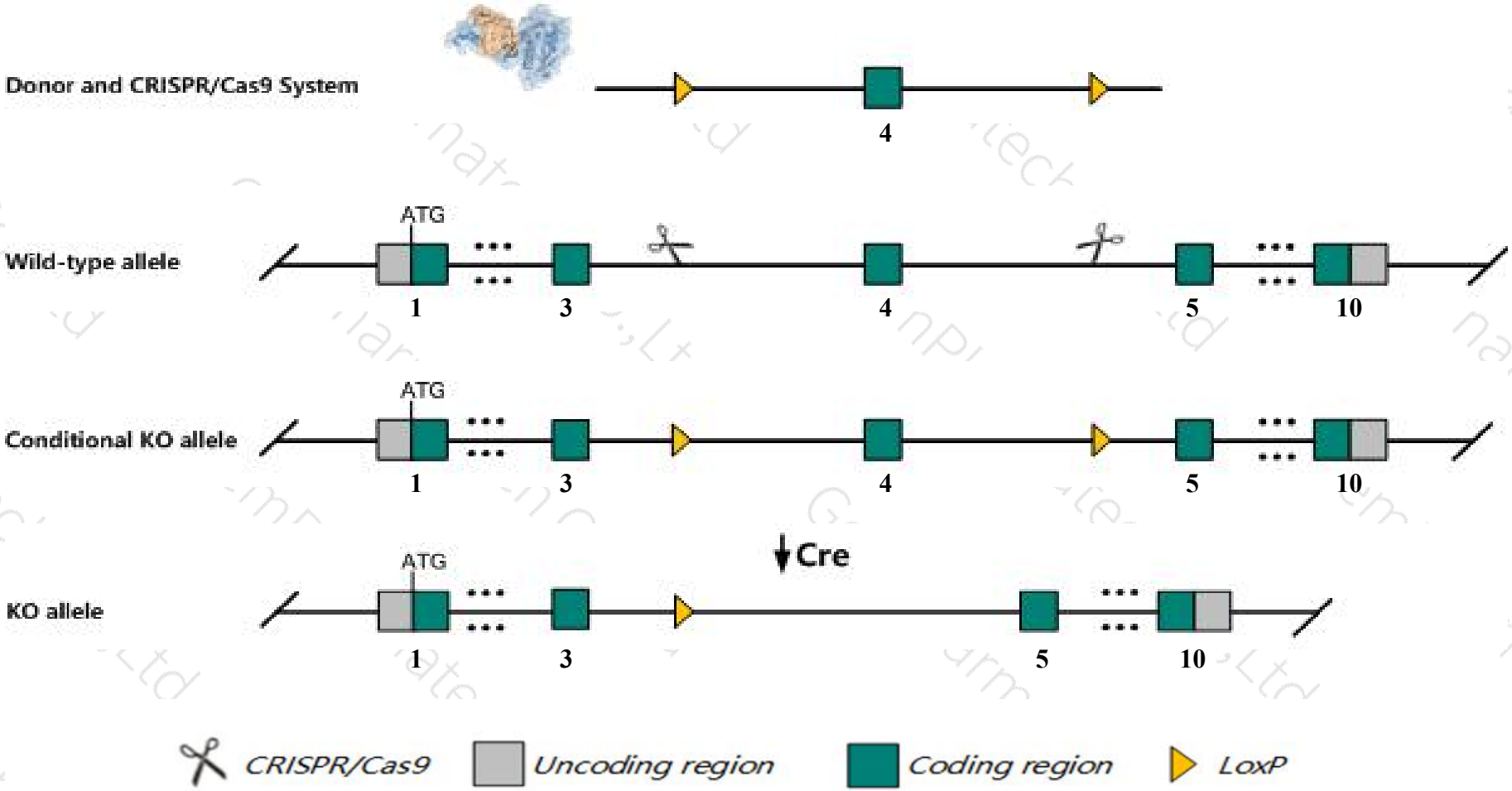
Project Overview

Project Name	***Zranb2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zranb2* gene. The schematic diagram is as follows:



Technical routes

- The *Zranb2* gene has 8 transcripts. According to the structure of *Zranb2* gene, exon4 of *Zranb2-203* (ENSMUST00000106058.7) transcript is recommended as the knockout region.The region contains 83bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Zranb2* gene. The brief process is as follows:CRISPR/Cas9 system and Donor 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.

- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

➢ The *Zranb2* gene is located on the Chr3. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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Zranb2 zinc finger, RAN-binding domain containing 2 [Mus musculus (house mouse)]

Gene ID: 53861, updated on 31-Jan-2019

Summary

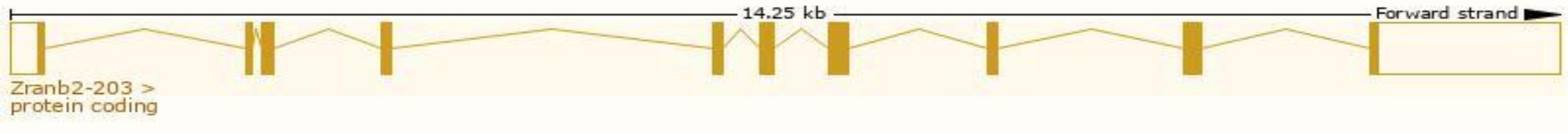
Official Symbol	Zranb2 provided by MGI
Official Full Name	zinc finger, RAN-binding domain containing 2 provided by MGI
Primary source	MGI:MGI:1858211
See related	Ensembl:ENSMUSG00000028180
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI227013, Zfp265, Zis, Znf265
Expression	Broad expression in frontal lobe adult (RPKM 33.5), CNS E18 (RPKM 33.3) and 24 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

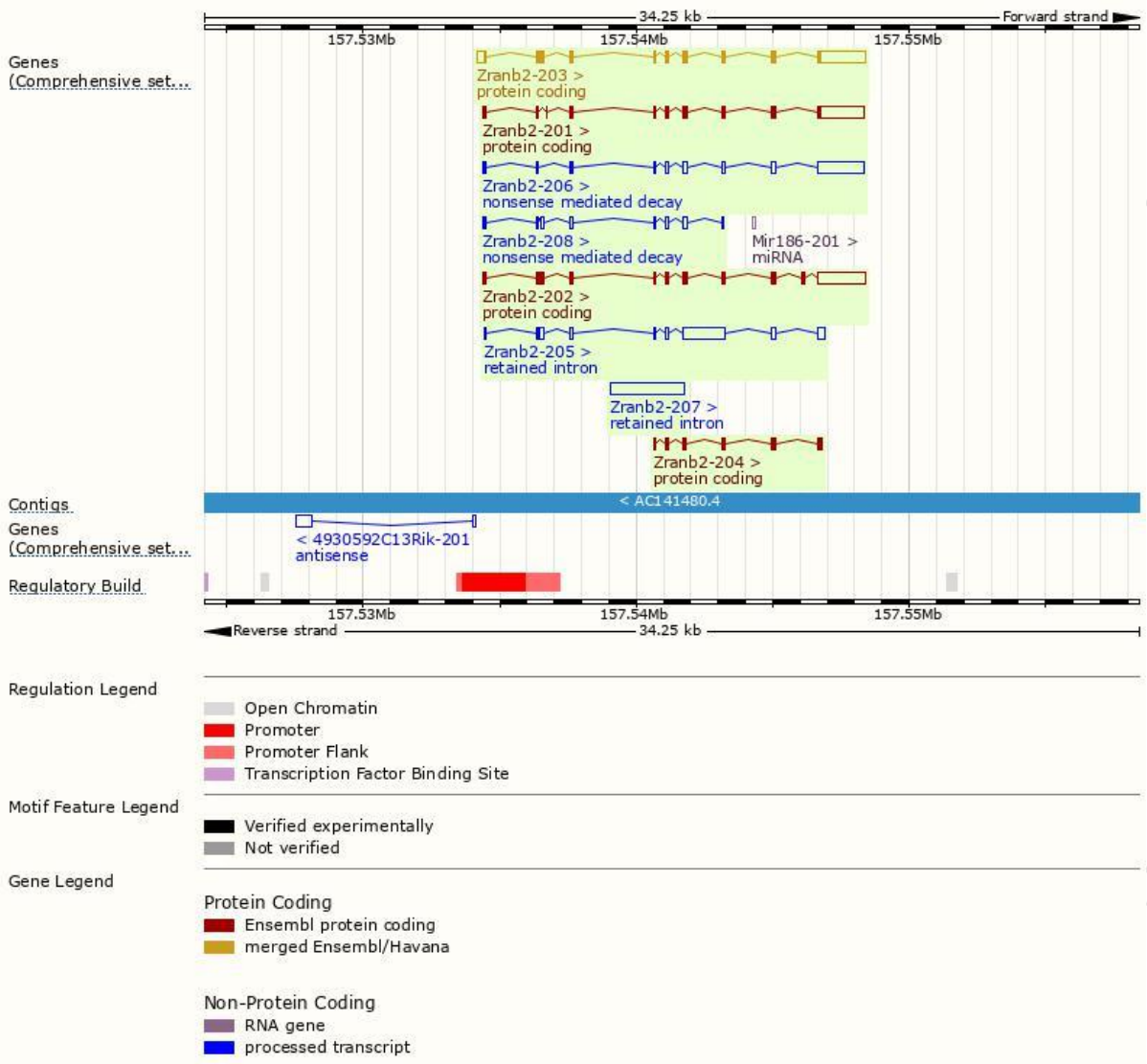
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zranb2-203	ENSMUST00000106058.7	2924	330aa	Protein coding	CCDS51100	B2RRT9 Q9R020	TSL:1 GENCODE basic APPRIS P2
Zranb2-202	ENSMUST00000106057.7	2737	320aa	Protein coding	-	D3Z4U0	TSL:5 GENCODE basic APPRIS ALT2
Zranb2-201	ENSMUST00000029831.15	2540	293aa	Protein coding	-	E9PUD0	TSL:5 GENCODE basic
Zranb2-204	ENSMUST00000106063.5	691	208aa	Protein coding	-	A0A0H2UH20	CDS 5' incomplete TSL:5
Zranb2-206	ENSMUST00000184802.7	2542	40aa	Nonsense mediated decay	-	V9GX51	TSL:1
Zranb2-208	ENSMUST00000198915.4	765	38aa	Nonsense mediated decay	-	A0A0G2JGE3	TSL:5
Zranb2-207	ENSMUST00000196900.1	2716	No protein	Retained intron	-	-	TSL:NA
Zranb2-205	ENSMUST00000152882.1	2490	No protein	Retained intron	-	-	TSL:5

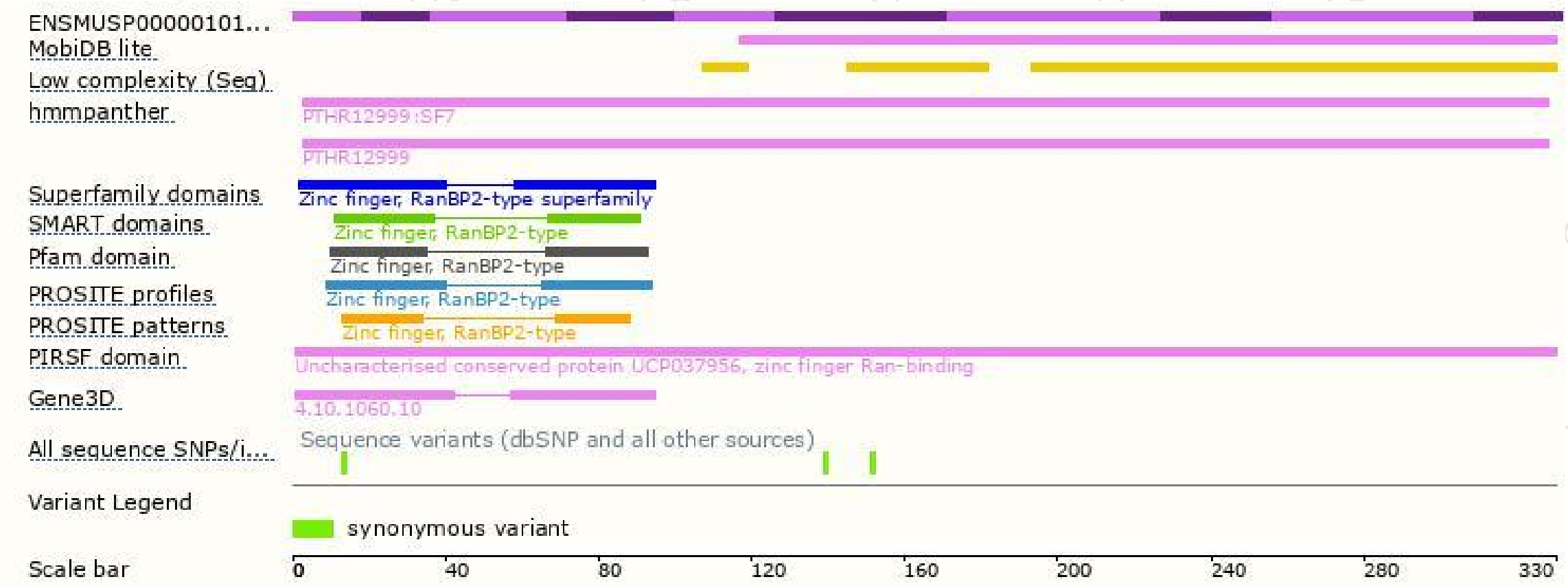
The strategy is based on the design of *Zranb2-203* transcript,The transcription is shown below



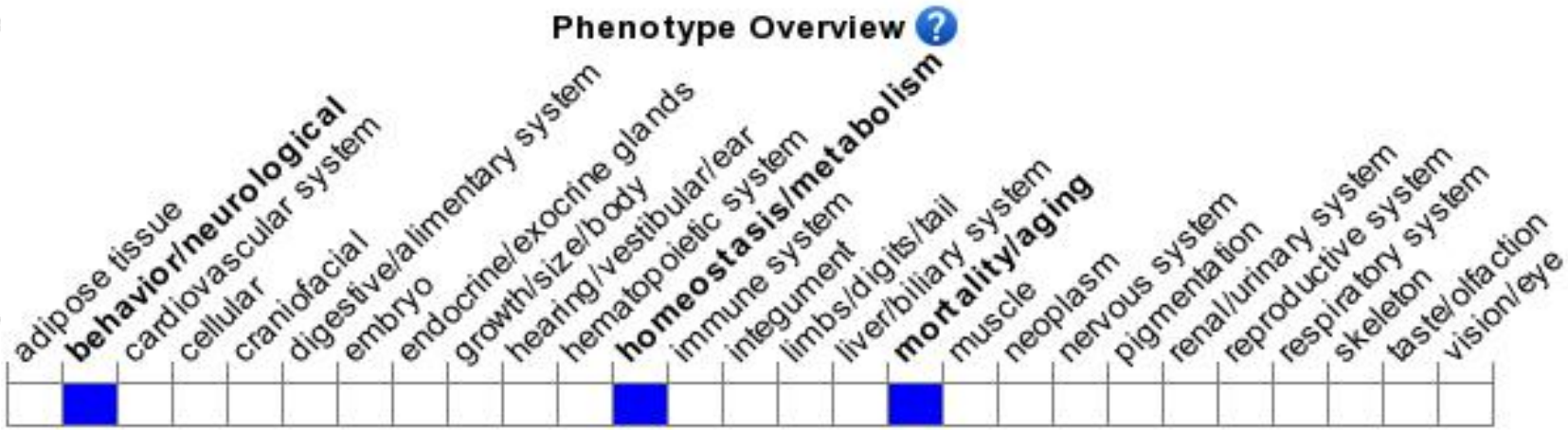
Genomic location distribution



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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