Zdhhc8 Cas9-CKO Strategy

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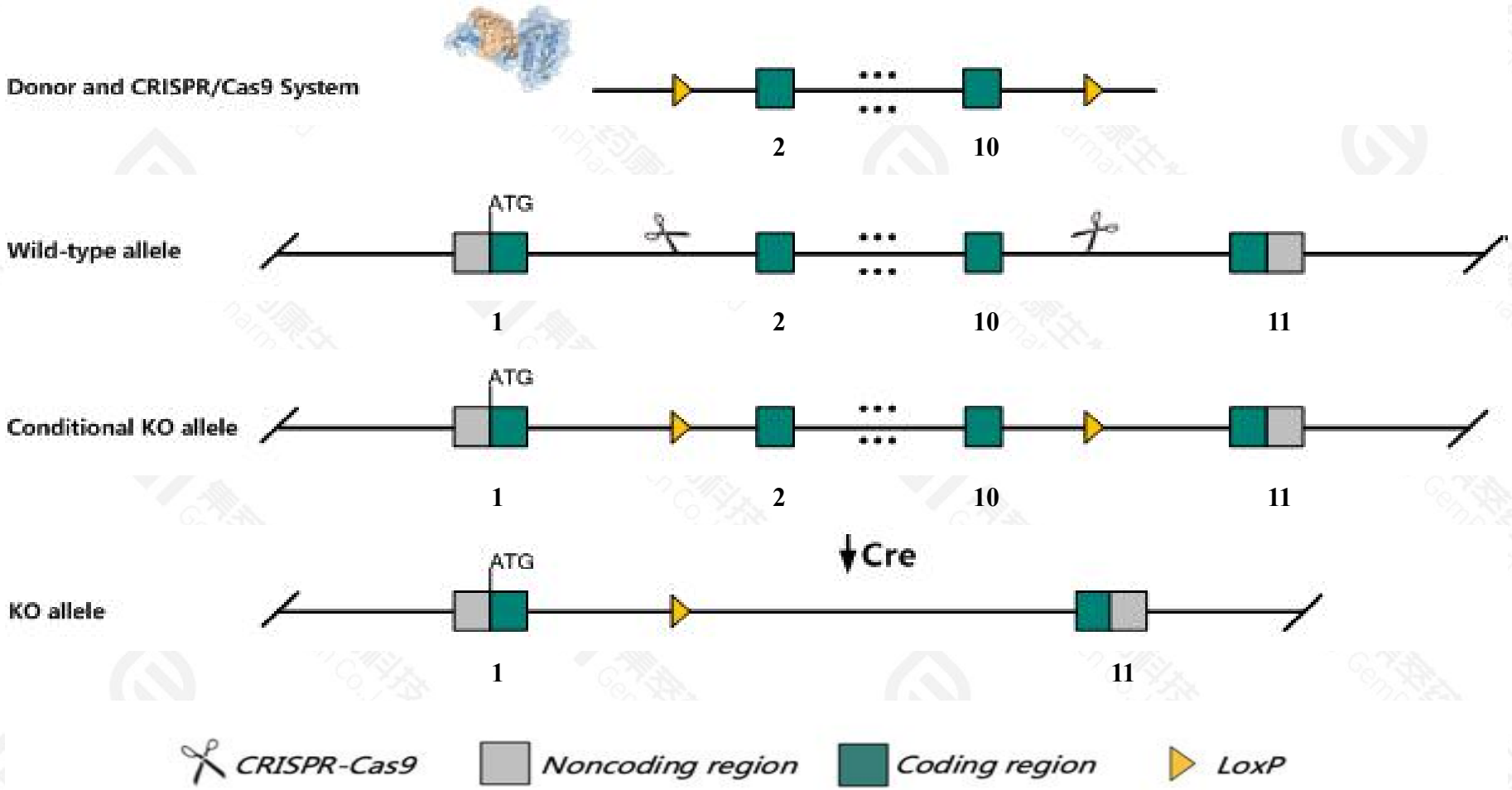
Project Overview

Project Name	***Zdhhc8***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR-Cas9 technology to edit the *Zdhhc8* gene. The schematic diagram is as follows:



Technical routes

➢ The *Zdhhc8* gene has 2 transcripts. According to the structure of *Zdhhc8* gene, exon2-exon10 of *Zdhhc8-201*(ENSMUST00000076957.7) transcript is recommended as the knockout region.The region contains most 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 *Zdhhc8* 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

➢ According to the existing MGI data,homozygous null females display impaired prepulse inhibition and reduced exploration in new environments. Homozygous null males display normal prepulse inhibition and only a slight decrease in exploration.

➢ The effect on transcript *Zdhhc8*-202 is unknown.

➢ The *Zdhhc8* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information（NCBI）

Zdhhc8 zinc finger, DHHC domain containing 8 [Mus musculus (house mouse)]

Gene ID: 27801, updated on 31-Jan-2019

Summary

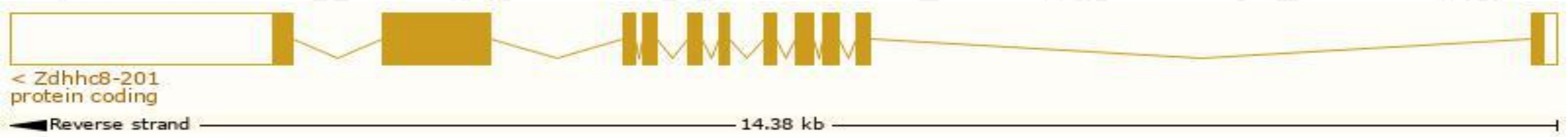
Official Symbol	Zdhhc8 provided by MGI
Official Full Name	zinc finger, DHHC domain containing 8 provided byMGI
Primary source	MGI:MGI:1338012
See related	Ensembl:ENSMUSG00000060166
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	D16H22S1738E, DHHC-8, E330009O14Rik, Op53c05, ZDHHCL1
Expression	Ubiquitous expression in thymus adult (RPKM 67.5), ovary adult (RPKM 44.5) and 24 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

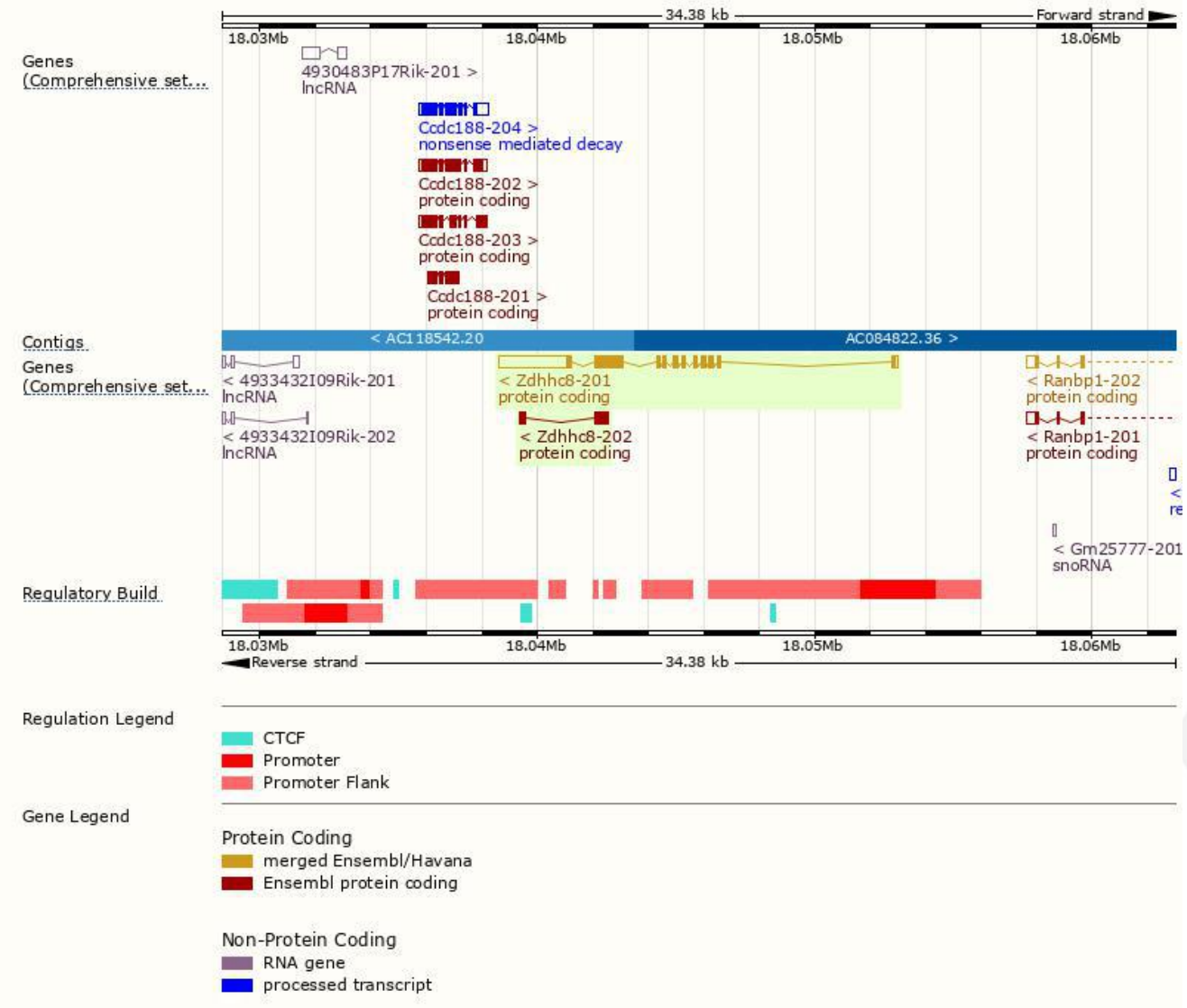
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Zdhhc8-201	ENSMUST00000076957.6	4868	762aa	Protein coding	CCDS28017	Q5Y5T5	TSL:1 GENCODE basic APPRIS P1
Zdhhc8-202	ENSMUST00000231412.1	652	218aa	Protein coding	-	A0A338P749	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete

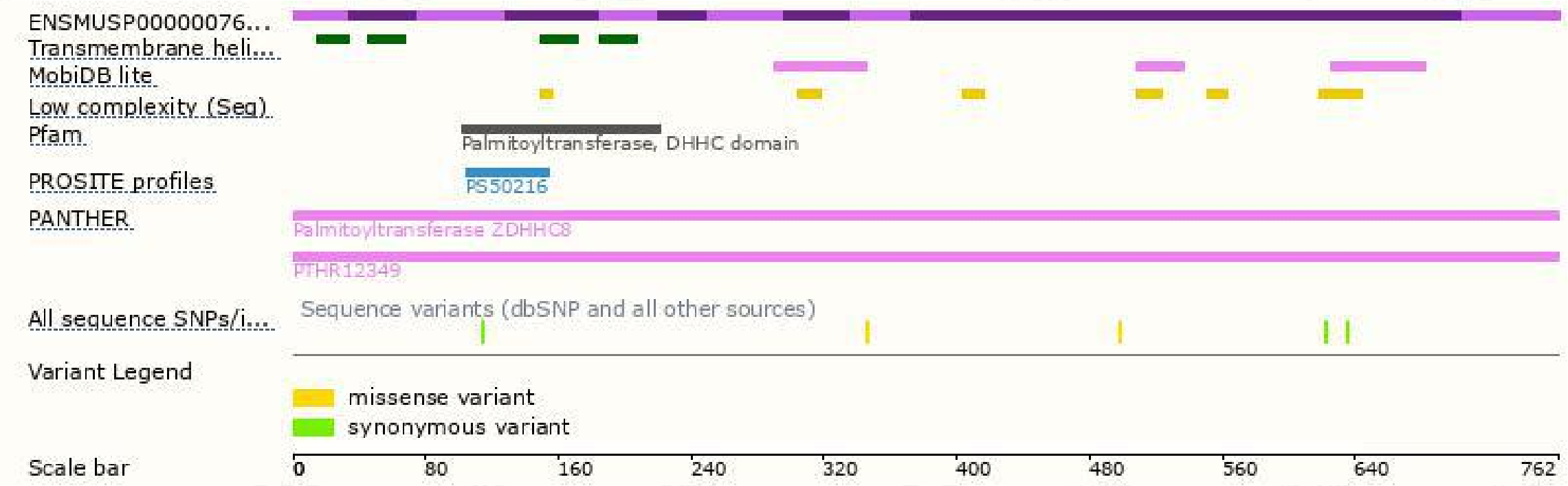
The strategy is based on the design of *Zdhhc8-201* transcript,the transcription is shown below:



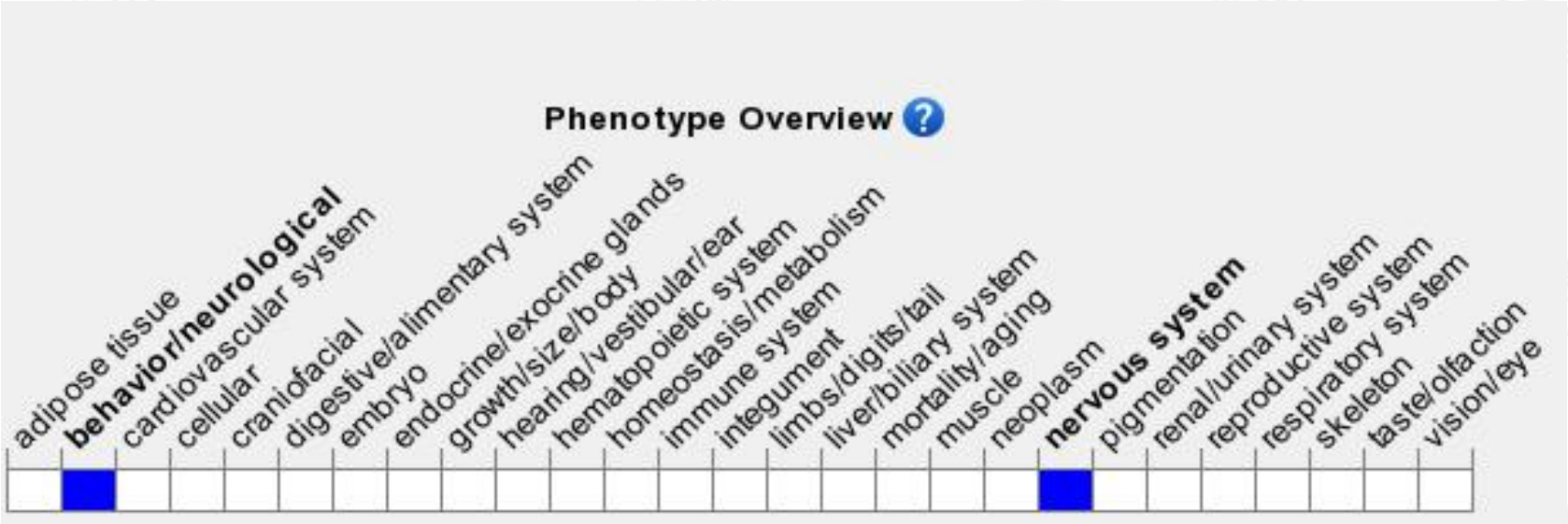
Genomic location distribution



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,homozygous null females display impaired prepulse inhibition and reduced exploration in new environments. Homozygous null males display normal prepulse inhibition and only a slight decrease in exploration.

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