Ovol2 Cas9-CKO Strategy

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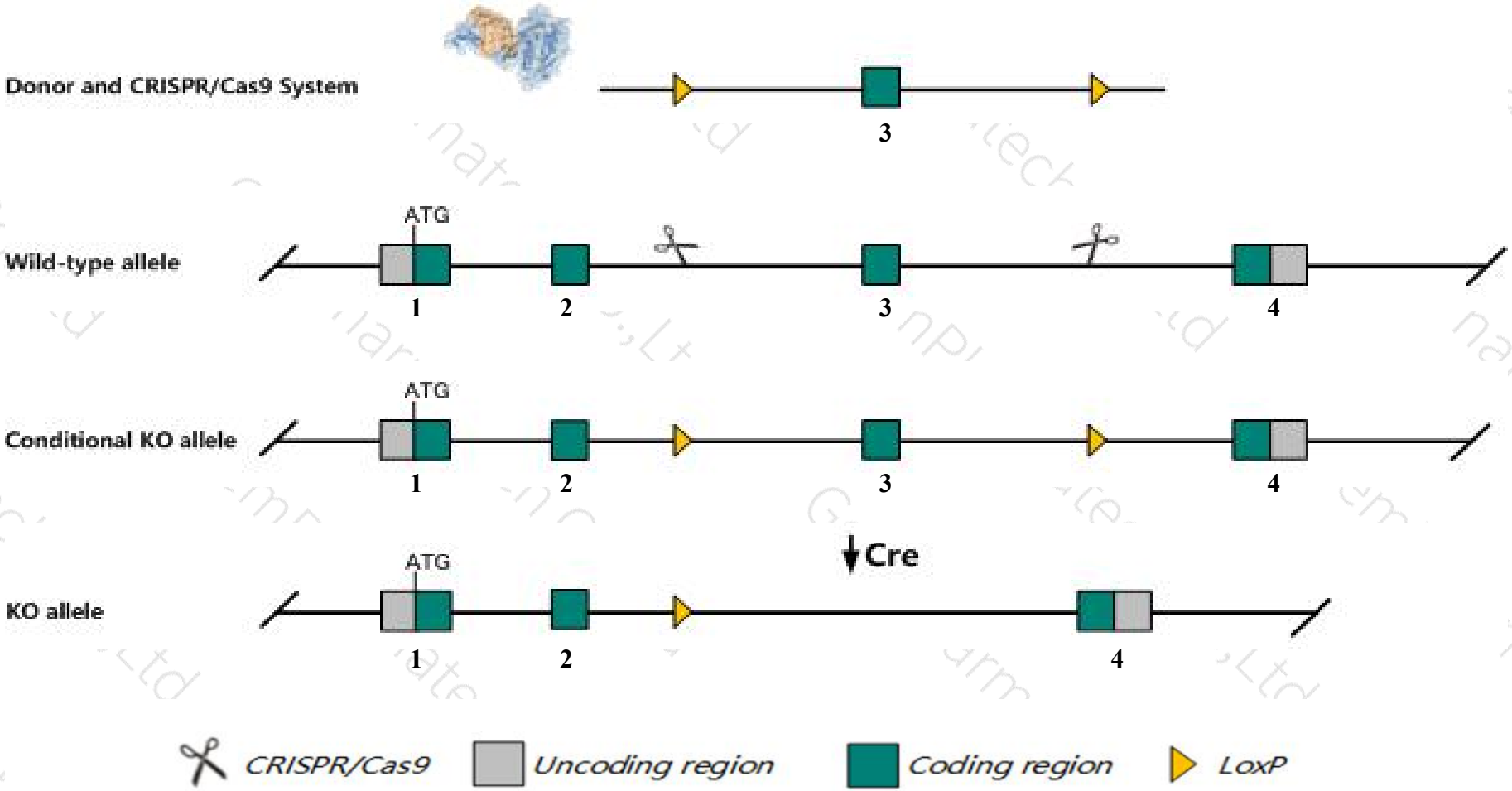
Project Overview

Project Name	***Ovol2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ovol2* gene. The schematic diagram is as follows:



Technical routes

- The *Ovol2* gene has 3 transcripts. According to the structure of *Ovol2* gene, exon3 of *Ovol2-202* (ENSMUST00000103171.9) transcript is recommended as the knockout region.The region contains 190bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Ovol2* 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,Embryos homozygous for a null allele are small and die at E9.5-E10.5 with an open neural tube, impaired extraembryonic and embryonic vascularization, abnormal cardiogenesis and placental defects. Homozygotes for another null allele die by E10.5 with brain, neural crest, gut tube and heart anomalies.

- The *Ovol2* gene is located on the Chr2. 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）

集萃药康 GemPharmatech

Ovol2 ovo like zinc finger 2 [*Mus musculus* (house mouse)]

Gene ID: 107586, updated on 21-Aug-2019

Summary

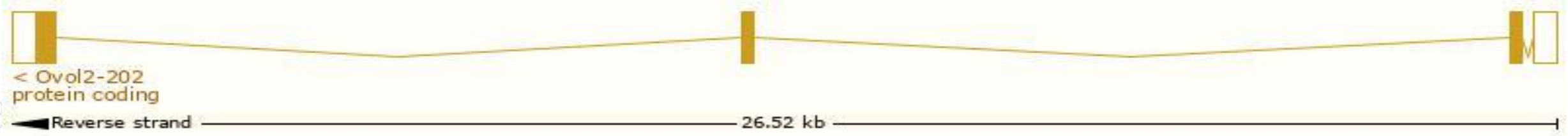
Official Symbol	Ovol2 provided by MGI
Official Full Name	ovo like zinc finger 2 provided by MGI
Primary source	MGI:MGI:1338039
See related	Ensembl:ENSMUSG00000037279
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	MOVO; Ovo2; M-OVO; movo2; Zfp339; M-OVO-A; M-OVO-B; 1700108N11Rik; 1810007D21Rik
Expression	Biased expression in testis adult (RPKM 23.4), colon adult (RPKM 9.7) and 8 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

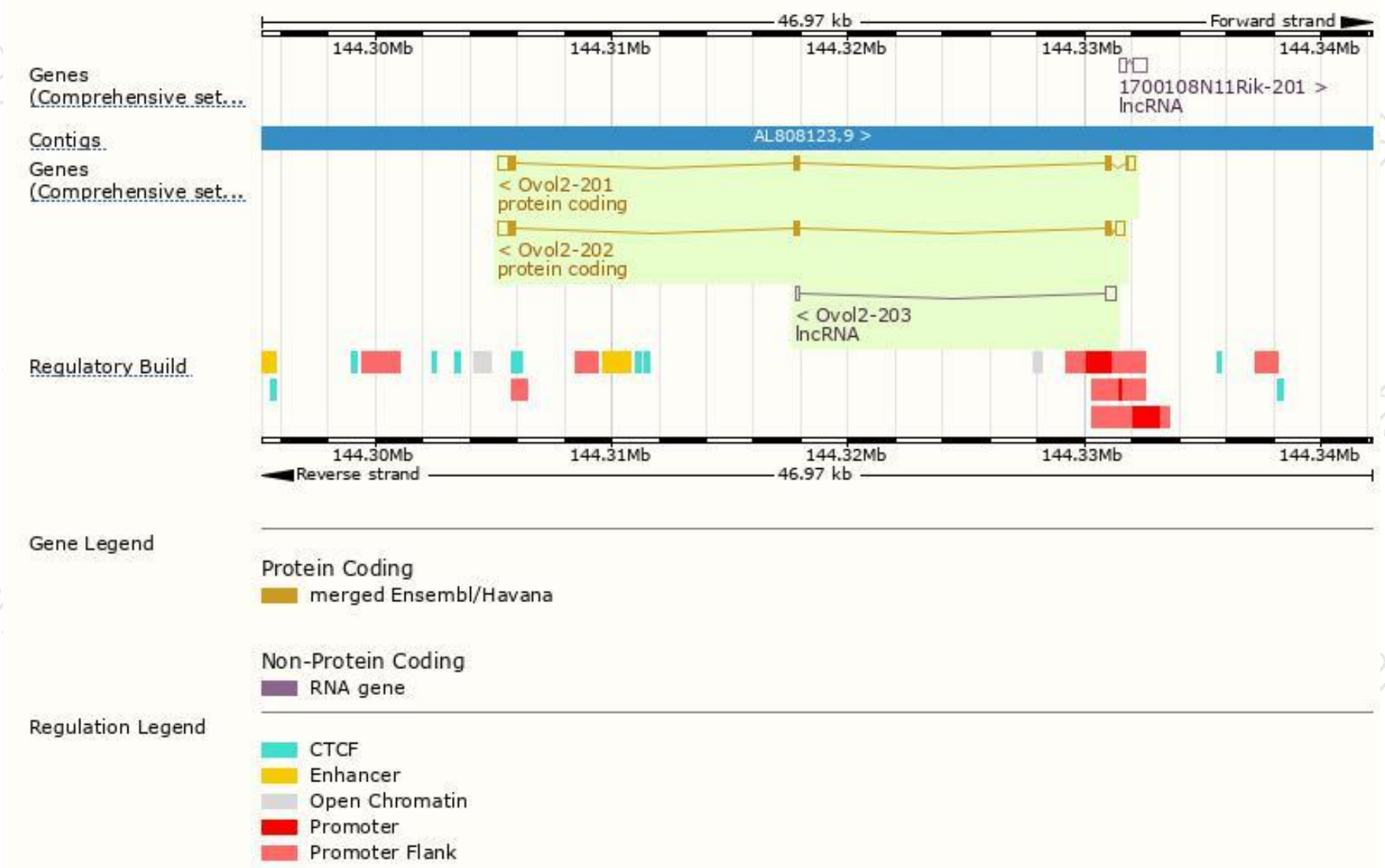
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ovol2-202	ENSMUST00000103171.9	1547	241aa	Protein coding	CCDS16818	Q8CIV7	TSL:1 GENCODE basic APPRIS ALT2
Ovol2-201	ENSMUST00000037423.3	1539	274aa	Protein coding	CCDS16817	Q8CIV7	TSL:1 GENCODE basic APPRIS P4
Ovol2-203	ENSMUST00000138582.1	547	No protein	lncRNA	-	-	TSL:2

The strategy is based on the design of *Ovol2-202* transcript,The transcription is shown below

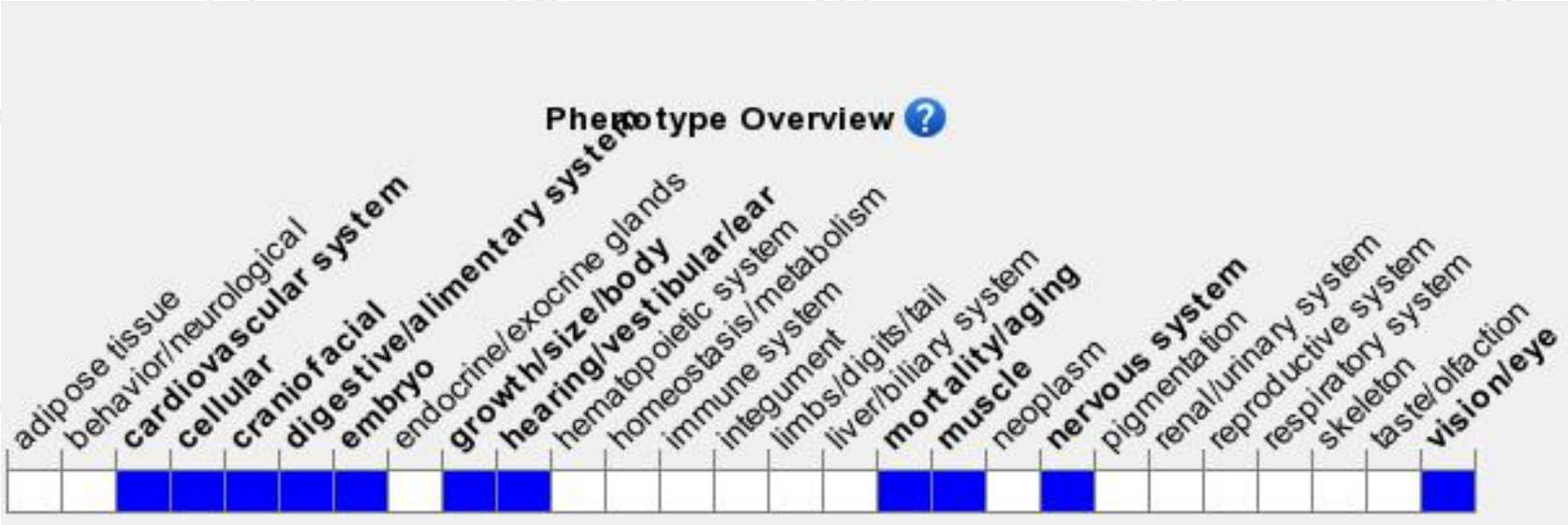


Genomic location distribution



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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