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Osbpl5 Cas9-CKO Strategy

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Overview

Target Gene Name

- Osbpl5

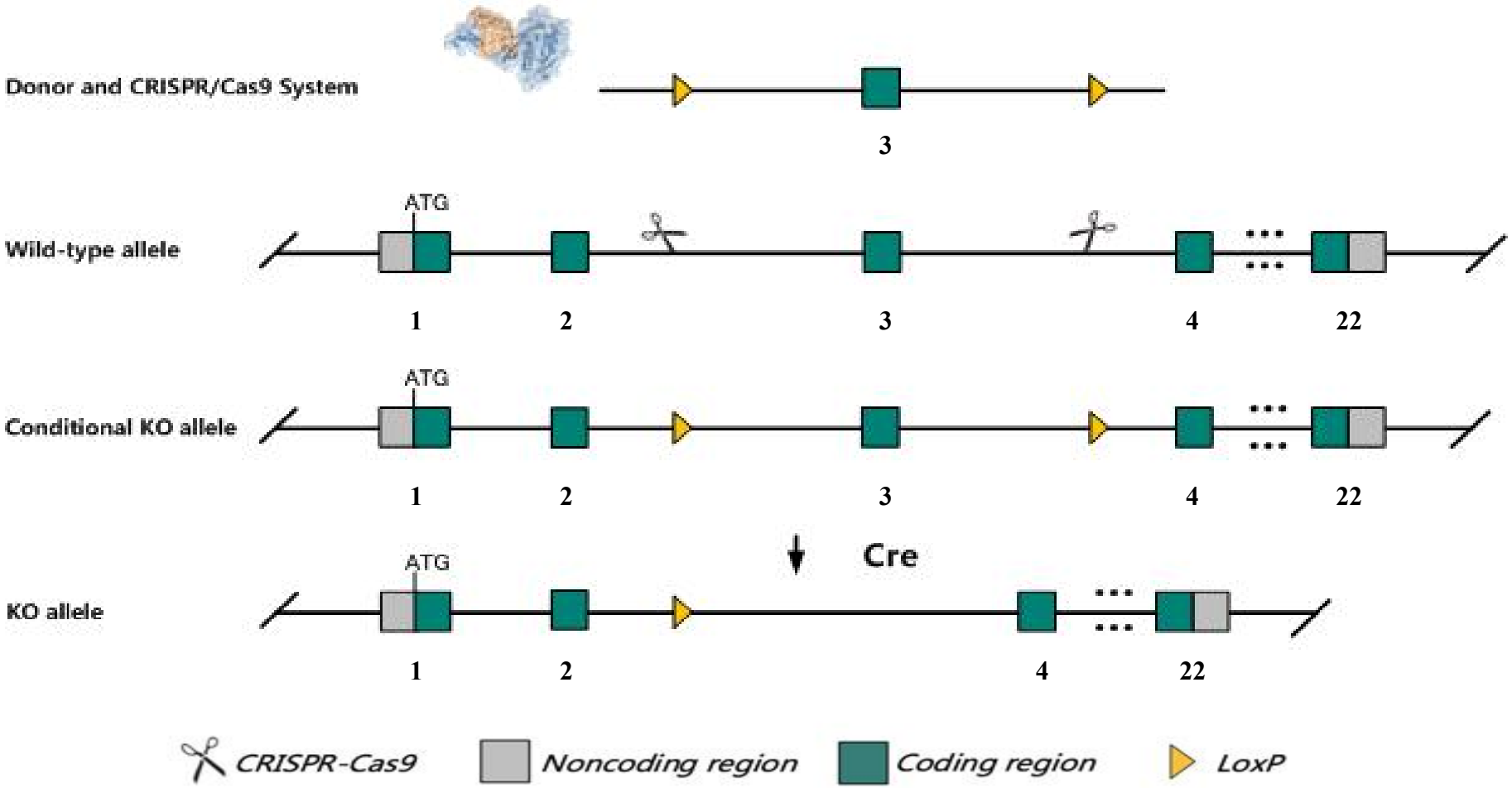
Project Type

- Cas9-CKO

Genetic Background

- C57BL/6JGpt

Strain Strategy



Schematic representation of CRISPR-Cas9 engineering used to edit the *Osbpl5* gene.

Technical Information

- The *Osbpl5* gene has 7 transcripts. According to the structure of *Osbpl5* gene, exon3 of *Osbpl5*-201 (ENSMUST00000020411.14) transcript is recommended as the knockout region. The region contains 83bp coding sequence. Knocking out the region will result in disruption of protein function.
- In this project we use CRISPR-Cas9 technology to modify *Osbpl5* 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 on-target amplicon sequencing. A stable F1-generation mouse strain was obtained by mating positive F0-generation mice with C57BL/6JGpt mice and confirmation of the desired mutant allele was carried out by PCR and on-target amplicon sequencing.
- 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.

Gene Information

Osbpl5 oxysterol binding protein-like 5 [Mus musculus (house mouse)]

Gene ID: 79196, updated on 31-Jan-2019

Summary

Official Symbol	Osbpl5 provided by MGI
Official Full Name	oxysterol binding protein-like 5 provided by MGI
Primary source	MGI:MGI:1930265
See related	Ensembl:ENSMUSG00000037606
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	1110006M06Rik, AI462538, ORP5, Obph1, Osbp2
Expression	Ubiquitous expression in lung adult (RPKM 27.8), ovary adult (RPKM 26.8) and 24 other tissues See more
Orthologs	human all

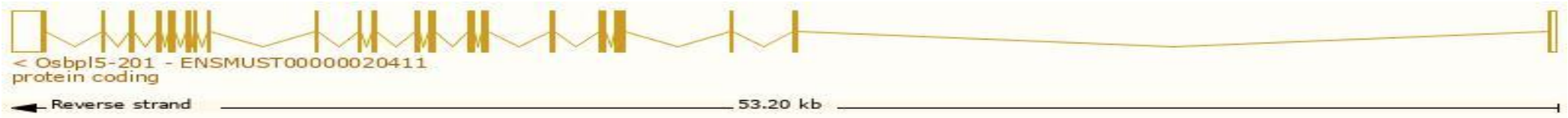
Source: https://www.ncbi.nlm.nih.gov/

Transcript Information

The gene has 7 transcripts,all transcripts are shown below:

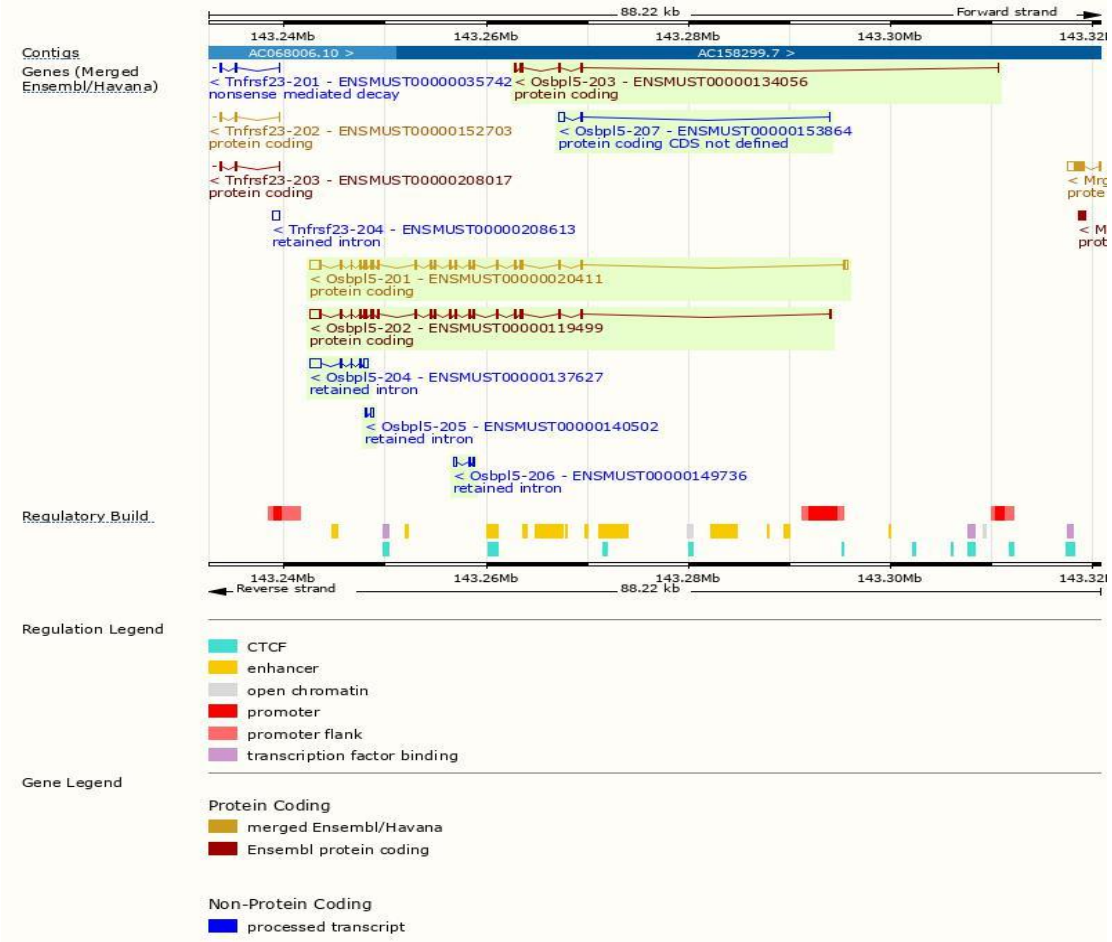
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Osbpl5-201	ENSMUST00000020411.13	3994	898aa	Protein coding	CCDS40200	G5E833	TSL:1 GENCODE basic APPRIS P3
Osbpl5-202	ENSMUST00000119499.7	3775	874aa	Protein coding	CCDS57598	Q9ER64	TSL:1 GENCODE basic APPRIS ALT2
Osbpl5-203	ENSMUST00000134056.1	634	199aa	Protein coding	-	D3YWU9	CDS 3' incomplete TSL:3
Osbpl5-204	ENSMUST00000137627.1	1917	No protein	Retained intron	-	-	TSL:3
Osbpl5-206	ENSMUST00000149736.1	626	No protein	Retained intron	-	-	TSL:3
Osbpl5-205	ENSMUST00000140502.1	399	No protein	Retained intron	-	-	TSL:3
Osbpl5-207	ENSMUST00000153864.1	700	No protein	lncRNA	-	-	TSL:5

The strategy is based on the design of *Osbpl5*-201 transcript, the transcription is shown below:



Source: https://www.ensembl.org

Genomic Information



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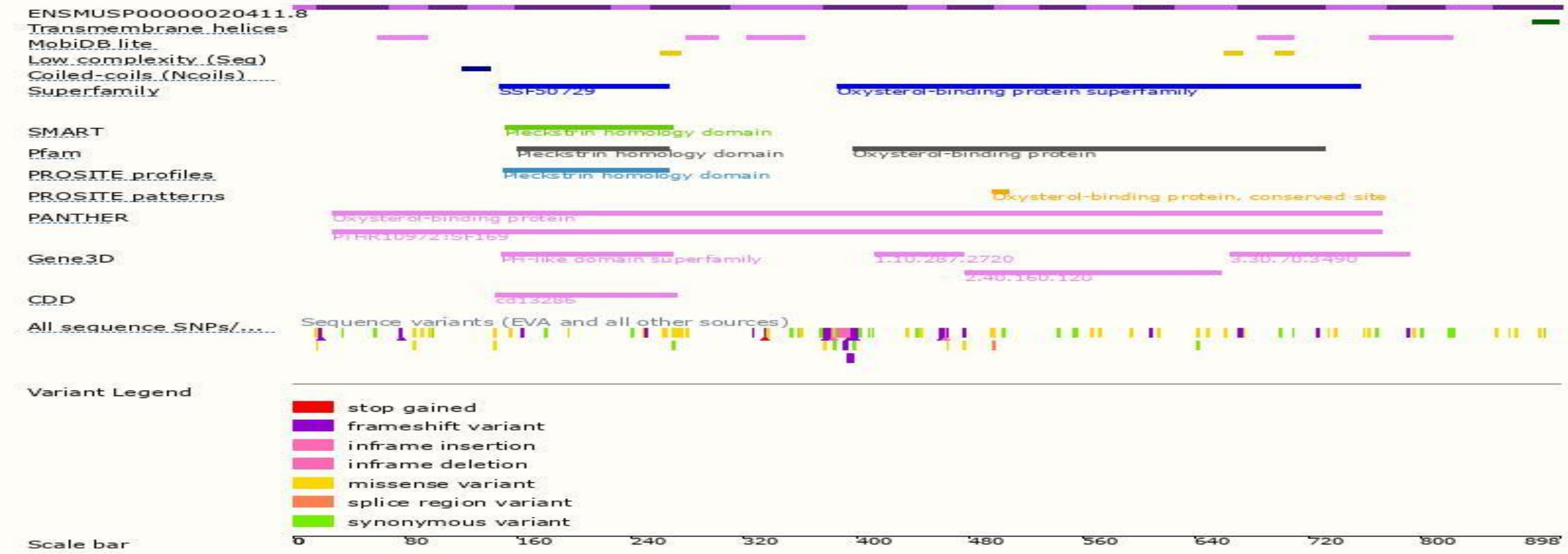
Source: : https://www.ensembl.org

Protein Information



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Source: : https://www.ensembl.org

Important Information

- The effect on the transcript *Osbpl5-204&205&206&207* is unknown.
- The lethality of *Osbpl5* gene knockout is unknown.
- *Osbpl5* is located on Chr7. If the knockout mice are crossed with other mouse strains to obtain double homozygous mutant offspring, please avoid the situation that the second gene is 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 the existing technology level.