

Osr2 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Osr2

Project type

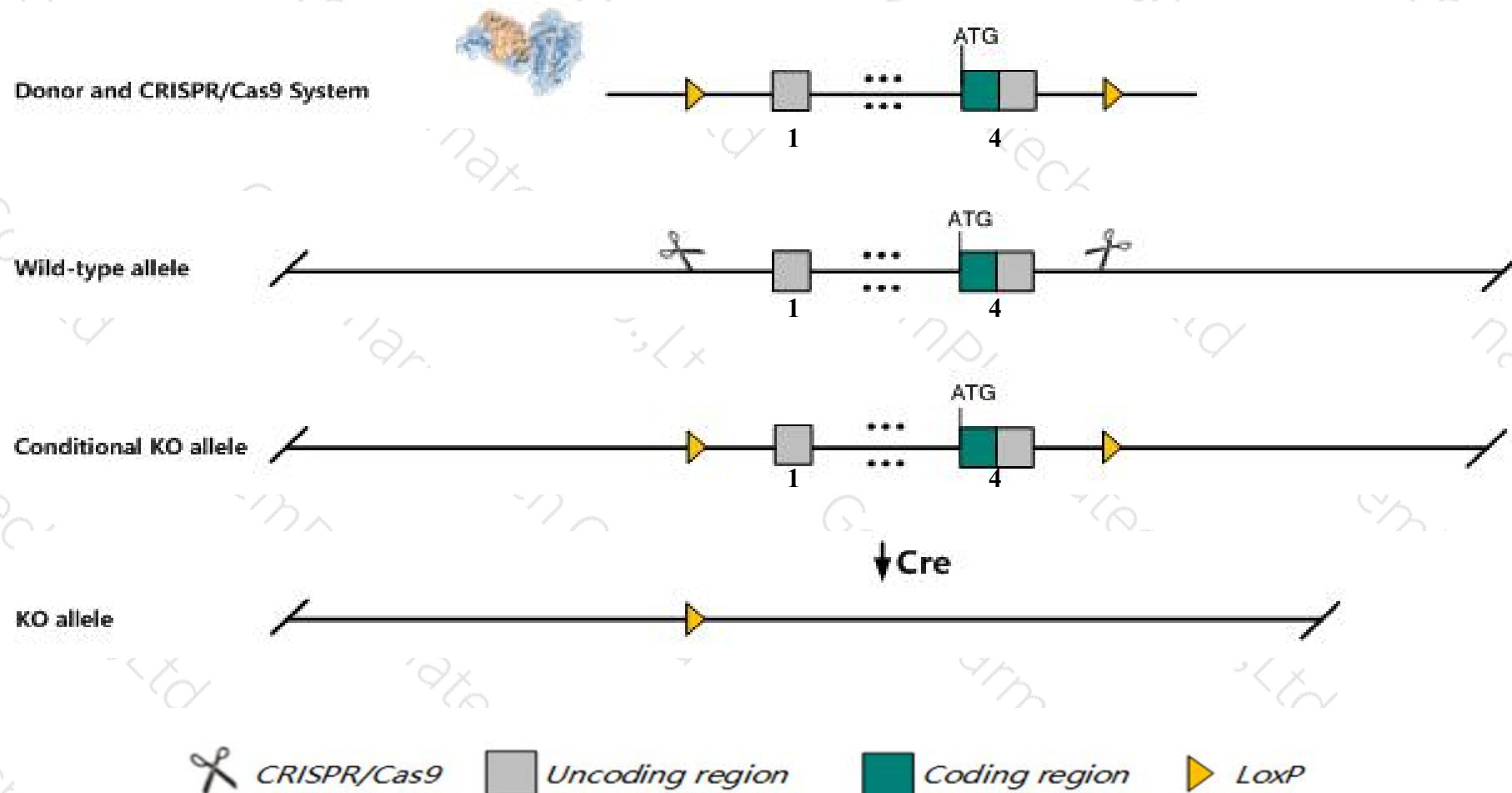
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Osr2* gene. The schematic diagram is as follows:



- The *Osr2* gene has 5 transcripts. According to the structure of *Osr2* gene, exon1-exon4 of *Osr2-201* (ENSMUST00000022952.5) 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 *Osr2* 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.

- According to the existing MGI data, Homozygous null mice display neonatal lethality, cleft of the secondary palate, and thickened tympanic rings.
- The *Osr2* gene is located on the Chr15. 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)

Osr2 odd-skipped related 2 [Mus musculus (house mouse)]

Gene ID: 107587, updated on 16-Feb-2019

Summary



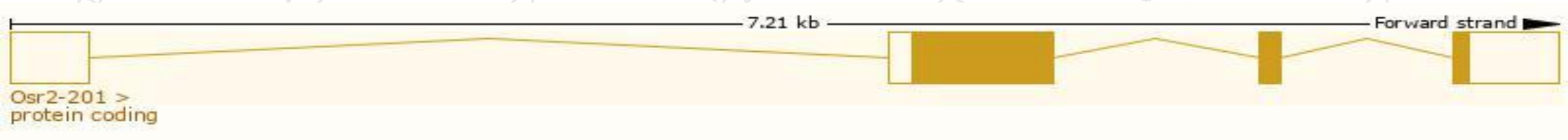
Official Symbol	Osr2 provided by MGI
Official Full Name	odd-skipped related 2 provided by MGI
Primary source	MGI:MGI:1930813
See related	Ensembl:ENSMUSG00000022330
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	5430409I15Rik, Osr2A, Osr2B
Expression	Biased expression in ovary adult (RPKM 68.7), subcutaneous fat pad adult (RPKM 65.0) and 10 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

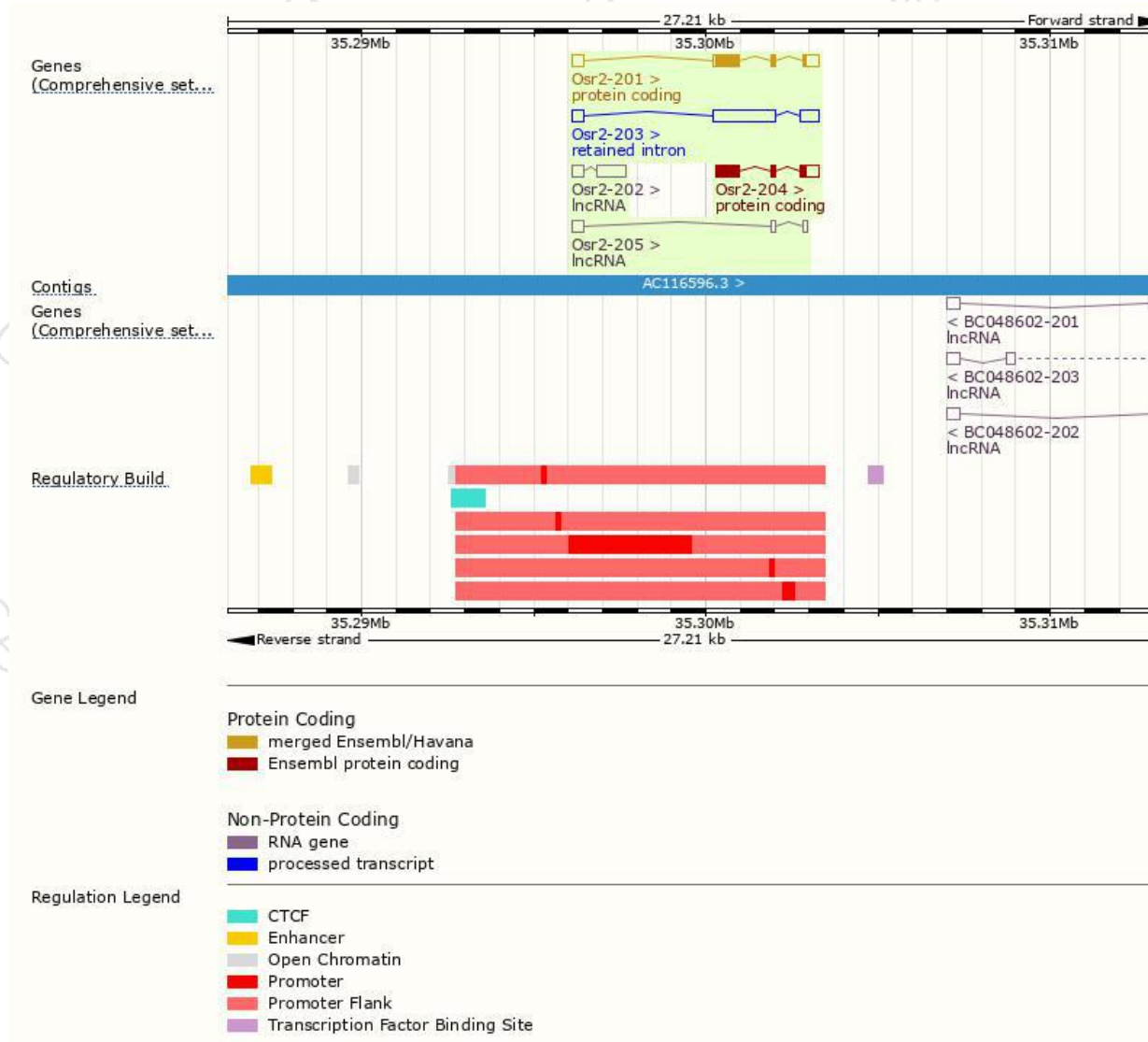
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Osr2-201	ENSMUST00000022952.5	1724	276aa	Protein coding	CCDS27422	Q91ZD1	TSL:1 GENCODE basic
Osr2-204	ENSMUST00000228152.1	1324	312aa	Protein coding	-	Q91ZD1	GENCODE basic APPRIS P1
Osr2-203	ENSMUST00000227655.1	2761	No protein	Retained intron	-	-	
Osr2-202	ENSMUST00000226838.1	1231	No protein	lncRNA	-	-	
Osr2-205	ENSMUST00000228684.1	579	No protein	lncRNA	-	-	

The strategy is based on the design of *Osr2-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain

ENSMUSP00000022...

[Low complexity \(Seq\)](#)

[Superfamily](#)

[SMART](#)

[Pfam](#)

[PROSITE profiles](#)

[PROSITE patterns](#)

[PANTHER](#)

[Gene3D](#)

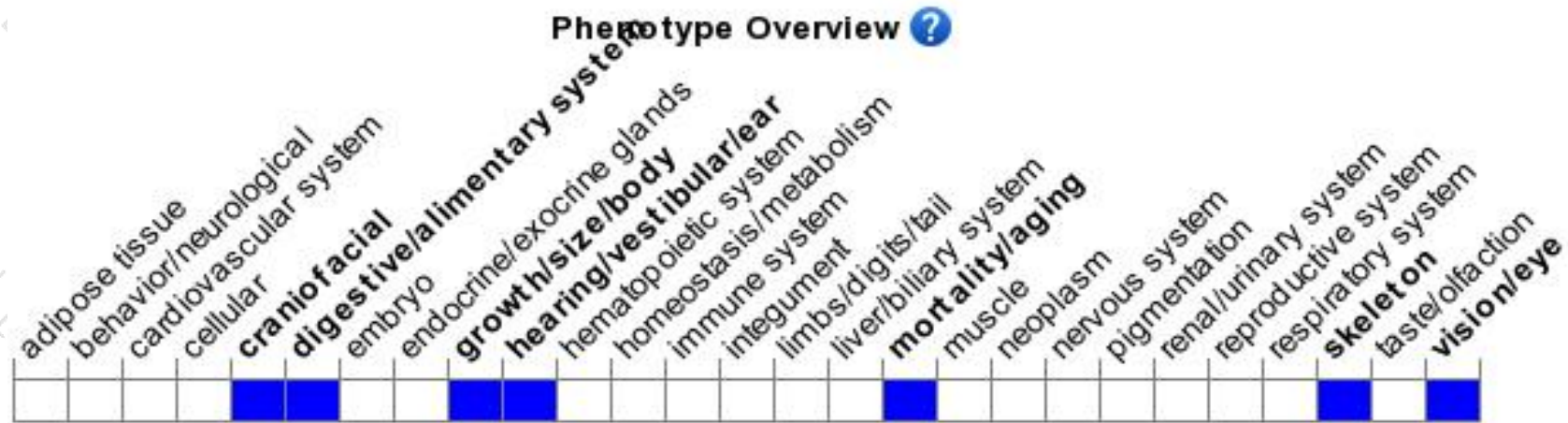
[All sequence SNPs/i...](#)

[Variant Legend](#)

[Scale bar](#)



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 mice display neonatal lethality, cleft of the secondary palate, and thickened tympanic rings.

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

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