

Osr1 Cas9-KO Strategy

Designer:

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Design Date:

2019-7-25

Project Overview



Project Name

Osr1

Project type

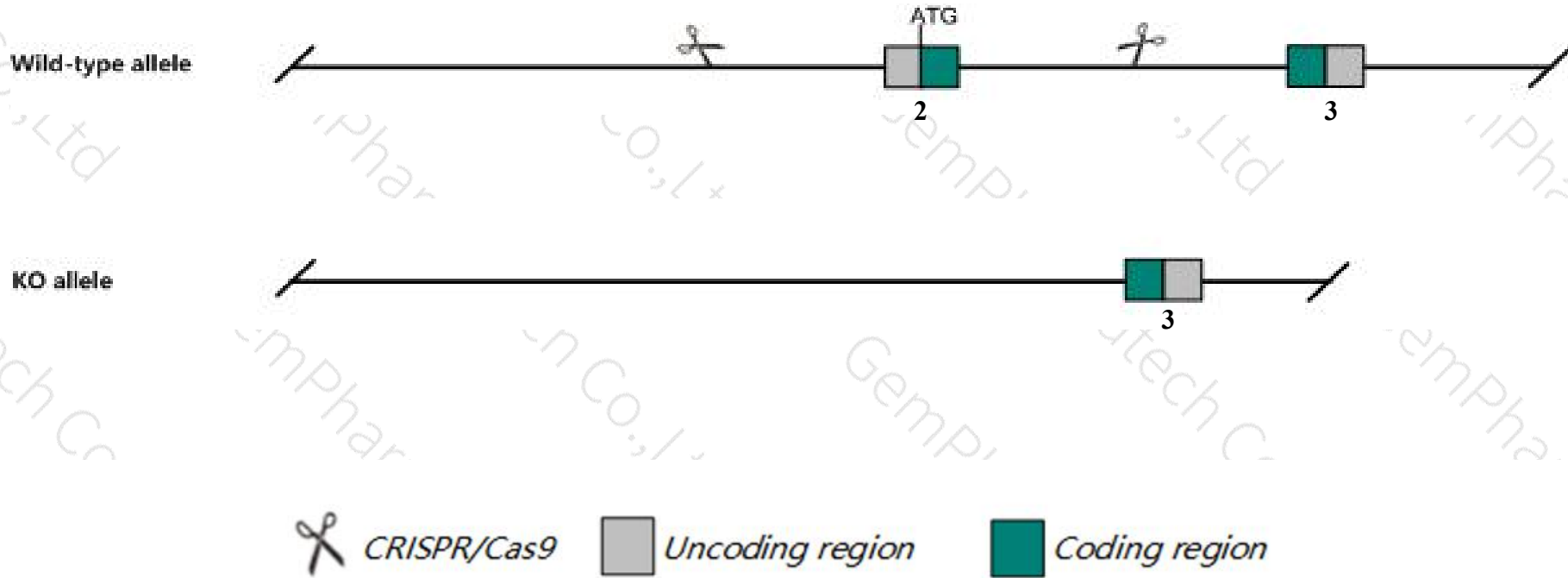
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Osr1* gene. The schematic diagram is as follows:



Technical routes

The *Osr1* gene has 2 transcripts. According to the structure of *Osr1* gene, exon2 of *Osr1-201* (ENSMUST00000057021.8) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Osr1* gene. The brief process is as follows: CRISPR/Cas9 system v

According to the existing MGI data, Mice homozygous for a targeted mutation fail to form atrial septum and exhibit dilated atria with hypoplastic venous valves and blood backflow from the heart into systemic veins.

Complete agenesis of adrenal glands, metanephric kidneys, gonads, and defects in pericardium formation are also observed.

The *Osr1* gene is located on the Chr12. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Osr1 odd-skipped related transcription factor 1 [Mus musculus (house mouse)]

Gene ID: 23967, updated on 2-Feb-2019

Summary

Official Symbol	Osr1 provided by MGI
Official Full Name	odd-skipped related transcription factor 1 provided by MGI
Primary source	MGI:MGI:1344424
See related	Ensembl:ENSMUSG00000048387
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	Odd1, Osr
Expression	Biased expression in limb E14.5 (RPKM 25.5), bladder adult (RPKM 22.7) and 14 other tissues See more
Orthologs	human all

Transcript information Ensembl

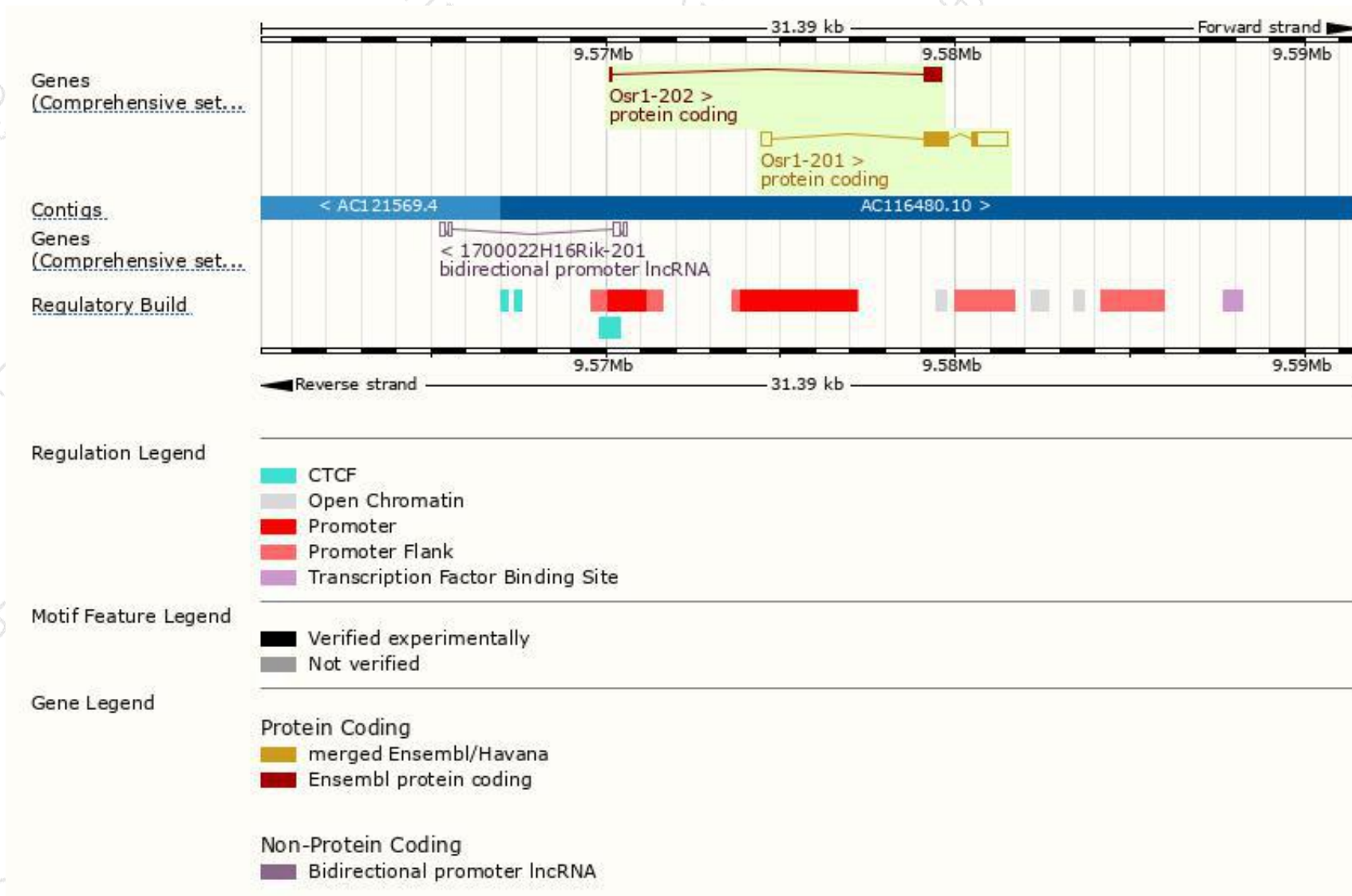
The gene has 2 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Osr1-201	ENSMUST00000057021.8	2012	266aa	Protein coding	CCDS25809	Q9WVG7	TSL:1 GENCODE basic APPRIS P1
Osr1-202	ENSMUST00000217975.1	572	161aa	Protein coding	-	A0A1W2P7S2	CDS 3' incomplete TSL:3

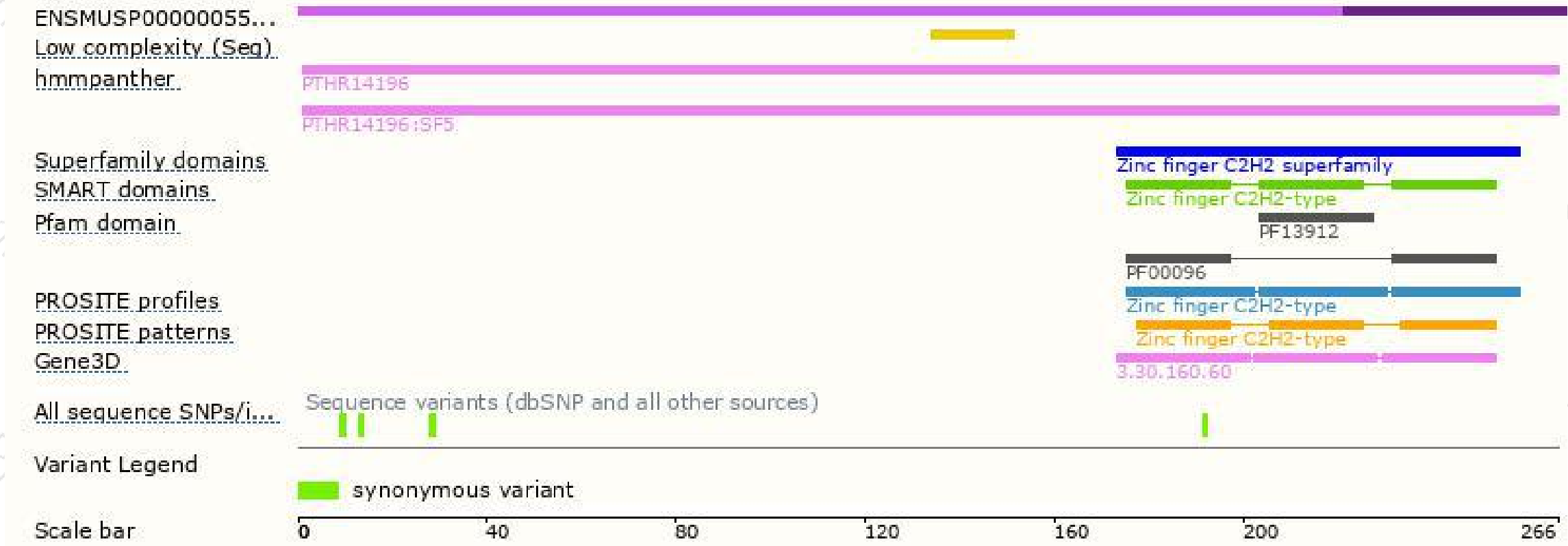
The strategy is based on the design of *Osr1-201* transcript, The transcription is shown below



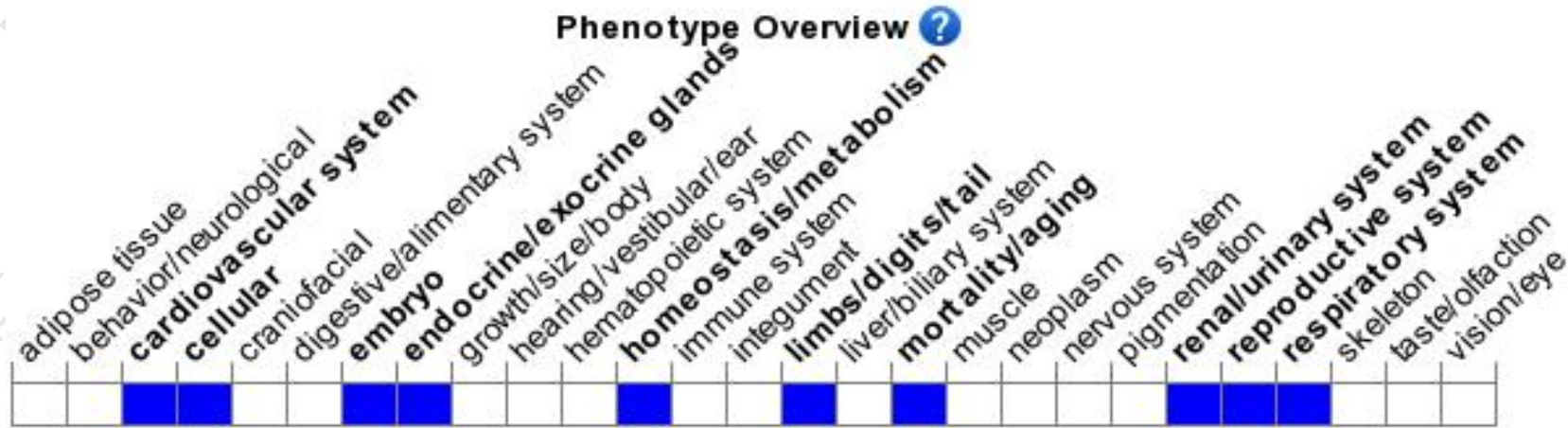
Genomic location distribution



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, Mice homozygous for a targeted mutation fail to form atrial septum and exhibit dilated atria with hypoplastic venous valves and blood backflow from the heart into systemic veins. Complete agenesis of adrenal glands, metanephric kidneys, gonads, and defects in pericardium formation are also observed.

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

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