

# *Izumo3* Cas9-CKO Strategy

Designer: Yanhua Shen

Reviewer: Xueting Zhang

Design Date: 2020-2-3

# Project Overview

**Project Name**

*Izumo3*

**Project type**

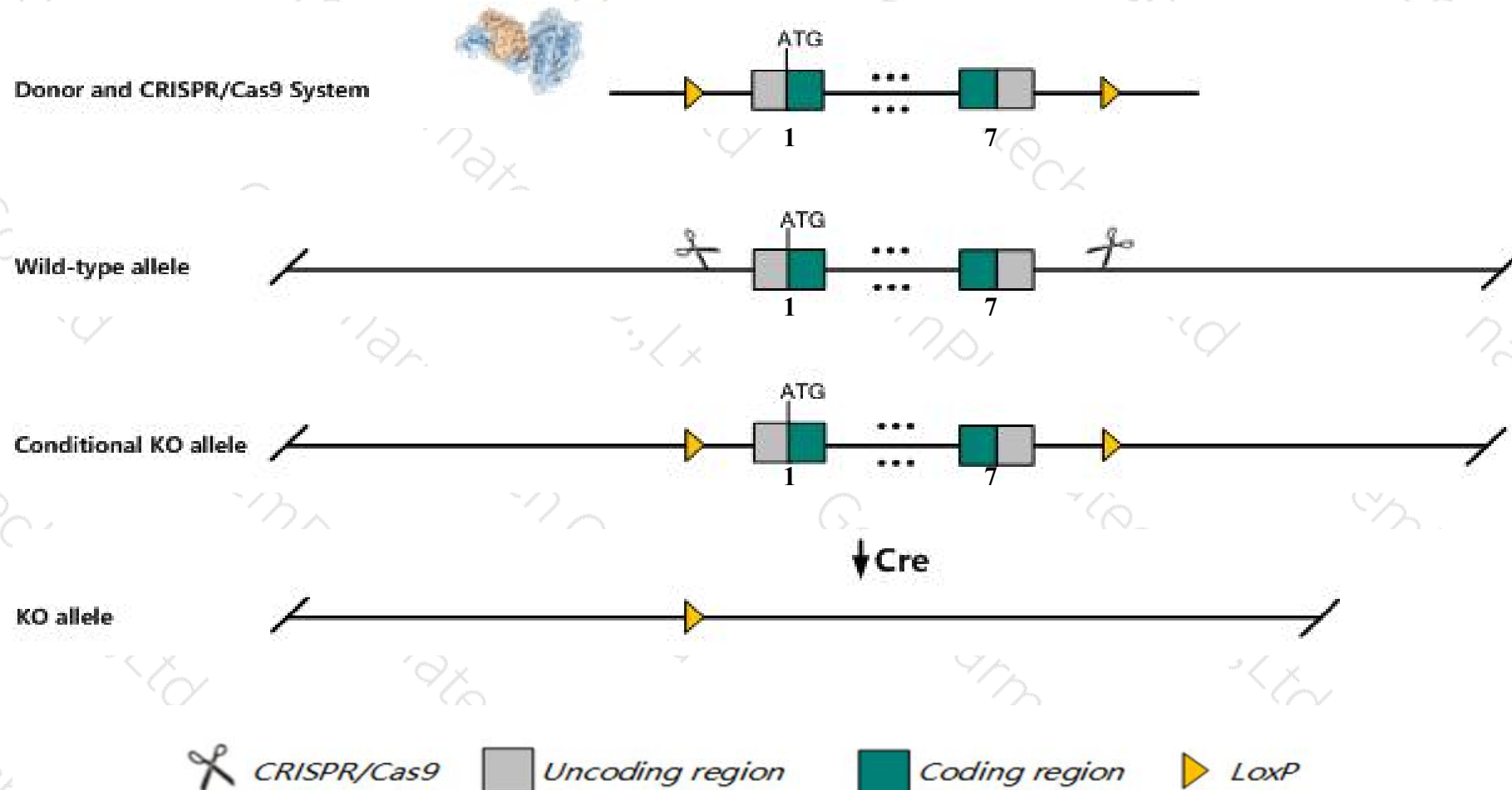
**Cas9-CKO**

**Strain background**

**C57BL/6JGpt**

# Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Izumo3* gene. The schematic diagram is as follows:



# Technical routes

- The *Izumo3* gene has 2 transcripts. According to the structure of *Izumo3* gene, exon1-exon7 of *Izumo3*-201 (ENSMUST00000107108.7) transcript is recommended as the knockout region. The region contains all 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 *Izumo3* 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

- The *Izumo3* gene is located on the Chr4. 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)

## Izumo3 IZUMO family member 3 [ *Mus musculus* (house mouse) ]

Gene ID: 69314, updated on 12-Aug-2019

### Summary



Official Symbol	Izumo3 provided by <a href="#">MGI</a>
Official Full Name	IZUMO family member 3 provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:1916564</a>
See related	<a href="#">Ensembl:ENSMUSG00000028533</a>
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1700011H22Rik
Expression	Restricted expression toward testis adult (RPKM 9.1) <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>

### Genomic context



Location: 4; 4 C5

Exon count: 7

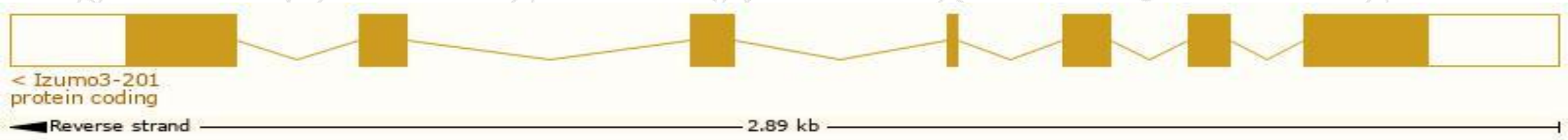
See Izumo3 in [Genome Data Viewer](#)

# Transcript information (Ensembl)

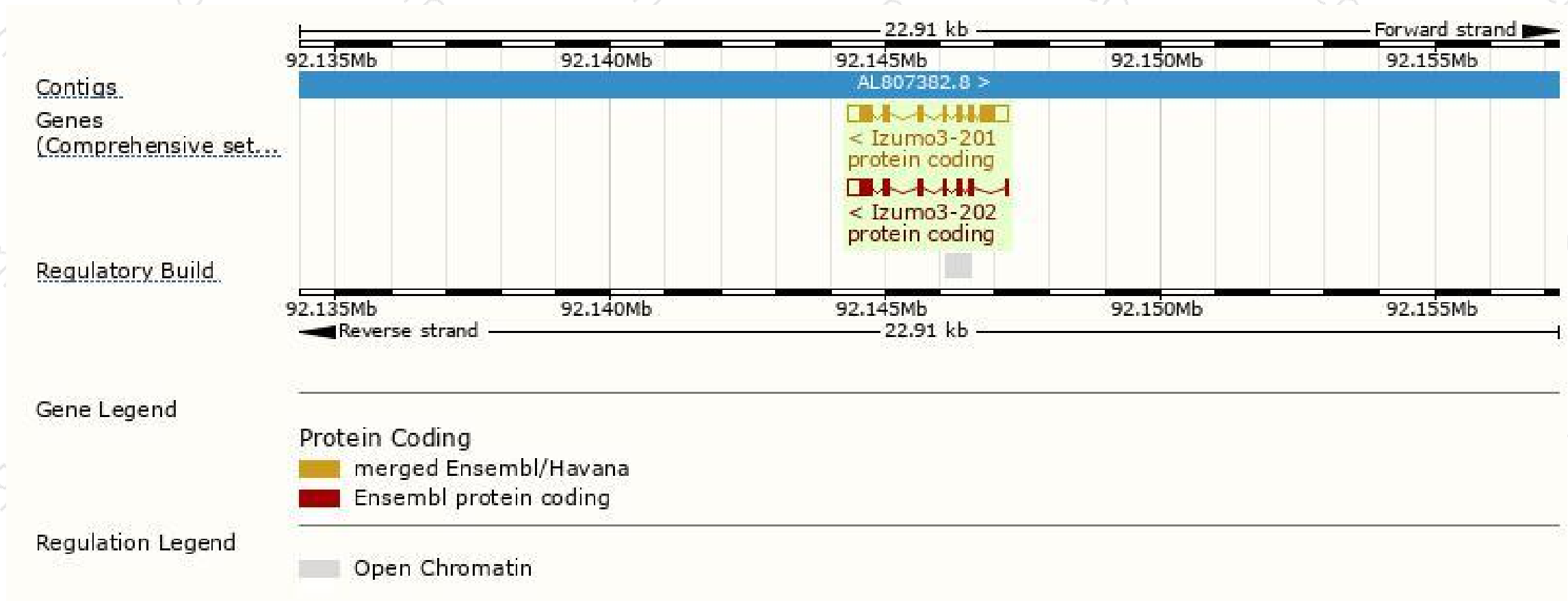
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Izumo3-201	<a href="#">ENSMUST00000107108.7</a>	1252	<a href="#">263aa</a>	Protein coding	<a href="#">CCDS51231</a>	<a href="#">A6PWV3</a>	TSL:1 GENCODE basic APPRIS P1
Izumo3-202	<a href="#">ENSMUST00000143542.1</a>	790	<a href="#">193aa</a>	Protein coding	-	<a href="#">F6T8K1</a>	CDS 5' incomplete TSL:1

The strategy is based on the design of *Izumo3-201* transcript,The transcription is shown below

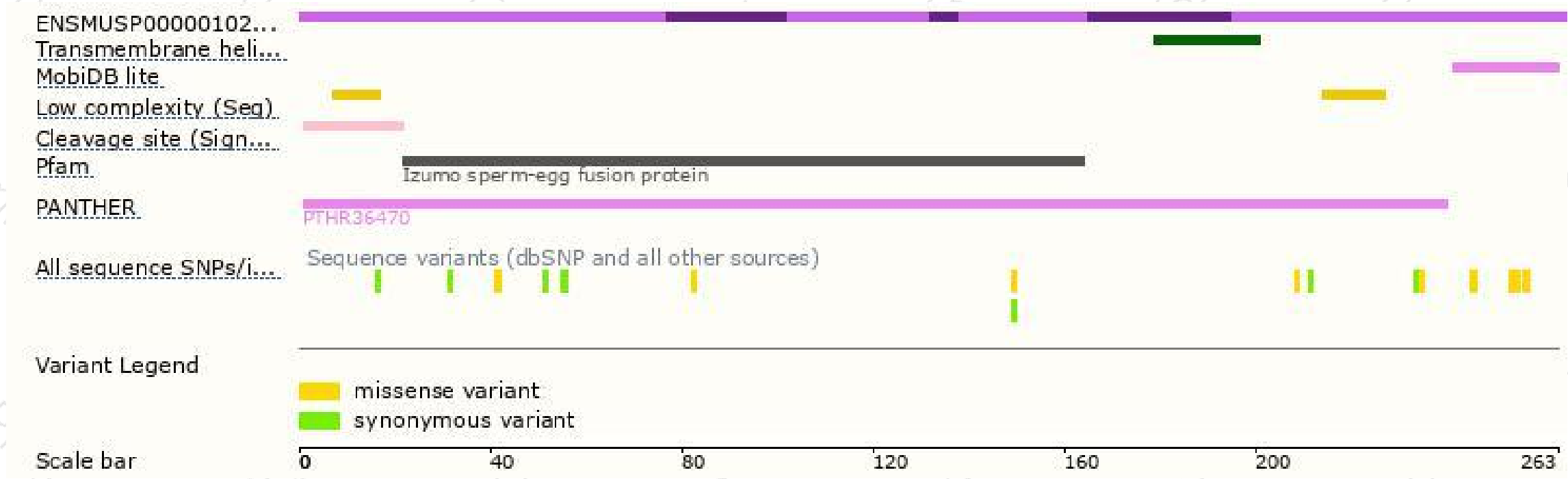


# Genomic location distribution





# Protein domain



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

Tel: 400-9660890

