

Otub1 Cas9-CKO Strategy

Designer:

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Design Date:

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Project Overview

Project Name

Otub1

Project type

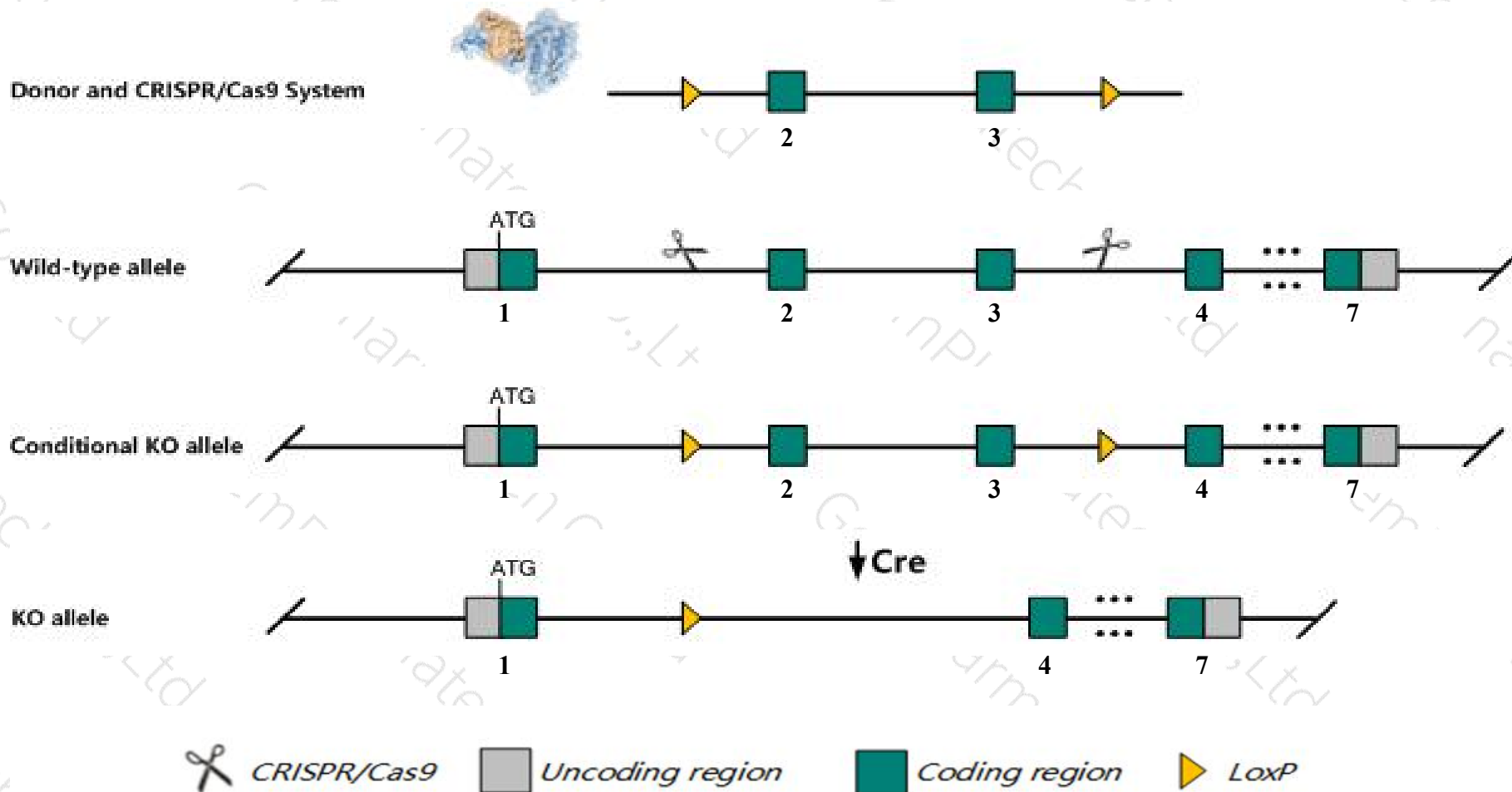
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Otub1* gene. The schematic diagram is as follows:



Technical routes

- The *Otub1* gene has 5 transcripts. According to the structure of *Otub1* gene, exon2-exon3 of *Otub1*-201 (ENSMUST00000025679.10) transcript is recommended as the knockout region. The region contains 161bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Otub1* 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 *Otub1* gene is located on the Chr19. 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)

Otub1 OTU domain, ubiquitin aldehyde binding 1 [Mus musculus (house mouse)]

Gene ID: 107260, updated on 12-Mar-2019

Summary



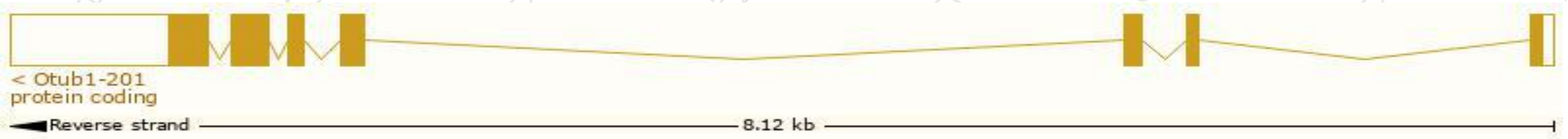
Official Symbol	Otub1 provided by MGI
Official Full Name	OTU domain, ubiquitin aldehyde binding 1 provided by MGI
Primary source	MGI:MGI:2147616
See related	Ensembl:ENSMUSG00000024767
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI850305
Expression	Ubiquitous expression in ovary adult (RPKM 75.5), adrenal adult (RPKM 60.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

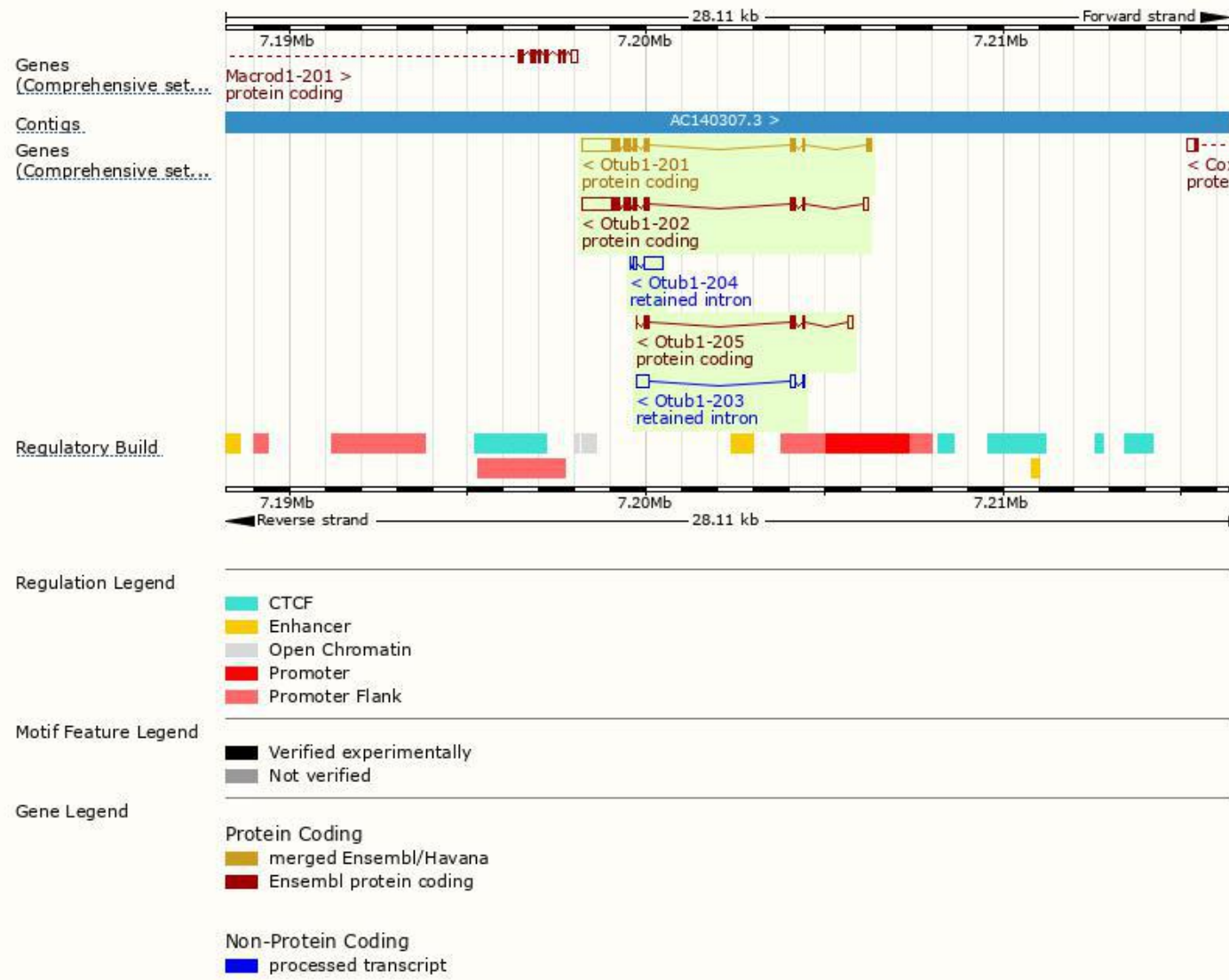
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Otub1-201	ENSMUST00000025679.10	1713	271aa	Protein coding	CCDS29520	Q7TQI3	TSL:1 GENCODE basic APPRIS P1
Otub1-202	ENSMUST00000123594.7	1728	241aa	Protein coding	-	D3YWF6	TSL:5 GENCODE basic
Otub1-205	ENSMUST00000142085.1	446	95aa	Protein coding	-	D3Z7K0	CDS 3' incomplete TSL:3
Otub1-204	ENSMUST00000127241.1	634	No protein	Retained intron	-	-	TSL:2
Otub1-203	ENSMUST00000123743.1	450	No protein	Retained intron	-	-	TSL:5

The strategy is based on the design of *Otub1-201* transcript,The transcription is shown below



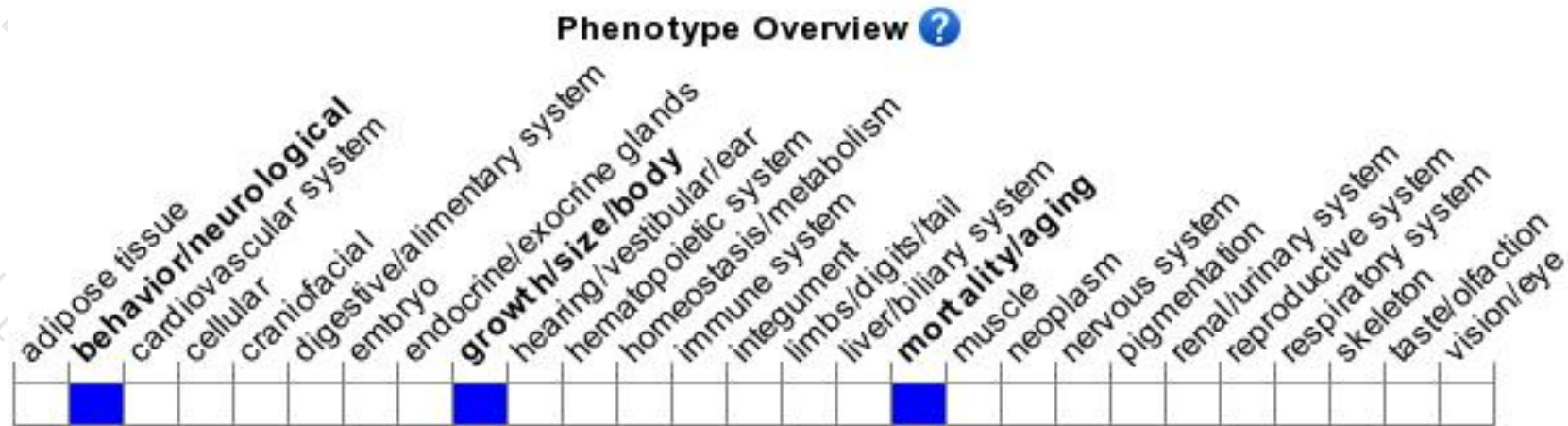
Genomic location distribution



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/>).

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

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