

Ube2f Cas9-CKO Strategy

Designer:

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Design Date:

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Project Overview

Project Name

Ube2f

Project type

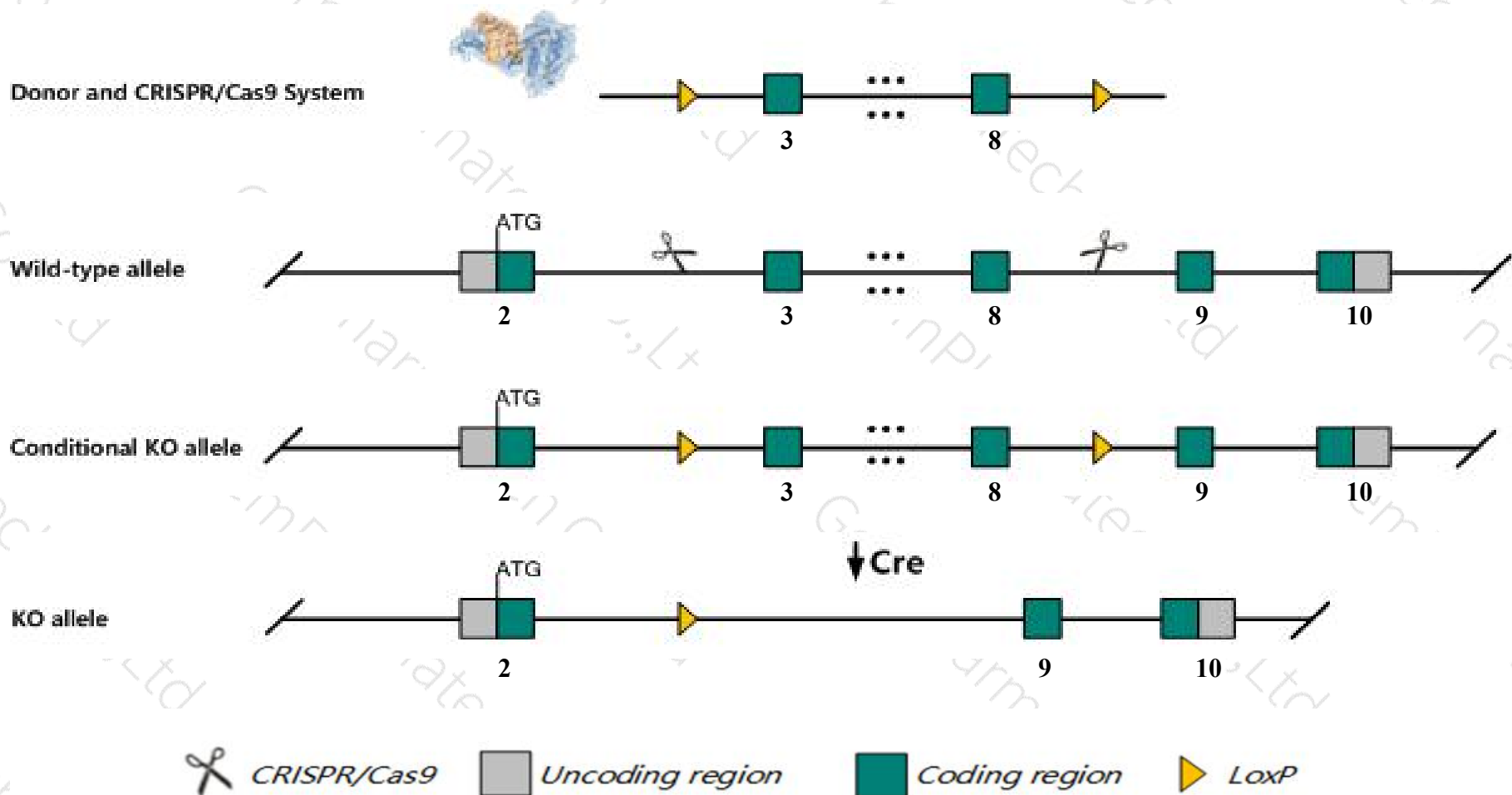
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ube2f* gene. The schematic diagram is as follows:



Technical routes

- The *Ube2f* gene has 11 transcripts. According to the structure of *Ube2f* gene, exon3-exon8 of *Ube2f*-203 (ENSMUST00000171165.7) transcript is recommended as the knockout region. The region contains 326bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Ube2f* 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 *Ube2f* gene is located on the Chr1. 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)

Ube2f ubiquitin-conjugating enzyme E2F (putative) [Mus musculus (house mouse)]

Gene ID: 67921, updated on 31-Jan-2019

Summary



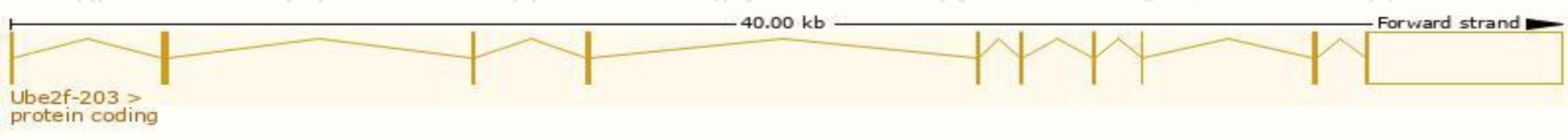
Official Symbol	Ube2f provided by MGI
Official Full Name	ubiquitin-conjugating enzyme E2F (putative) provided by MGI
Primary source	MGI:MGI:1915171
See related	Ensembl:ENSMUSG00000034343
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2510010F15Rik, AI851109
Expression	Ubiquitous expression in testis adult (RPKM 22.6), placenta adult (RPKM 14.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

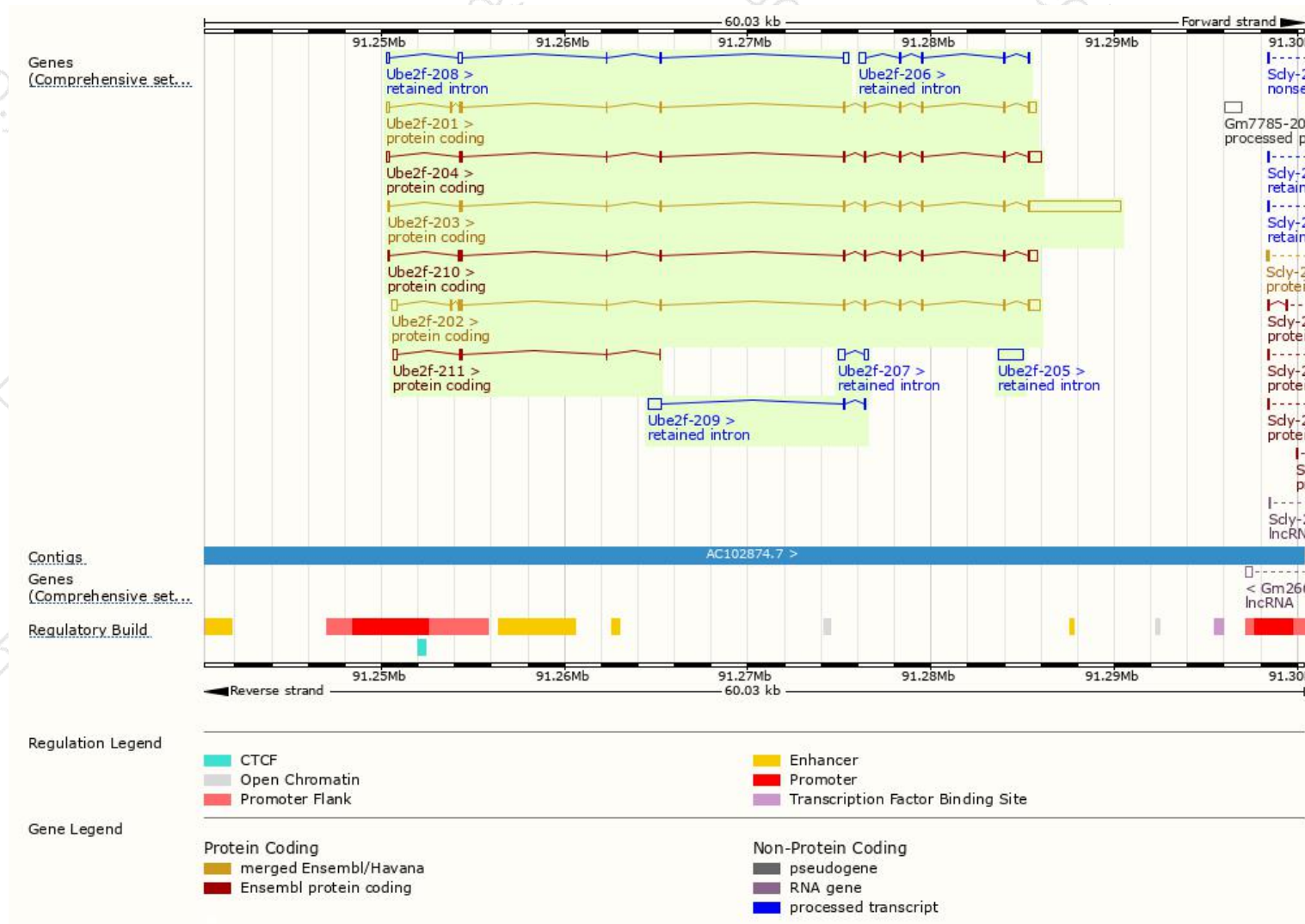
The gene has 11 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ube2f-203	ENSMUST00000171165.7	5654	185aa	Protein coding	CCDS48322	Q9CY34	TSL:1 GENCODE basic APPRIS P1
Ube2f-202	ENSMUST00000171112.7	1547	185aa	Protein coding	CCDS48322	Q9CY34	TSL:1 GENCODE basic APPRIS P1
Ube2f-204	ENSMUST00000178627.7	1363	185aa	Protein coding	CCDS48322	Q9CY34	TSL:1 GENCODE basic APPRIS P1
Ube2f-201	ENSMUST00000059743.11	1154	185aa	Protein coding	CCDS48322	Q9CY34	TSL:1 GENCODE basic APPRIS P1
Ube2f-210	ENSMUST00000191368.6	1110	185aa	Protein coding	CCDS48322	Q9CY34	TSL:1 GENCODE basic APPRIS P1
Ube2f-211	ENSMUST00000191533.1	382	56aa	Protein coding	-	A0A087WQR9	CDS 3' incomplete TSL:5
Ube2f-205	ENSMUST00000185697.1	1365	No protein	Retained intron	-	-	TSL:NA
Ube2f-209	ENSMUST00000189589.1	823	No protein	Retained intron	-	-	TSL:3
Ube2f-208	ENSMUST00000188576.1	639	No protein	Retained intron	-	-	TSL:3
Ube2f-206	ENSMUST00000185950.1	587	No protein	Retained intron	-	-	TSL:2
Ube2f-207	ENSMUST00000187494.1	520	No protein	Retained intron	-	-	TSL:3

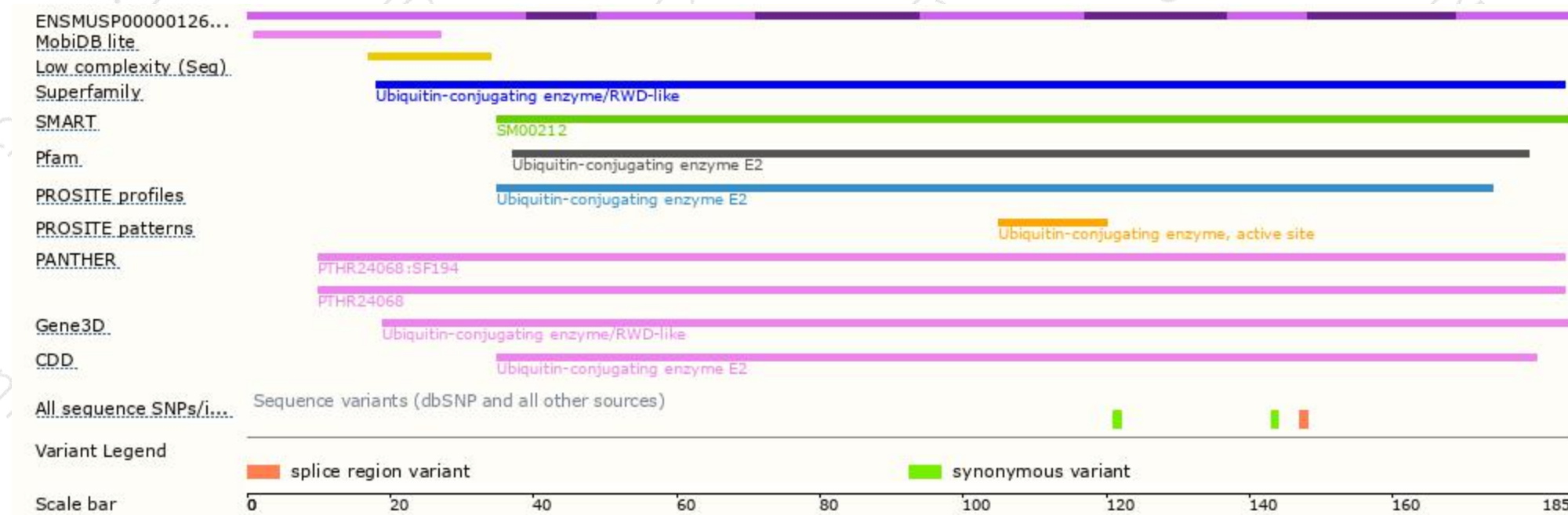
The strategy is based on the design of *Ube2f-203* transcript,The transcription is shown below



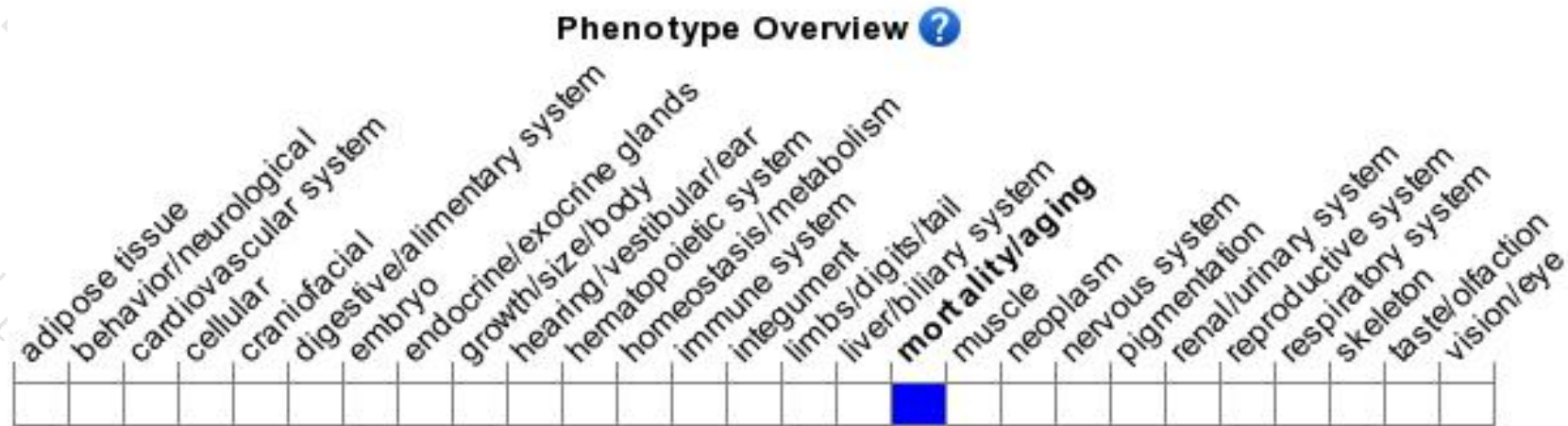
Genomic location distribution



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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