

Uqcrb Cas9-CKO Strategy

Designer:

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Project Overview

Project Name

Uqcrb

Project type

Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

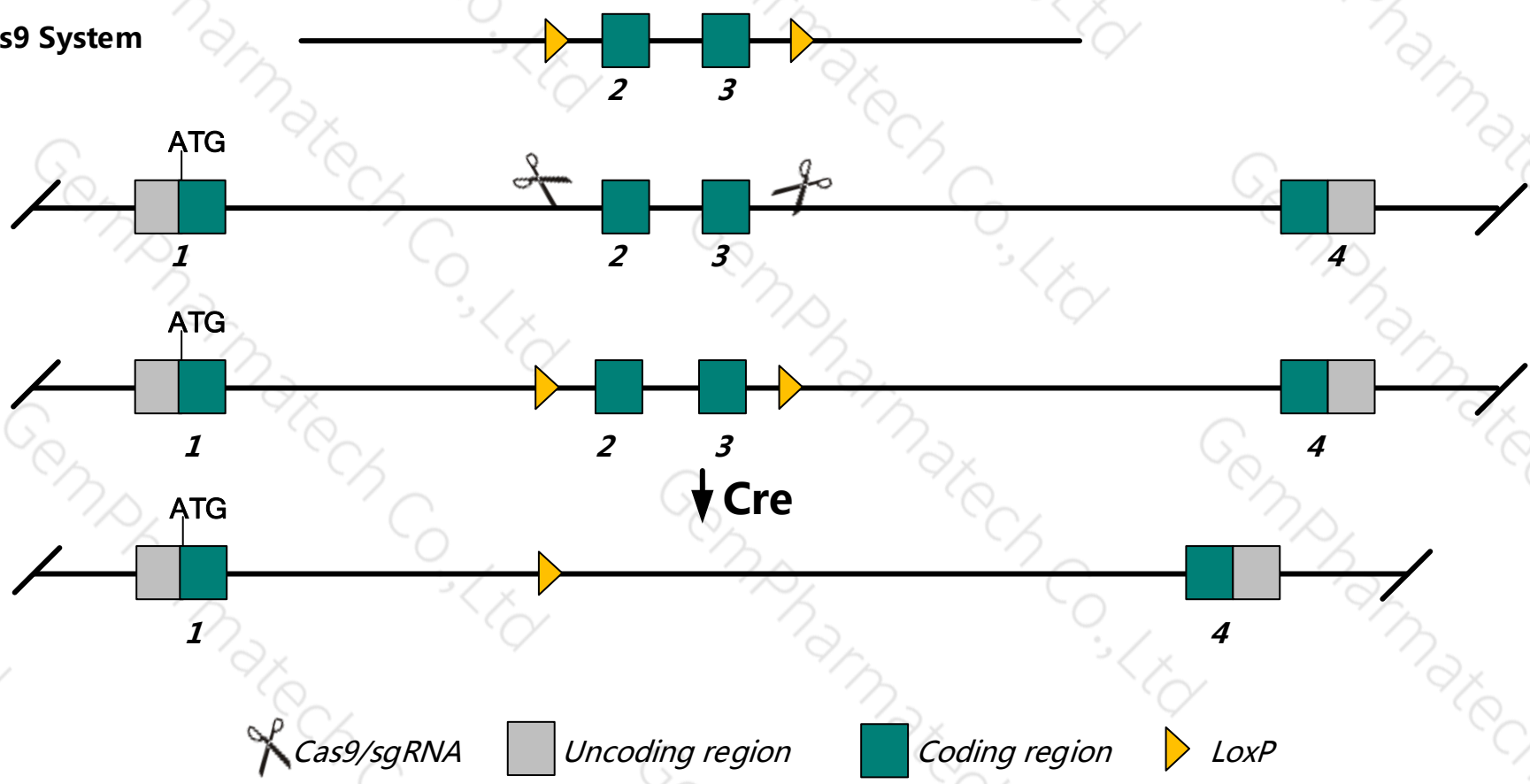
This model will use CRISPR/Cas9 technology to edit the *Uqcrb* gene. The schematic diagram is as follows:

Donor and CRISPR/Cas9 System

Wild-type allele

Conditional KO allele

KO allele



- The *Uqcrb* gene has 2 transcripts. According to the structure of *Uqcrb* gene, exon2-exon3 of *Uqcrb*-201 (ENSMUST00000021993.4) transcript is recommended as the knockout region. The region contains 239bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Uqcrb* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues or cell types.

- The KO region contains functional region of the *Gm10767* gene. Knockout the region may affect the function of *Gm10767* gene.
- The *Uqcrb* gene is located on the Chr13. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Uqcrb ubiquinol-cytochrome c reductase binding protein [*Mus musculus* (house mouse)]


Gene ID: 67530, updated on 9-Sep-2018

Summary

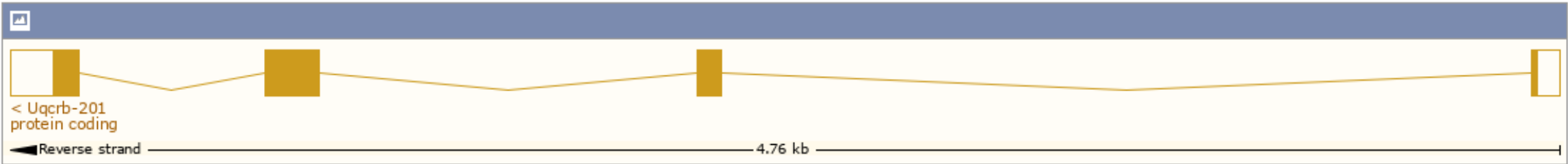
Official Symbol	Uqcrb provided by MGI
Official Full Name	ubiquinol-cytochrome c reductase binding protein provided by MGI
Primary source	MGI:MGI:1914780
See related	Ensembl:ENSMUSG00000021520 Vega:OTTMUSG00000037036
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	QPC; QP-C; UQBC; UQBP; UQPC; 2210415M14Rik
Expression	Broad expression in bladder adult (RPKM 105.5), placenta adult (RPKM 103.4) and 21 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

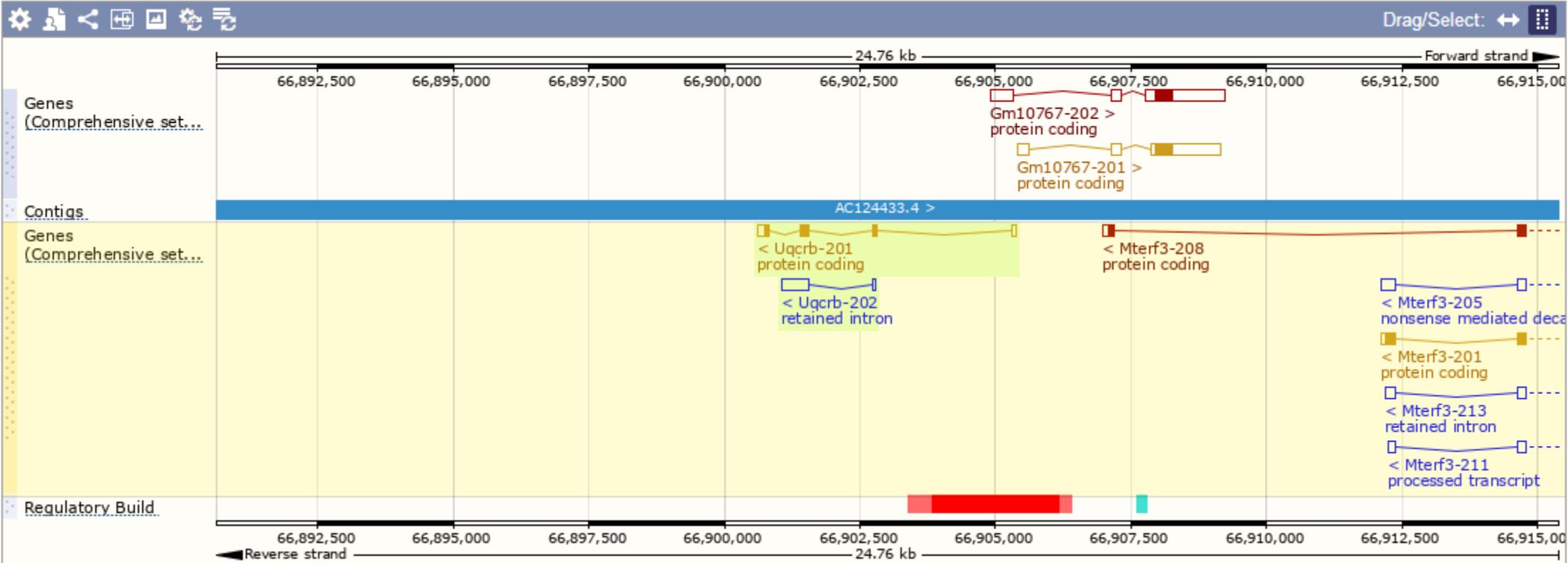
The gene has 2 transcripts, and all transcripts are shown below:

Show/hide columns (1 hidden)								Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags	
Uqcrb-201	ENSMUST00000021993.4	535	111aa	Protein coding	CCDS26610	Q9CQB4	NM_026219 NP_080495	TSL:1	GENCODE basic APPRIS P1
Uqcrb-202	ENSMUST00000174606.1	565	No protein	Retained intron	-	-	-	TSL:2	

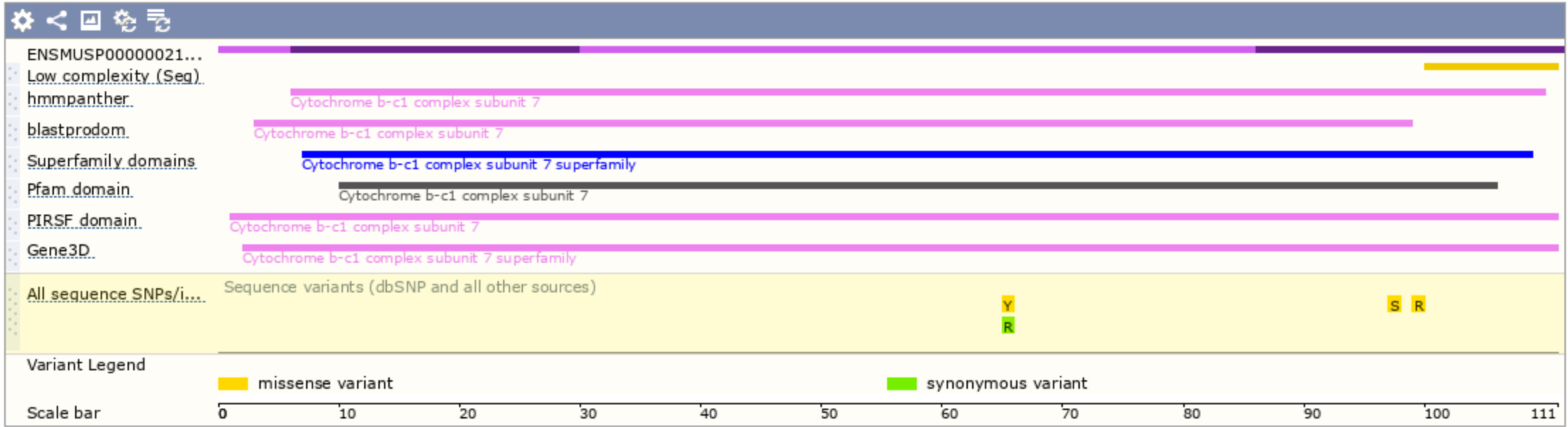
The strategy is based on the design of *Uqcrb*-201 transcript, The transcription is shown below



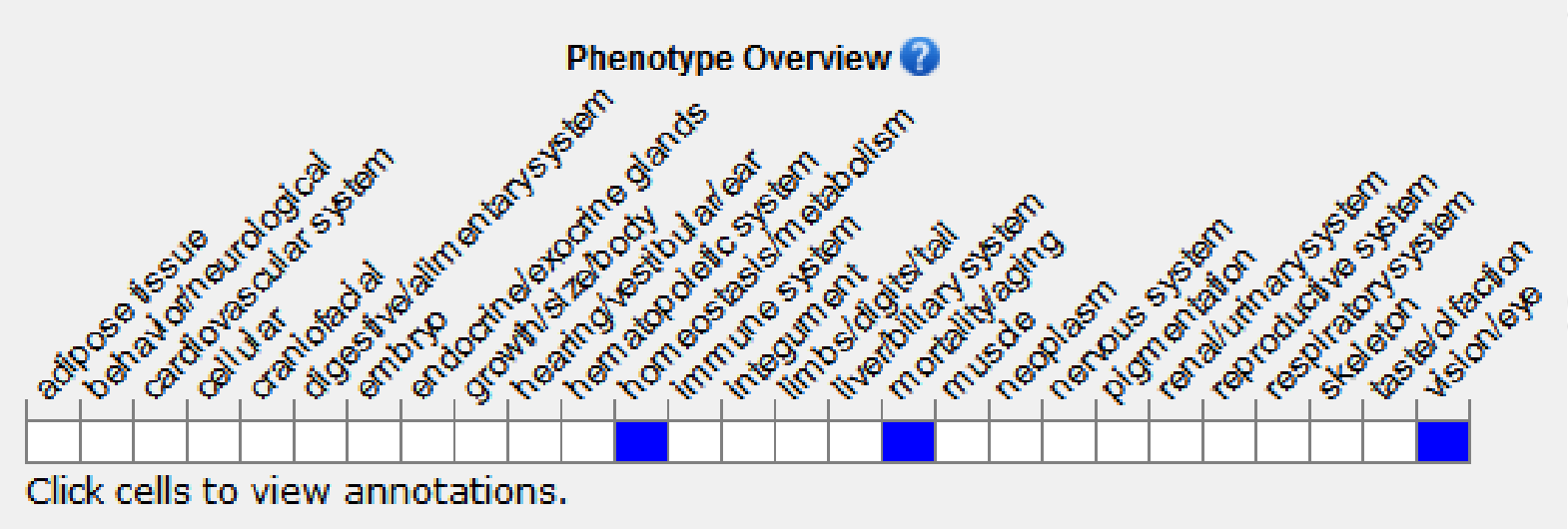
Genomic location distribution



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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