

Uck2 Cas9-CKO Strategy

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Design Date: 2020-7-24

Project Overview

Project Name

Uck2

Project type

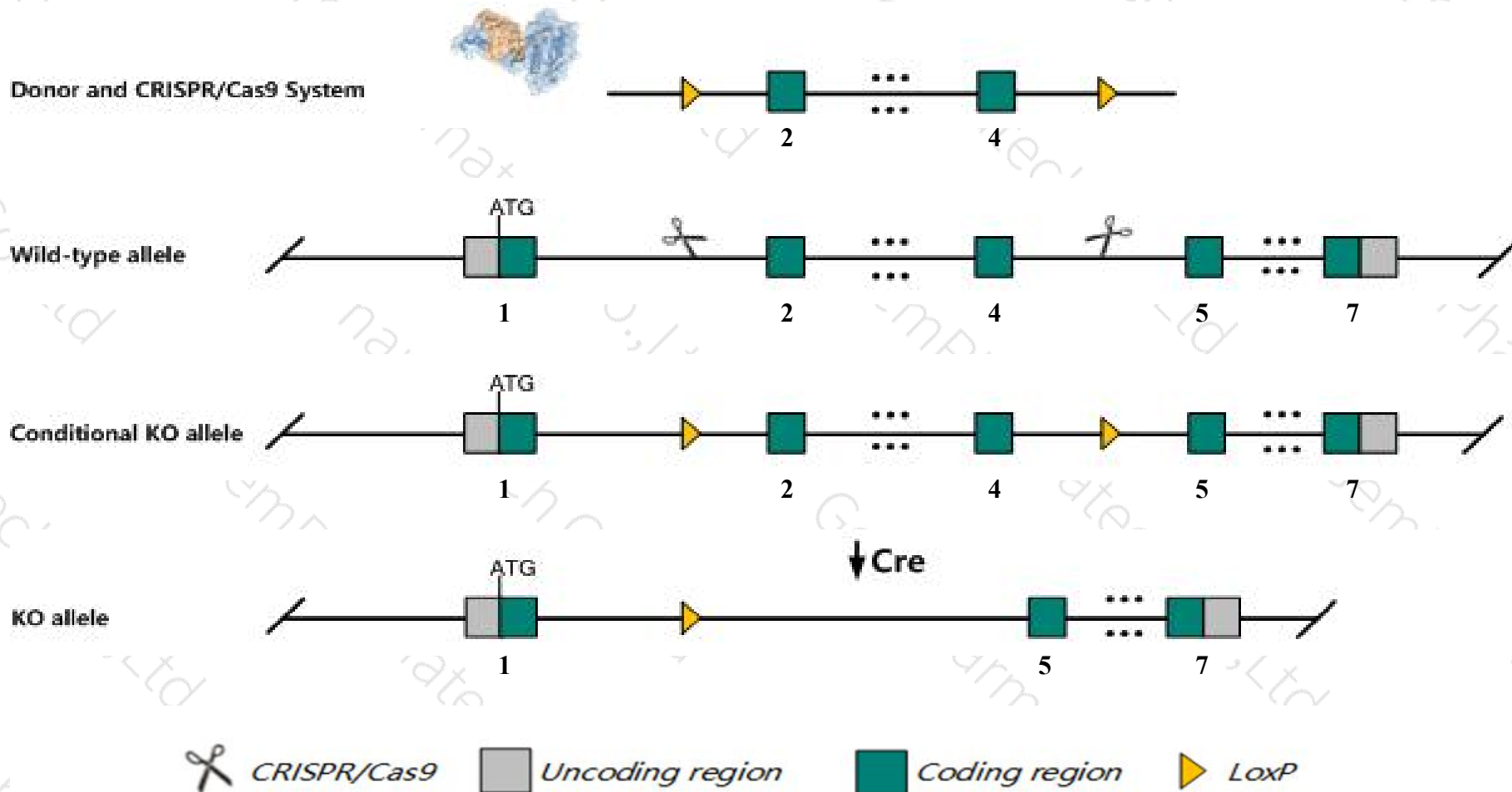
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Uck2* gene. The schematic diagram is as follows:



- The *Uck2* gene has 7 transcripts. According to the structure of *Uck2* gene, exon2-exon4 of *Uck2*-202(ENSMUST00000053686.8) transcript is recommended as the knockout region. The region contains 400bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Uck2* 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.

- The *Uck2* 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)

Uck2 uridine-cytidine kinase 2 [Mus musculus (house mouse)]

Gene ID: 80914, updated on 13-Mar-2020

Summary



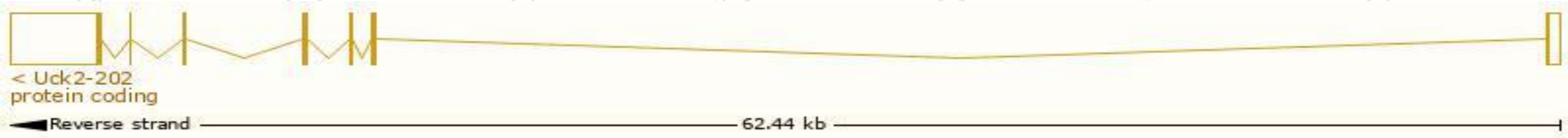
Official Symbol	Uck2 provided by MGI
Official Full Name	uridine-cytidine kinase 2 provided by MGI
Primary source	MGI:MGI:1931744
See related	Ensembl:ENSMUSG00000026558
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AA407809, AI481316, AU018180, AU020720, TSA903, UK, UMK, Umpk
Expression	Ubiquitous expression in thymus adult (RPKM 18.8), CNS E11.5 (RPKM 15.9) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

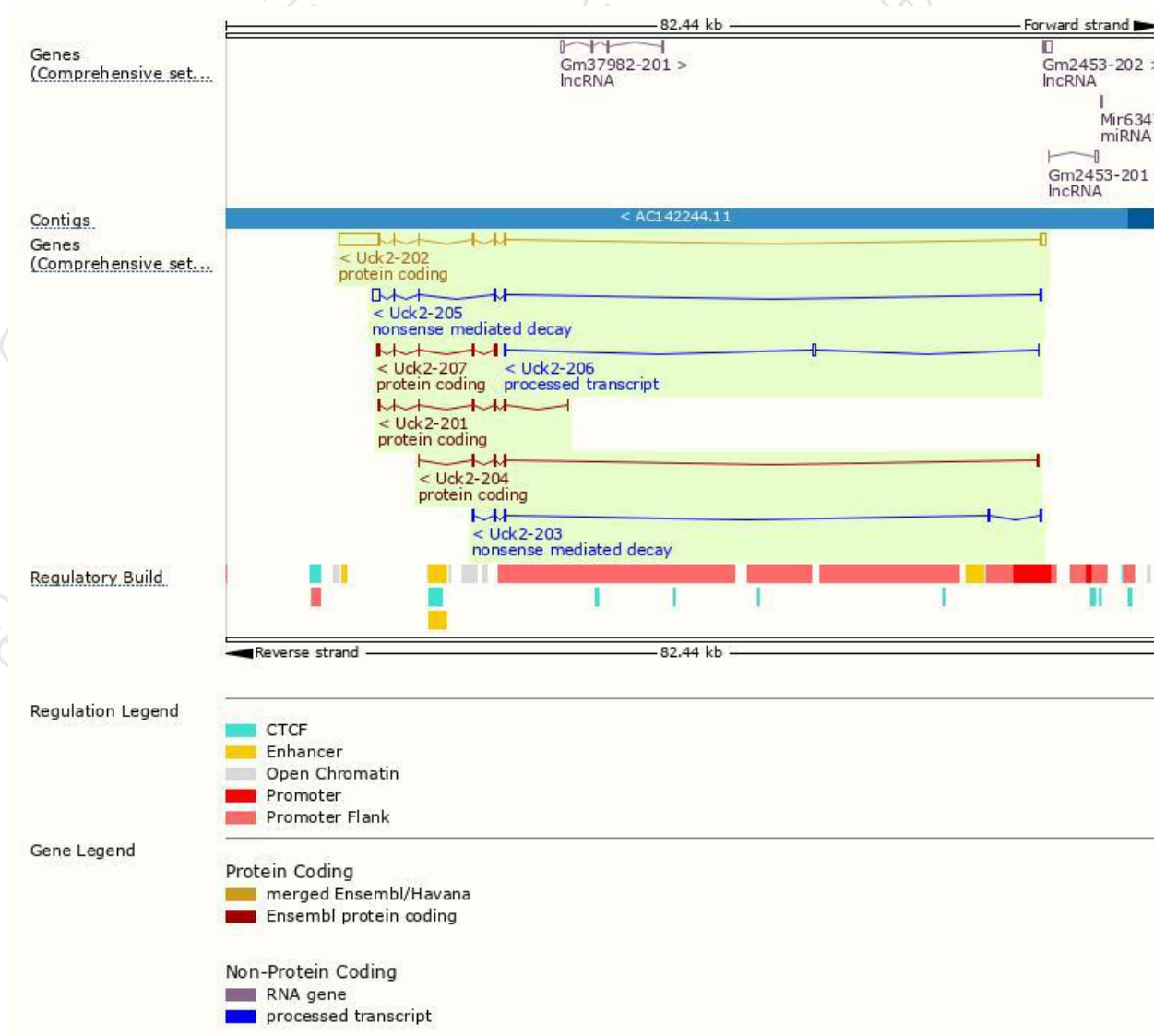
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Uck2-202	ENSMUST00000053686.8	4731	261aa	Protein coding	CCDS15455	Q543C2 Q99PM9	TSL:1 GENCODE basic APPRIS P1
Uck2-201	ENSMUST00000027839.13	803	250aa	Protein coding	-	A0A0B4J1E5	CDS 5' incomplete TSL:3
Uck2-207	ENSMUST00000195443.5	738	194aa	Protein coding	-	A0A0A6YXG9	CDS 5' incomplete TSL:3
Uck2-204	ENSMUST00000192269.2	560	187aa	Protein coding	-	A0A0A6YXW7	CDS 5' and 3' incomplete TSL:2
Uck2-205	ENSMUST00000192702.5	1194	130aa	Nonsense mediated decay	-	A0A0A6YVQ3	TSL:5
Uck2-203	ENSMUST00000191745.1	732	74aa	Nonsense mediated decay	-	A0A0A6YX11	TSL:3
Uck2-206	ENSMUST00000193579.1	480	No protein	Processed transcript	-	-	TSL:3

The strategy is based on the design of *Uck2-202* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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