

***Rnf115* Cas9-CKO Strategy**

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Design Date: 2020-8-24

Project Overview

Project Name

Rnf115

Project type

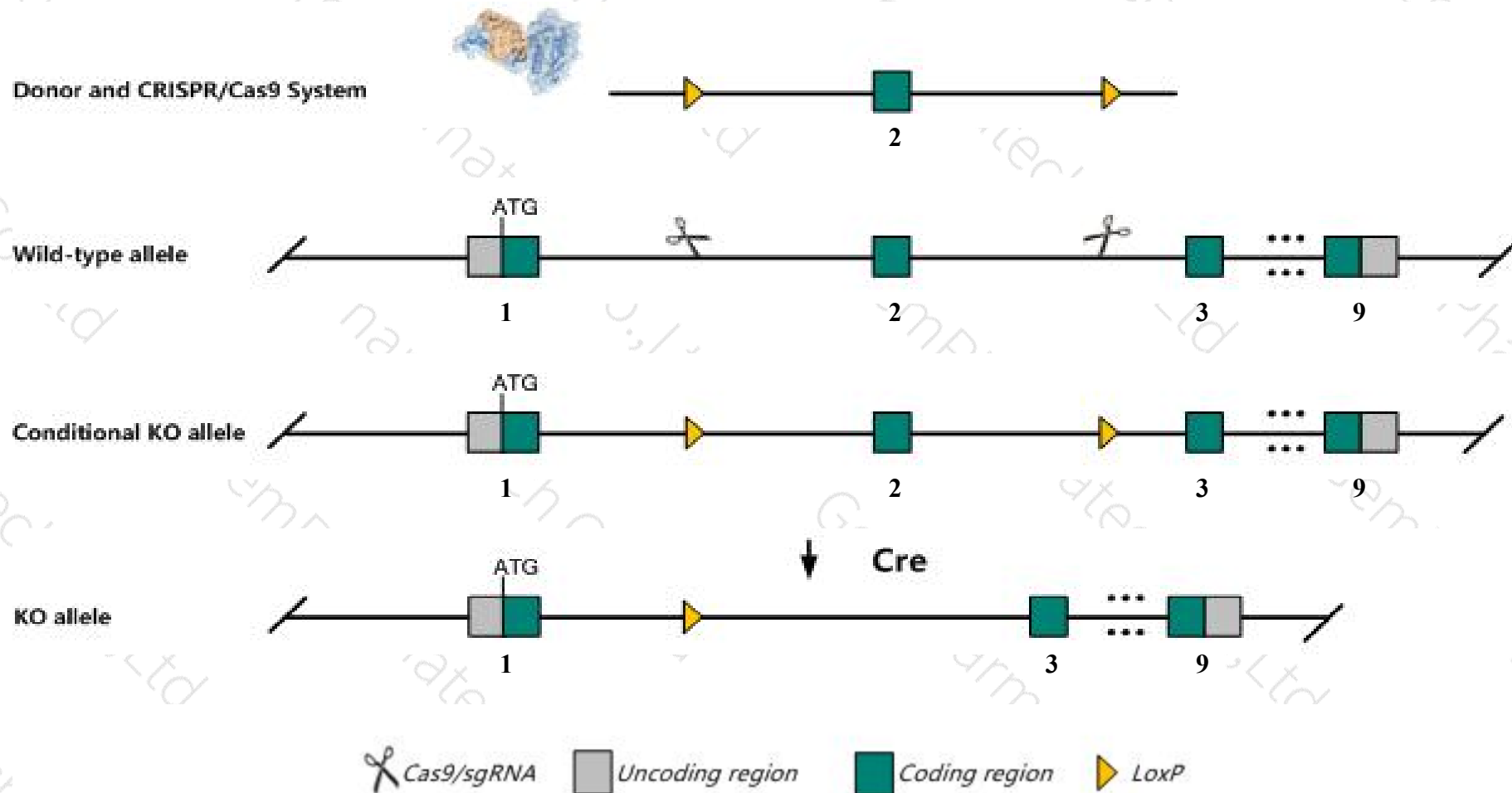
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rnf115* gene. The schematic diagram is as follows:



Technical routes

- The *Rnf115* gene has 3 transcripts. According to the structure of *Rnf115* gene, exon2 of *Rnf115-201*(ENSMUST00000029740.13) transcript is recommended as the knockout region. The region contains 59bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rnf115* 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 and cell types.

- The *Rnf115* gene is located on the Chr3. 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)

Rnf115 ring finger protein 115 [Mus musculus (house mouse)]

Gene ID: 67845, updated on 13-Mar-2020

Summary



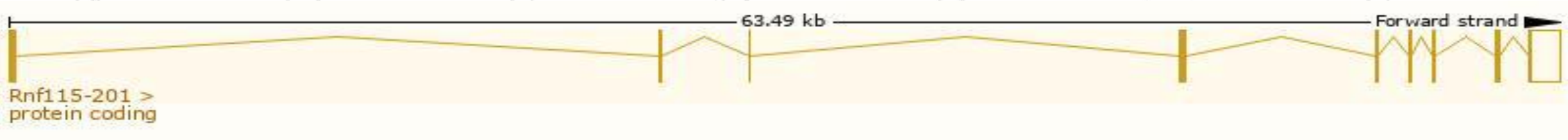
Official Symbol	Rnf115 provided by MGI
Official Full Name	ring finger protein 115 provided by MGI
Primary source	MGI:MGI:1915095
See related	Ensembl:ENSMUSG00000028098
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610028E05Rik, AU042696, Zfp364
Expression	Ubiquitous expression in cerebellum adult (RPKM 14.4), CNS E14 (RPKM 14.3) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

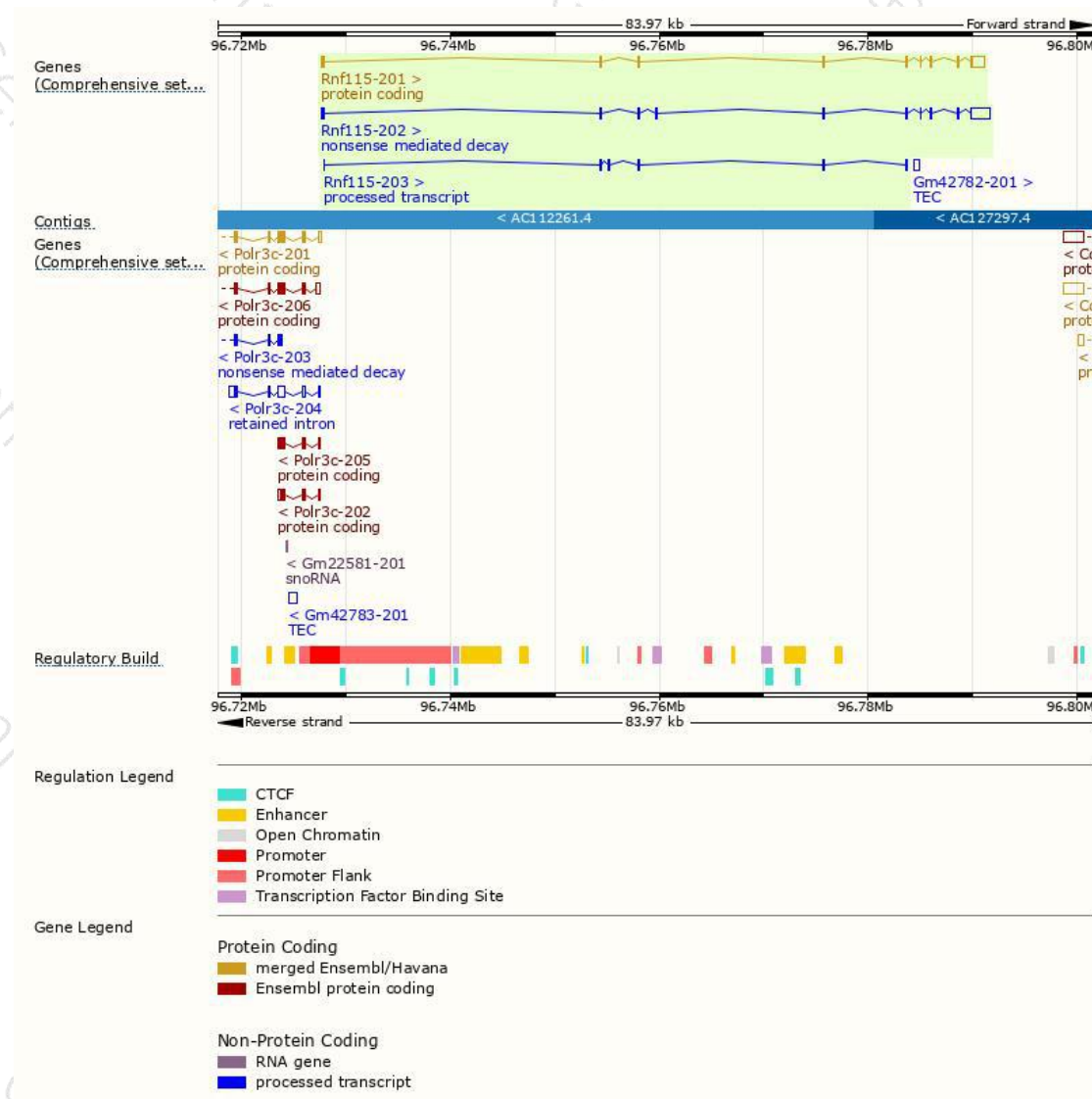
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rnf115-201	ENSMUST00000029740.13	2209	305aa	Protein coding	CCDS17647	Q9D0C1	TSL:1 GENCODE basic APPRIS P1
Rnf115-202	ENSMUST00000199051.4	2742	77aa	Nonsense mediated decay	-	A0A0G2JFV4	TSL:1
Rnf115-203	ENSMUST00000199974.1	616	No protein	Processed transcript	-	-	TSL:5

The strategy is based on the design of *Rnf115-201* transcript,the transcription is shown below:



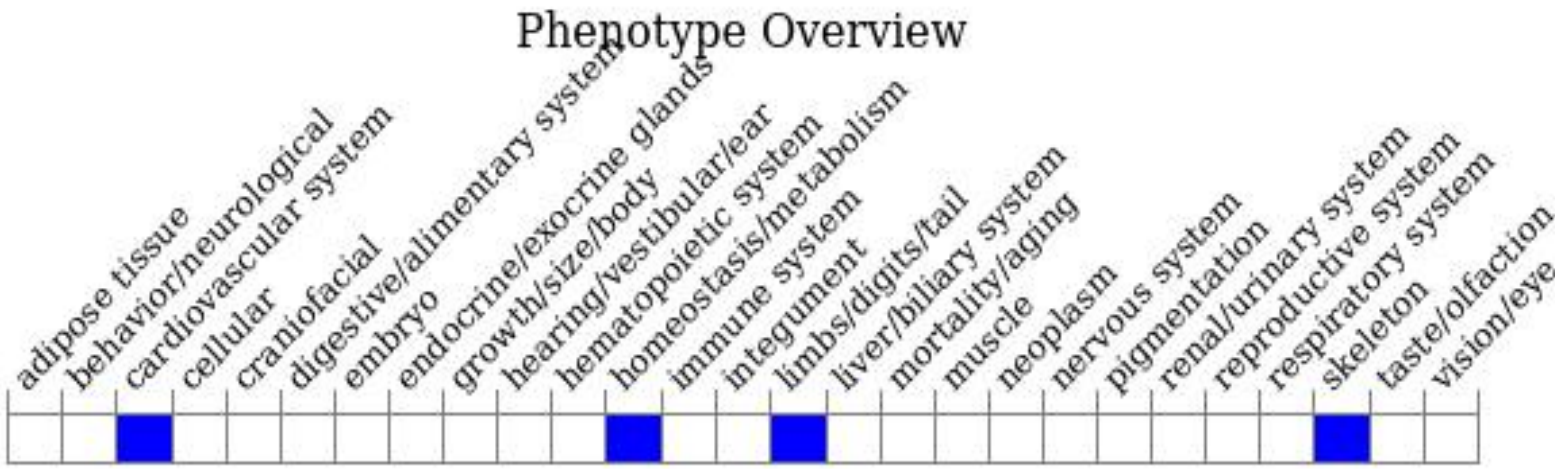
Genomic location distribution



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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