

Rap1gds1 Cas9-CKO Strategy

Designer:

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Project Overview

Project Name

Rap1gds1

Project type

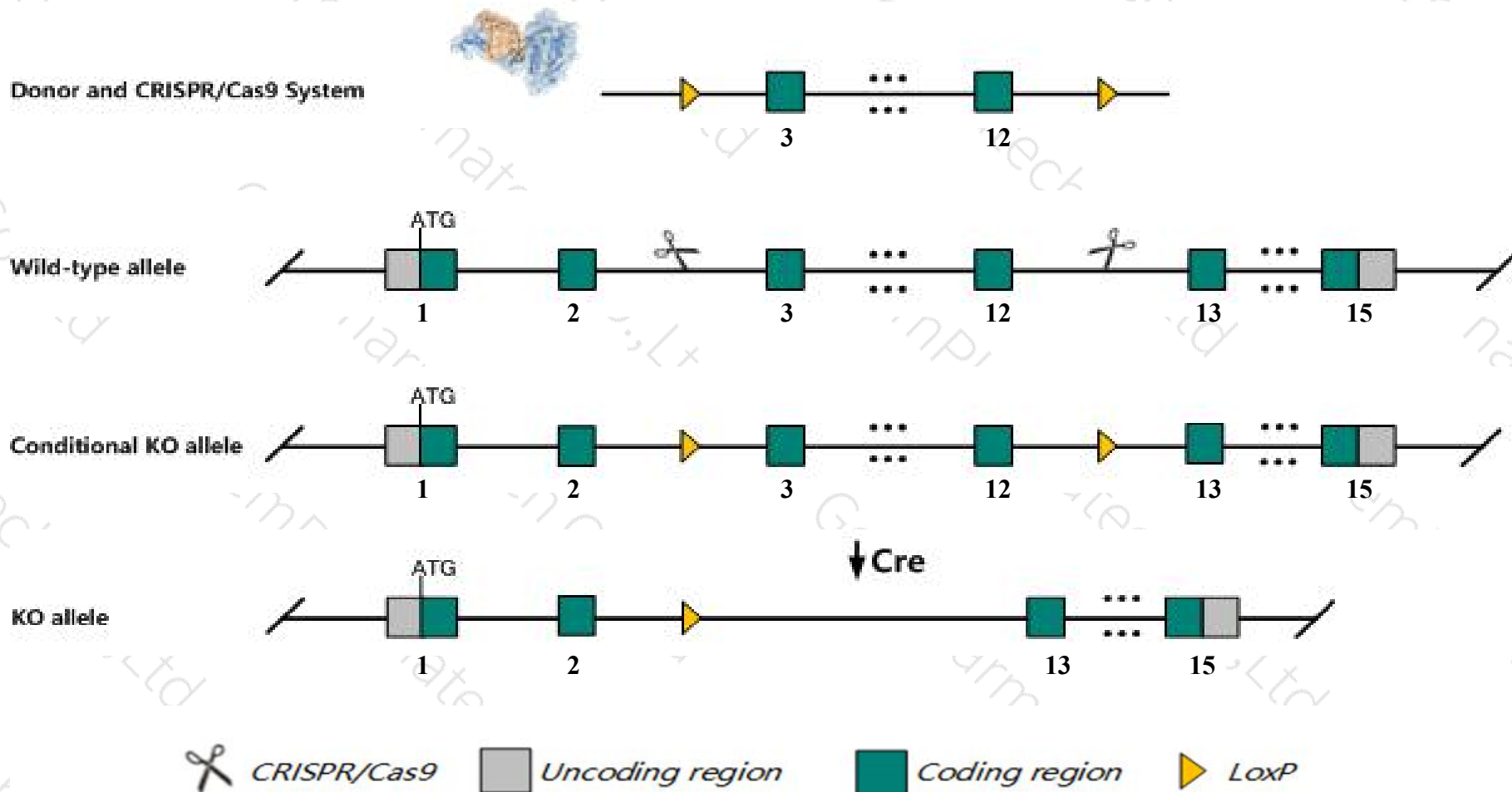
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rap1gds1* gene. The schematic diagram is as follows:



Technical routes

- The *Rap1gds1* gene has 9 transcripts. According to the structure of *Rap1gds1* gene, exon3-exon12 of *Rap1gds1*-202 (ENSMUST00000098574.8) transcript is recommended as the knockout region. The region contains 1328bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rap1gds1* 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 *Rap1gds1* 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)

Rap1gds1 RAP1, GTP-GDP dissociation stimulator 1 [Mus musculus (house mouse)]

Gene ID: 229877, updated on 7-Apr-2019

Summary



Official Symbol	Rap1gds1 provided by MGI
Official Full Name	RAP1, GTP-GDP dissociation stimulator 1 provided by MGI
Primary source	MGI:MGI:2385189
See related	Ensembl:ENSMUSG00000028149
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	BC011279, GDS1
Expression	Broad expression in frontal lobe adult (RPKM 49.1), cortex adult (RPKM 47.6) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

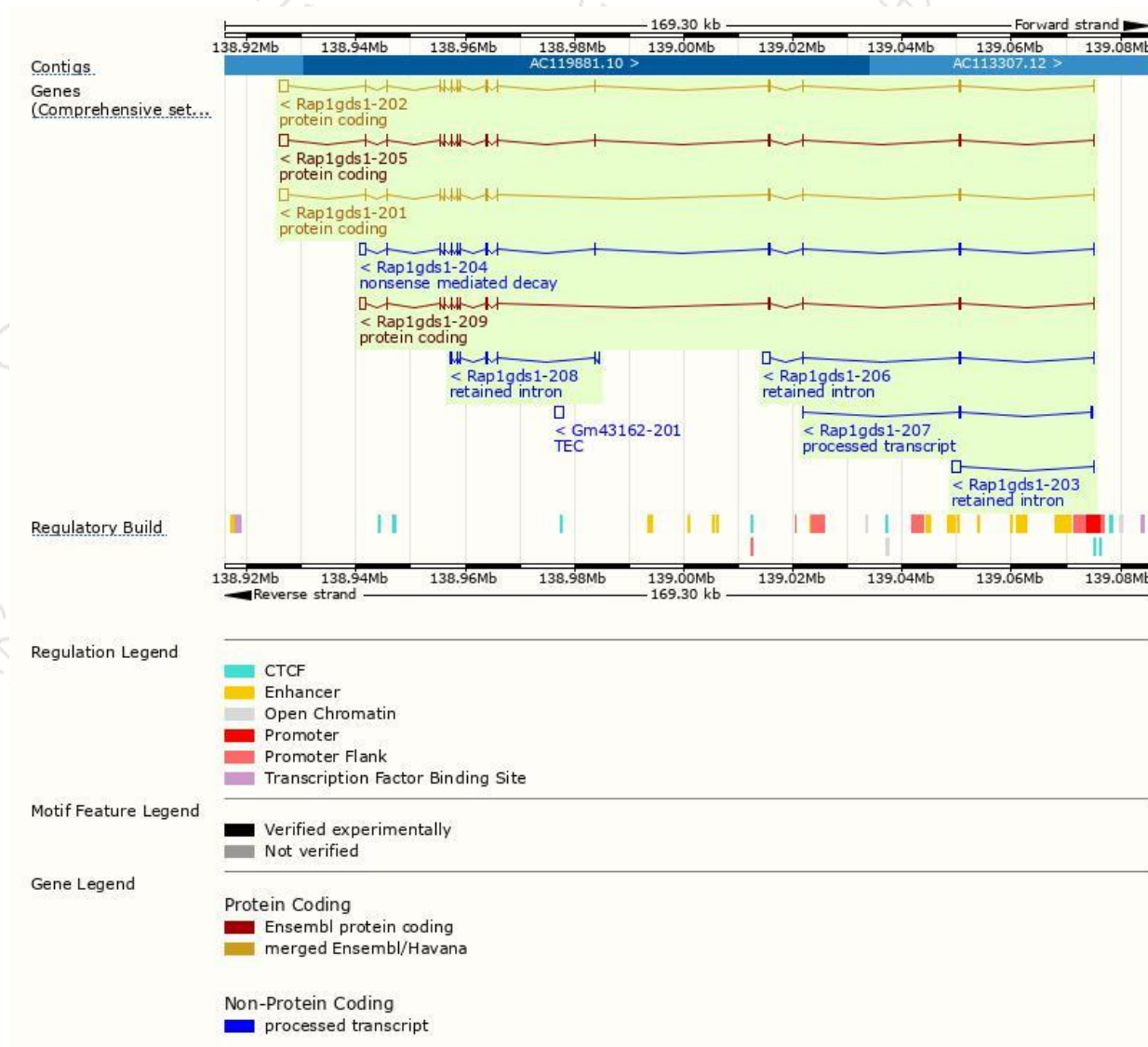
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rap1gds1-202	ENSMUST00000098574.8	3669	607aa	Protein coding	CCDS51083	E9Q912	TSL:1 GENCODE basic APPRIS P4
Rap1gds1-205	ENSMUST00000196280.4	3598	606aa	Protein coding	CCDS80033	Q3TU36	TSL:1 GENCODE basic APPRIS ALT 1
Rap1gds1-201	ENSMUST00000029796.10	3383	558aa	Protein coding	CCDS51082	E9Q6Q4	TSL:1 GENCODE basic APPRIS ALT 1
Rap1gds1-209	ENSMUST00000200396.1	2622	544aa	Protein coding	-	A0A0G2JGC8	TSL:1 GENCODE basic
Rap1gds1-204	ENSMUST00000196106.4	2811	101aa	Nonsense mediated decay	-	A0A0G2JF70	TSL:2
Rap1gds1-207	ENSMUST00000199152.1	362	No protein	Processed transcript	-	-	TSL:3
Rap1gds1-206	ENSMUST00000198538.4	1559	No protein	Retained intron	-	-	TSL:1
Rap1gds1-203	ENSMUST00000195953.1	1533	No protein	Retained intron	-	-	TSL:2
Rap1gds1-208	ENSMUST00000200262.1	1167	No protein	Retained intron	-	-	TSL:5

The strategy is based on the design of *Rap1gds1-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain

ENSMUSP00000096...

Low complexity (Seq)

hmmpanther

Superfamily domains

SMART domains

Pfam domain

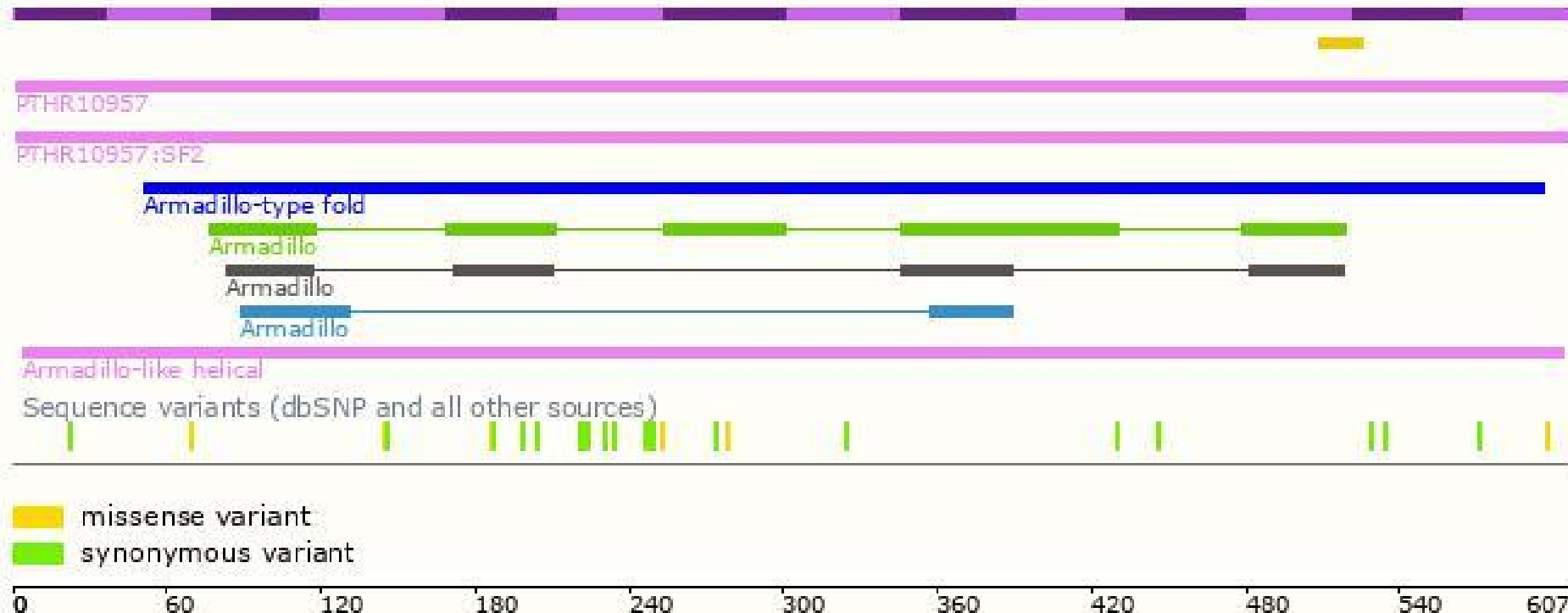
PROSITE profiles

Gene3D

All sequence SNPs/i...

Variant Legend

Scale bar



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

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