

Bbs9 Cas9-CKO Strategy

Designer:

JiaYu

Reviewer:

Xiaojing Li

Design Date:

2020-2-28

Project Overview

Project Name

Bbs9

Project type

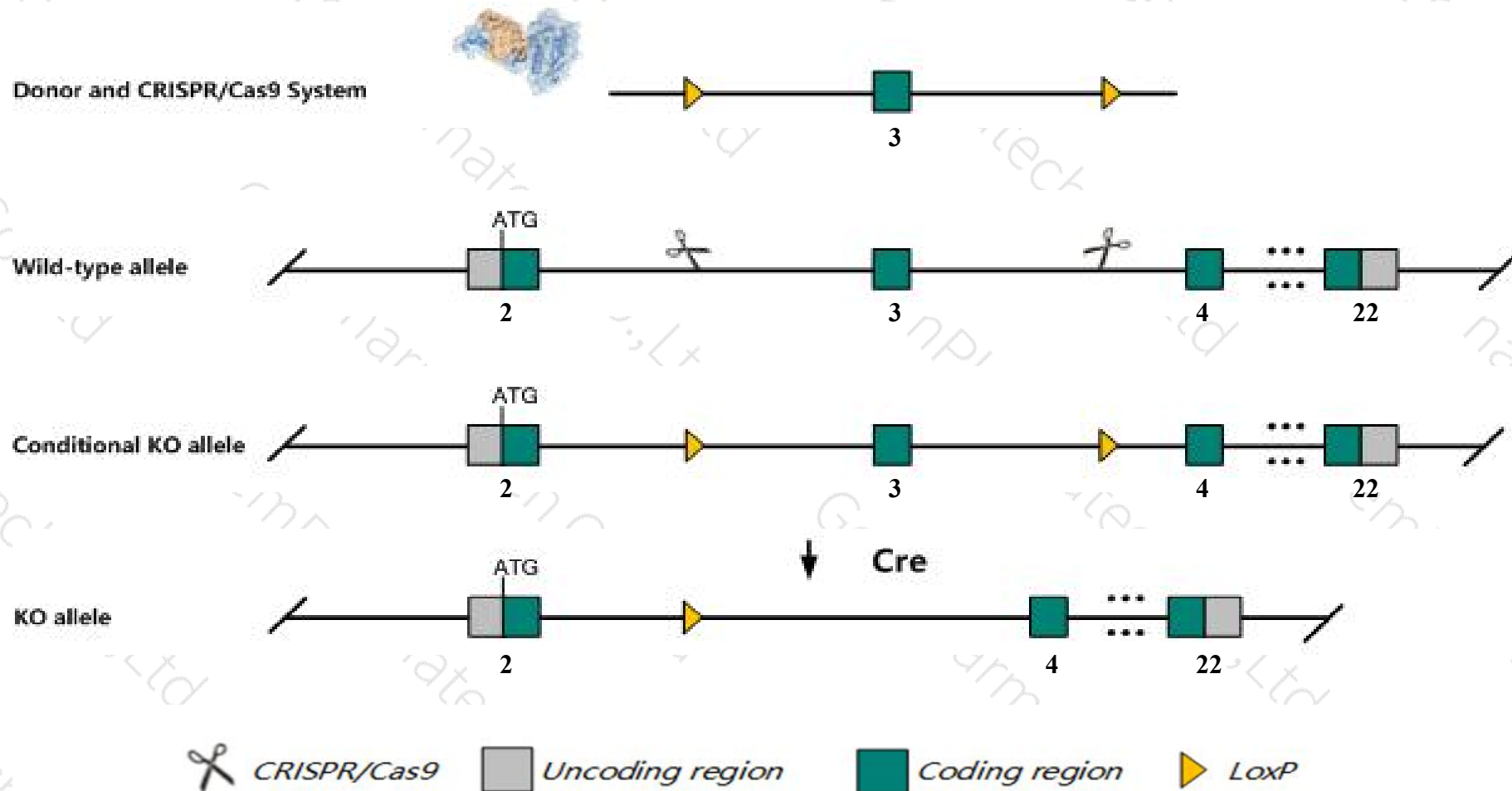
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Bbs9* gene. The schematic diagram is as follows:



Technical routes

- The *Bbs9* gene has 12 transcripts. According to the structure of *Bbs9* gene, exon3 of *Bbs9-210* (ENSMUST00000147712.7) transcript is recommended as the knockout region. The region contains 151bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Bbs9* 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 *Bbs9* gene is located on the Chr9. 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.
- Transcript 206 CDS 5' incomplete the influences is unknown.
- 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)

Bbs9 Bardet-Biedl syndrome 9 (human) [Mus musculus (house mouse)]

Gene ID: 319845, updated on 31-Jan-2019

Summary



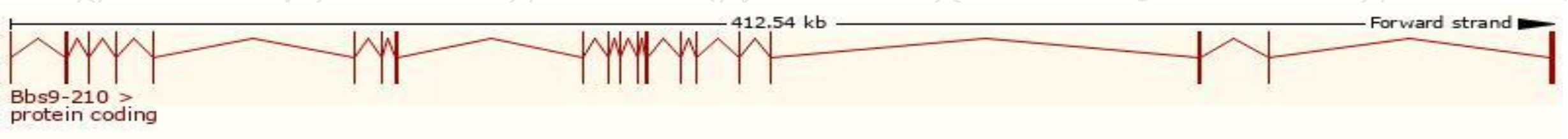
Official Symbol	Bbs9 provided by MGI
Official Full Name	Bardet-Biedl syndrome 9 (human) provided by MGI
Primary source	MGI:MGI:2442833
See related	Ensembl:ENSMUSG00000035919
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	E130103I17Rik
Expression	Ubiquitous expression in testis adult (RPKM 9.5), CNS E18 (RPKM 5.2) and 26 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

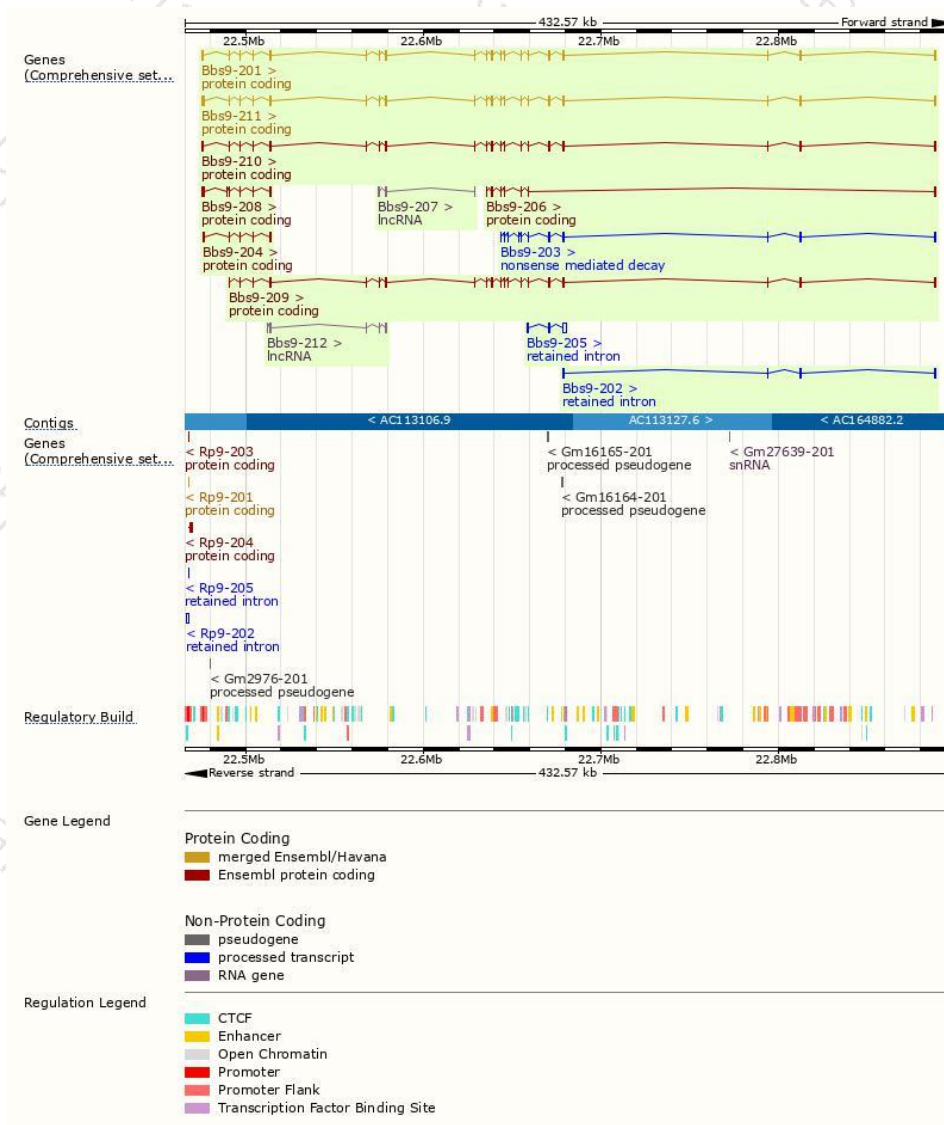
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Bbs9-210	ENSMUST00000147712.7	3495	880aa	Protein coding	CCDS22928	Q811G0	TSL:1 GENCODE basic APPRIS P2
Bbs9-211	ENSMUST00000150395.7	3425	880aa	Protein coding	CCDS22928	Q811G0	TSL:1 GENCODE basic APPRIS P2
Bbs9-201	ENSMUST00000039798.15	3382	880aa	Protein coding	CCDS22928	Q811G0	TSL:1 GENCODE basic APPRIS P2
Bbs9-209	ENSMUST00000147405.7	3045	885aa	Protein coding	-	Q811G0	TSL:5 GENCODE basic APPRIS ALT 1
Bbs9-204	ENSMUST00000128812.7	833	147aa	Protein coding	-	D3Z389	CDS 3' incomplete TSL:5
Bbs9-208	ENSMUST00000142313.7	833	132aa	Protein coding	-	D3Z6T1	CDS 3' incomplete TSL:3
Bbs9-206	ENSMUST00000136084.7	638	163aa	Protein coding	-	F6XSQ3	CDS 5' incomplete TSL:5
Bbs9-203	ENSMUST00000127296.7	1640	61aa	Nonsense mediated decay	-	D6RIM6	CDS 5' incomplete TSL:5
Bbs9-205	ENSMUST00000130479.1	2641	No protein	Retained intron	-	-	TSL:1
Bbs9-202	ENSMUST00000124076.1	1012	No protein	Retained intron	-	-	TSL:3
Bbs9-212	ENSMUST00000152719.7	716	No protein	lncRNA	-	-	TSL:5
Bbs9-207	ENSMUST00000137547.1	542	No protein	lncRNA	-	-	TSL:3

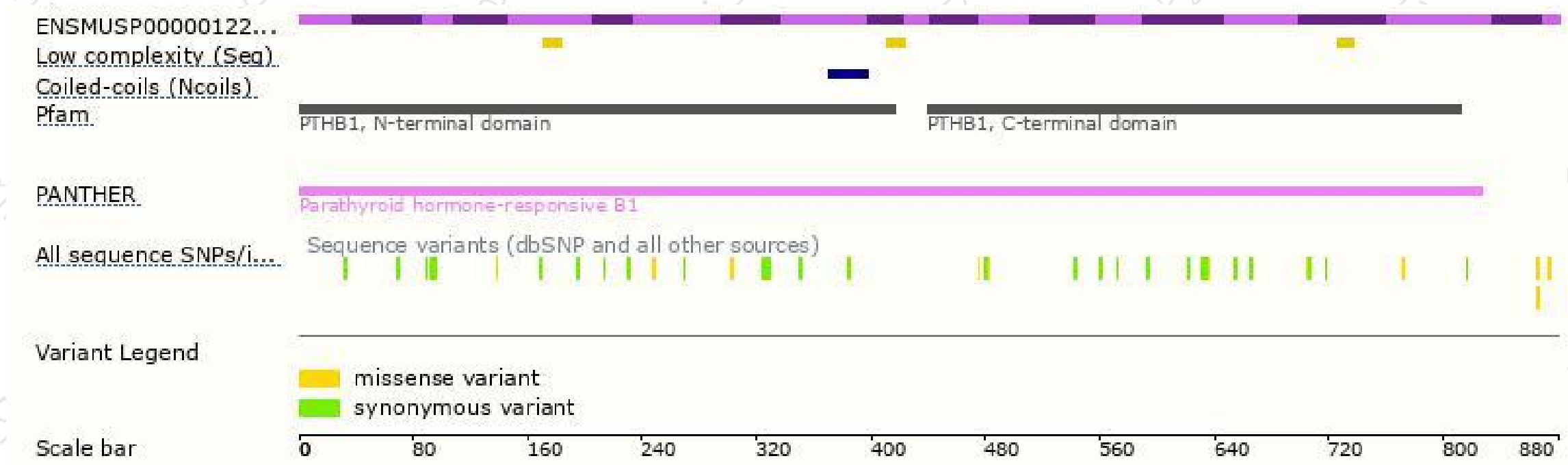
The strategy is based on the design of *Bbs9-210* transcript,The transcription is shown below



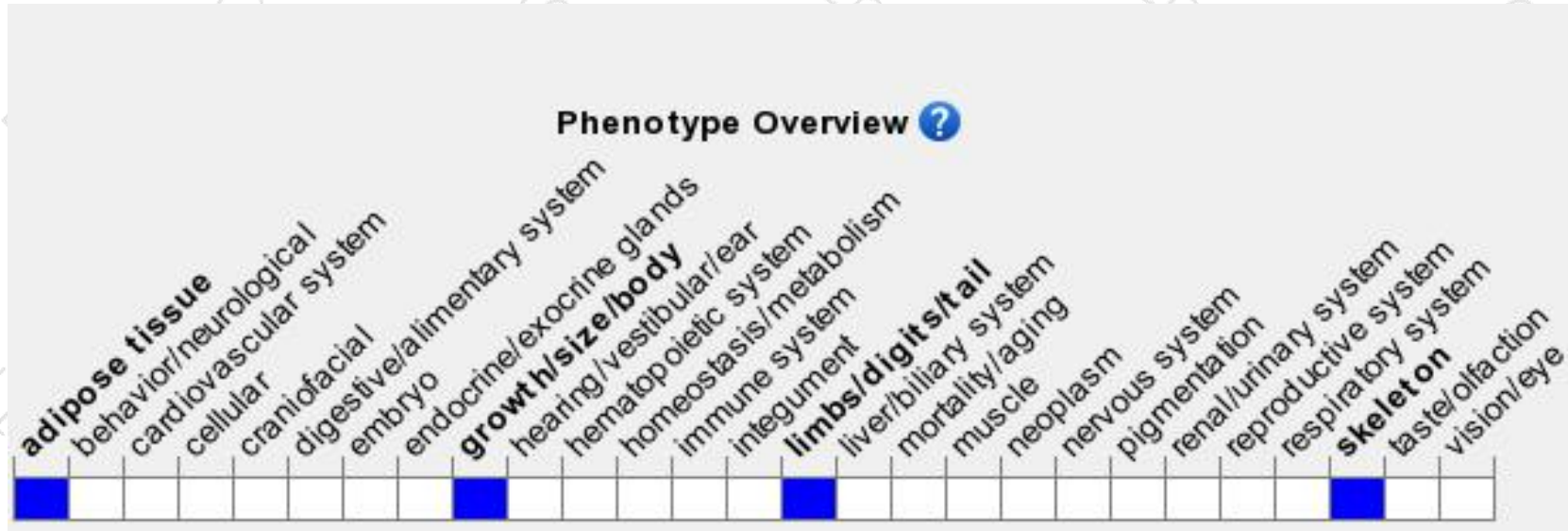
Genomic location distribution



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.

Tel: 400-9660890

