Rgs22 Cas9-CKO Strategy

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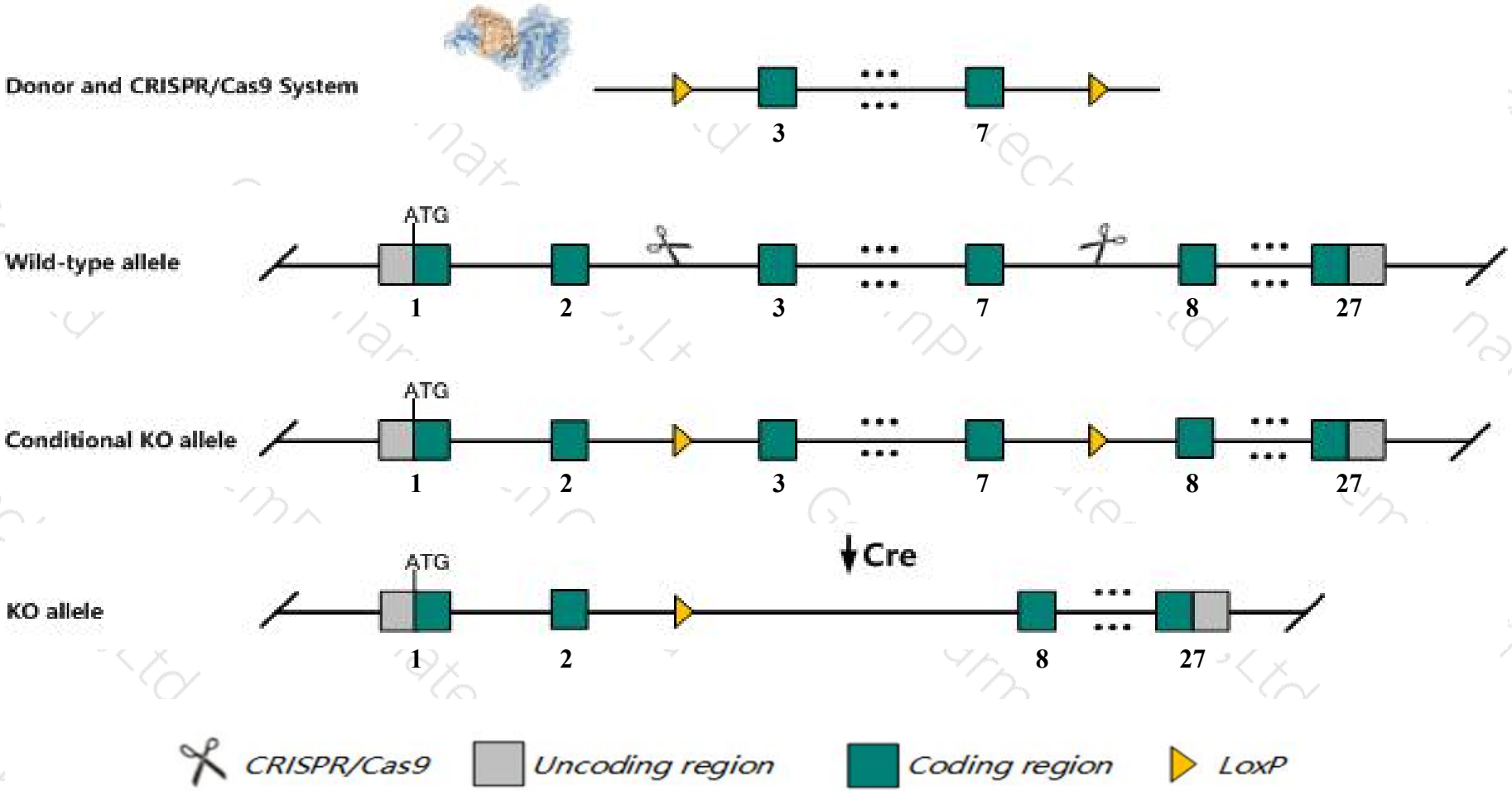
Project Overview

Project Name	***Rgs22***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rgs22* gene. The schematic diagram is as follows:



Technical routes

- The *Rgs22* gene has 4 transcripts. According to the structure of *Rgs22* gene, exon3-exon7 of *Rgs22-203* (ENSMUST00000172831.7) transcript is recommended as the knockout region.The region contains 670bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Rgs22* 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

➢Transcript *Rgs22-202 and Rgs22-204* may not be affected.

➢ The *Rgs22* gene is located on the Chr15. 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）

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Rgs22 regulator of G-protein signalling 22 [Mus musculus (house mouse)]

Gene ID: 626596, updated on 3-Feb-2019

Summary

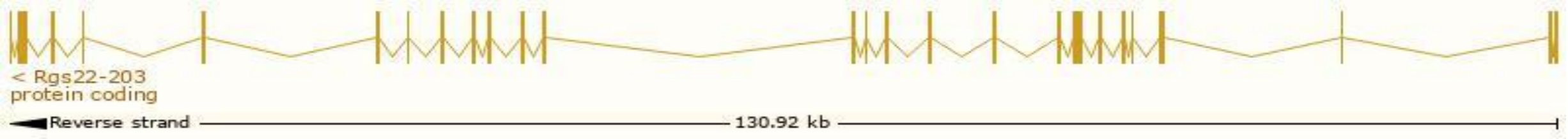
Official Symbol	Rgs22 provided by MGI
Official Full Name	regulator of G-protein signalling 22 provided by MGI
Primary source	MGI:MGI:3613651
See related	Ensembl:ENSMUSG00000037627
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Biased expression in testis adult (RPKM 12.4) and lung adult (RPKM 0.3) See more
Orthologs	human all

Transcript information（Ensembl）

The gene has 4 transcripts,all transcripts are shown below:

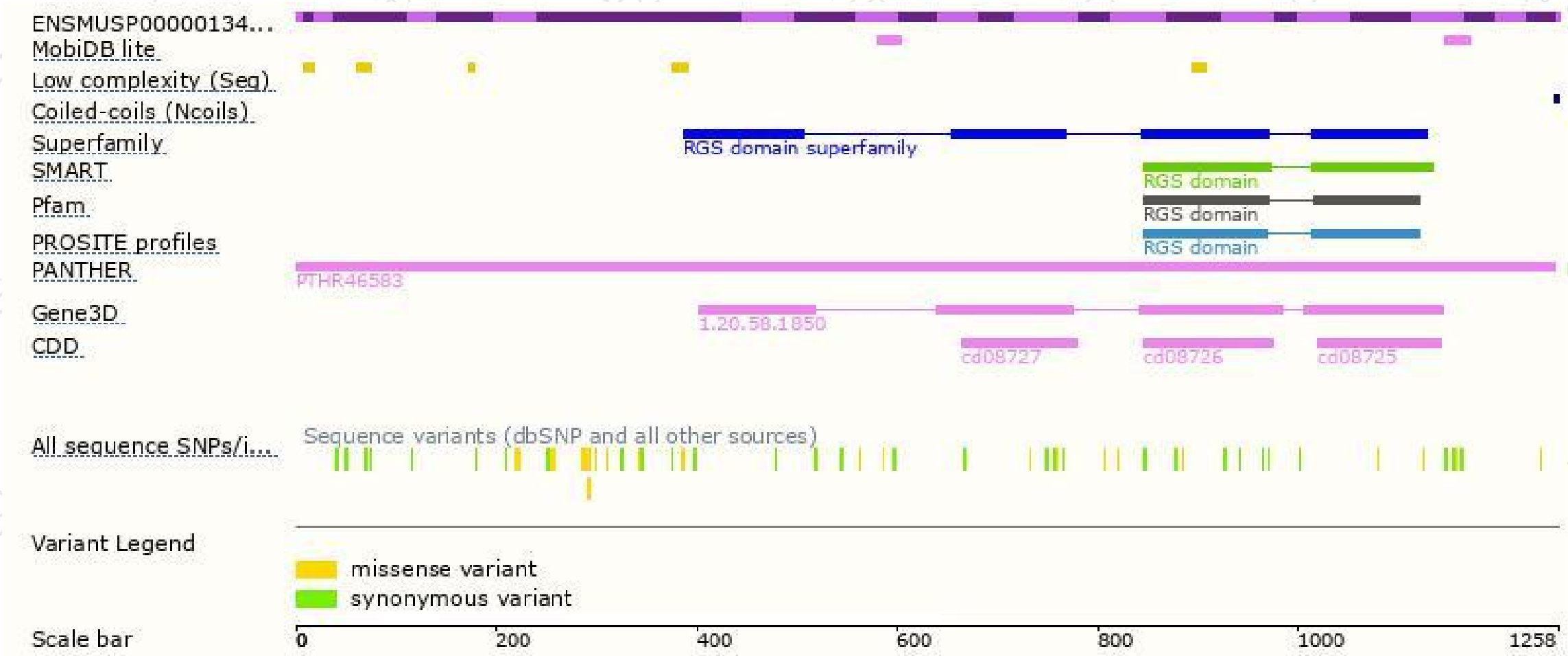
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rgs22-203	ENSMUST00000172831.7	4006	1258aa	Protein coding	CCDS56979	G3UYX5	TSL:5 GENCODE basic APPRIS P1
Rgs22-202	ENSMUST00000172737.1	786	262aa	Protein coding	-	G3UX14	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:5
Rgs22-204	ENSMUST00000173018.7	748	219aa	Protein coding	-	G3UXI4	CDS 5' incomplete TSL:5
Rgs22-201	ENSMUST00000164955.3	1745	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Rgs22-203* transcript,The transcription is shown below

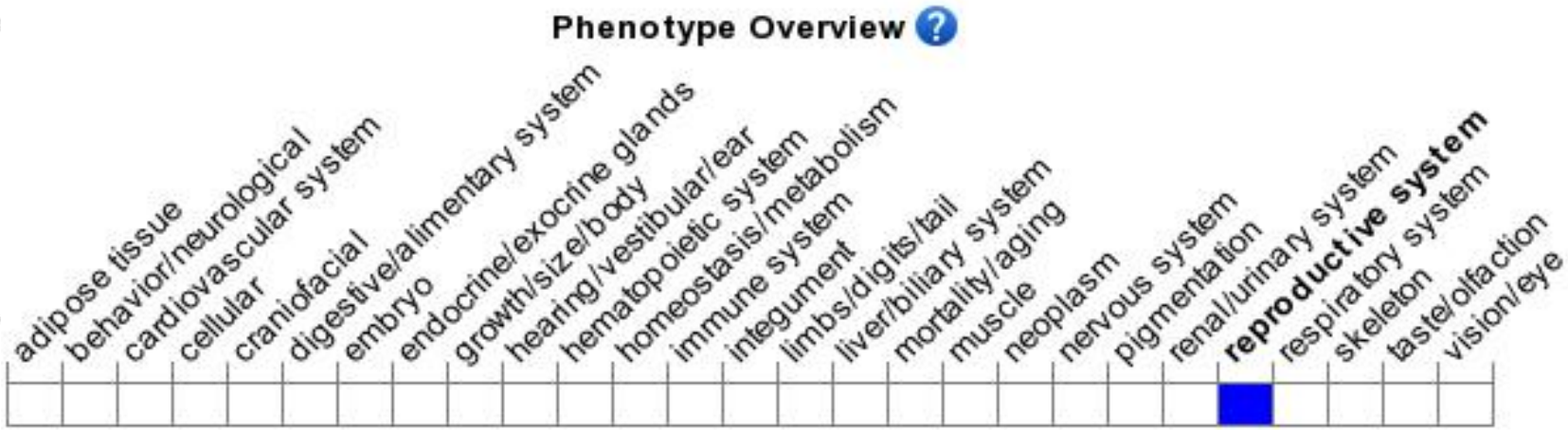


Genomic location distribution

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/).

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

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