Romo1 Cas9-CKO Strategy

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Project Overview

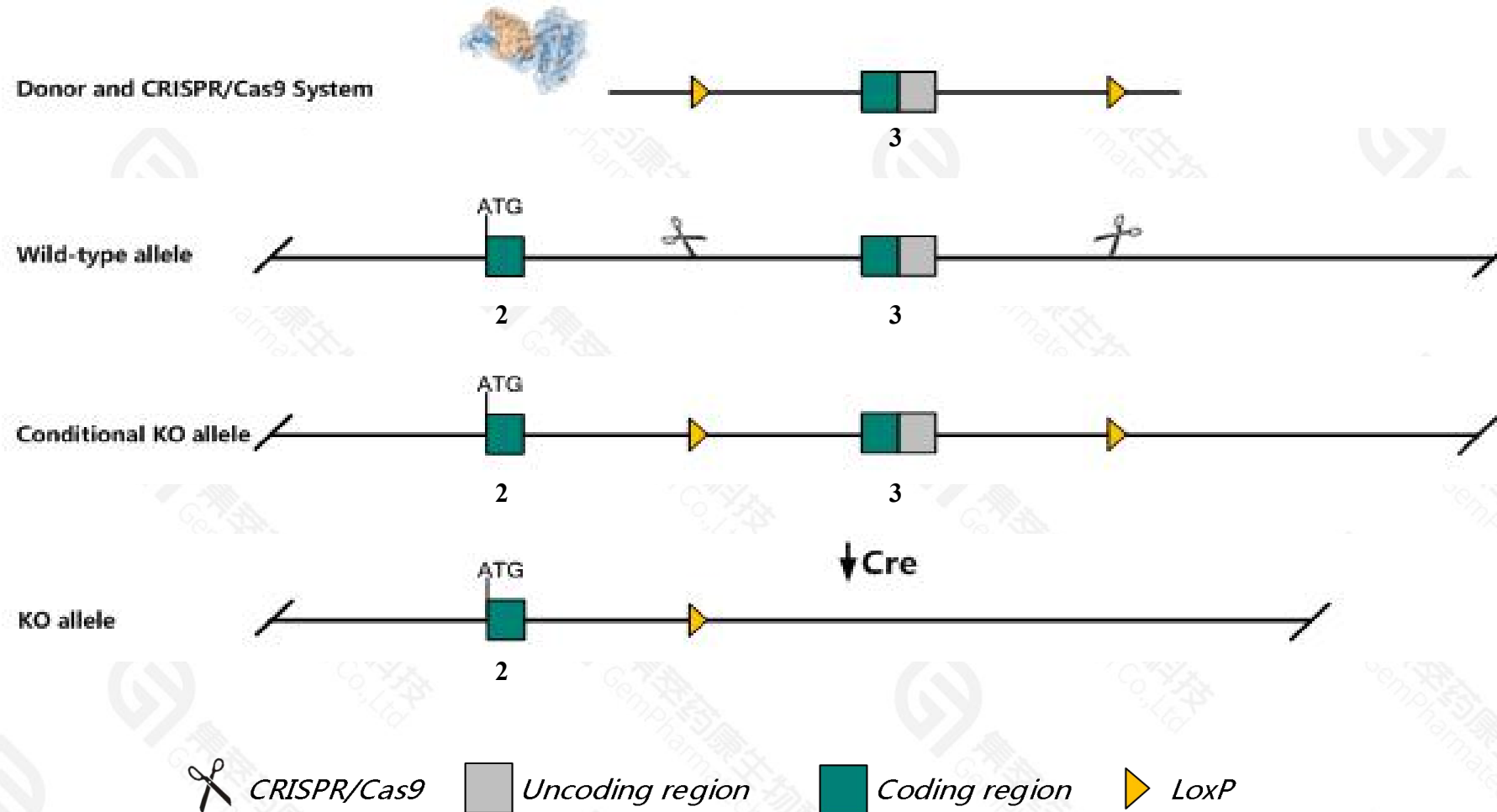|	
Project Name	*Romo1*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Romo1* gene. The schematic diagram is as follows:

Technical routes

➤ The *Romo1* gene has 4 transcripts. According to the structure of *Romo1* gene, exon3 of *Romo1-201*(ENSMUST00000088610.11) transcript is recommended as the knockout region.The region contains 109bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Romo1* 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 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.

Notice

➤ The floxed region is near to the N-terminal of *Nfs1* gene,this strategy may influence the regulatory function of the N-terminal of *Nfs1* gene.

➤ The N-terminal of *Romo1* gene will remain several amino acids ,it may remain the partial function of *Romo1* gene.

➤ The *Romo1* gene is located on the Chr2. 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）

Romo1 reactive oxygen species modulator 1 [Mus musculus (house mouse)]

Gene ID: 67067, updated on 12-Feb-2021

Summary

|	
Official Symbol	Romo1 provided by MGI
Official Full Name	reactive oxygen species modulator 1 provided by MGI
Primary source	MGI:MGI:1914317
See related	Ensembl:ENSMUSG00000067847
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	2010100O12Rik, AI853864
Expression	Ubiquitous expression in CNS E11.5 (RPKM 102.7), adrenal adult (RPKM 88.1) and 28 other tissuesSee 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
Romo1-201	ENSMUST00000088610.11	569	79aa	Protein coding	CCDS38296		TSL:1 , GENCODE basic , APPRIS P1 ,
Romo1-202	ENSMUST00000109597.10	550	79aa	Protein coding	CCDS38296		TSL:1 , GENCODE basic , APPRIS P1 ,
Romo1-204	ENSMUST00000119950.2	379	79aa	Protein coding	CCDS38296		TSL:2 , GENCODE basic , APPRIS P1 ,
Romo1-203	ENSMUST00000109598.4	362	79aa	Protein coding	CCDS38296		TSL:5 , GENCODE basic , APPRIS P1 ,

The strategy is based on the design of *Romo1-201* transcript,the transcription is shown below:

Romo1-201 >
protein coding
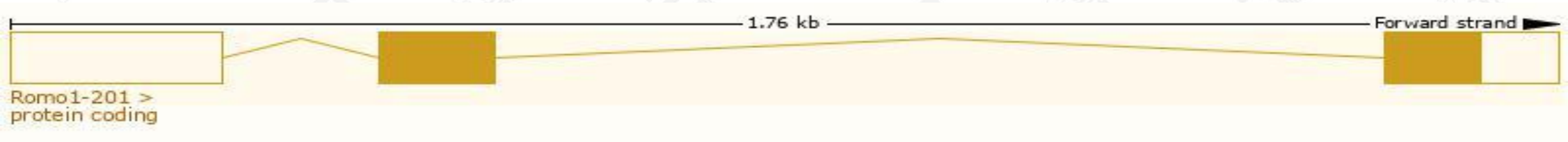
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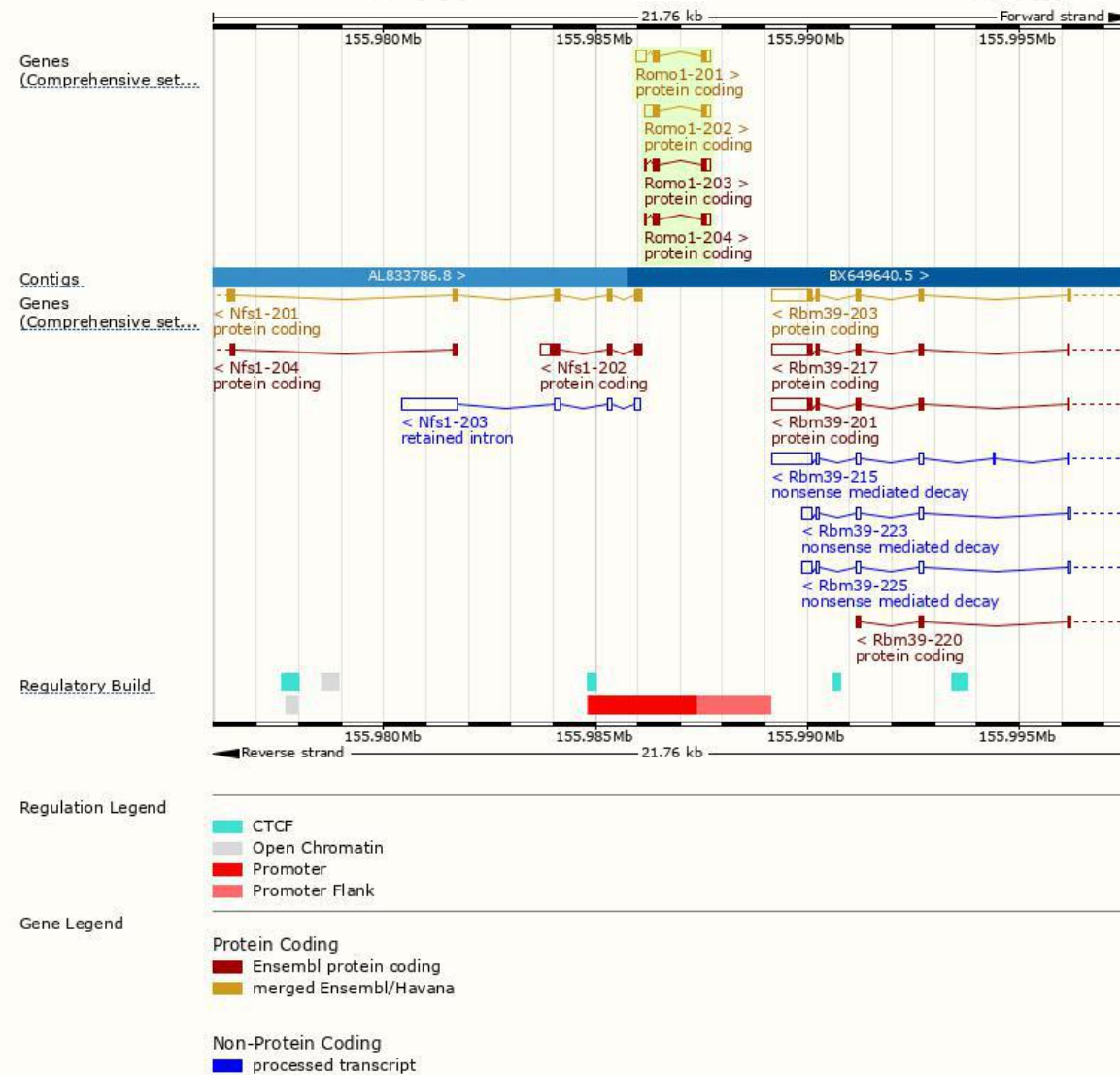
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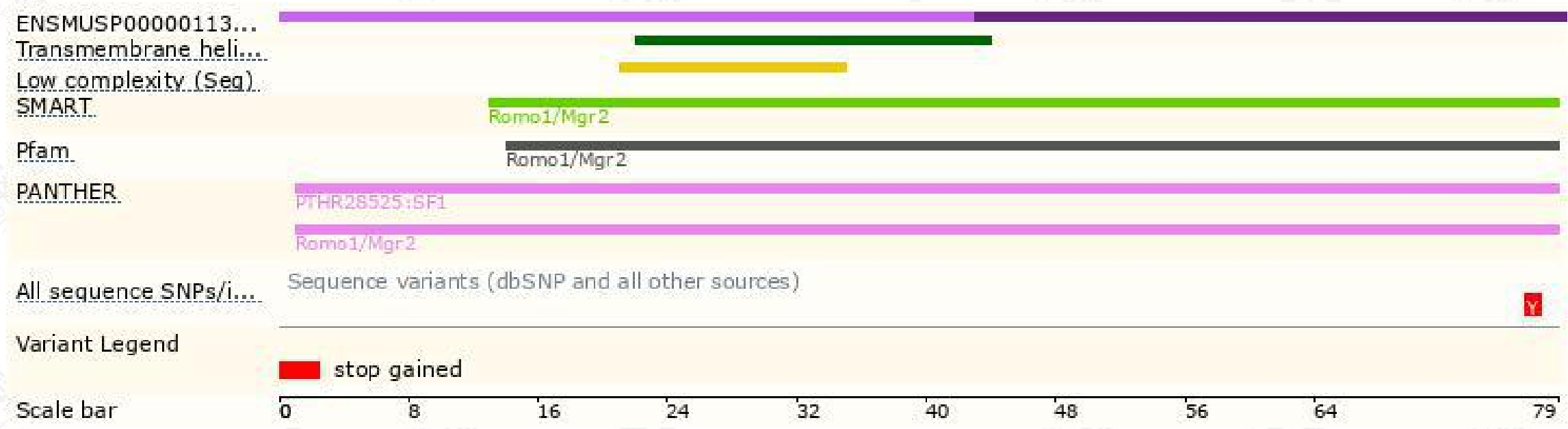
If you have any questions, you are welcome to inquire.
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