

Lym1 Cas9-CKO Strategy

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Reviewer :

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Design Date:

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Project Overview

Project Name

Lyrm1

Project type

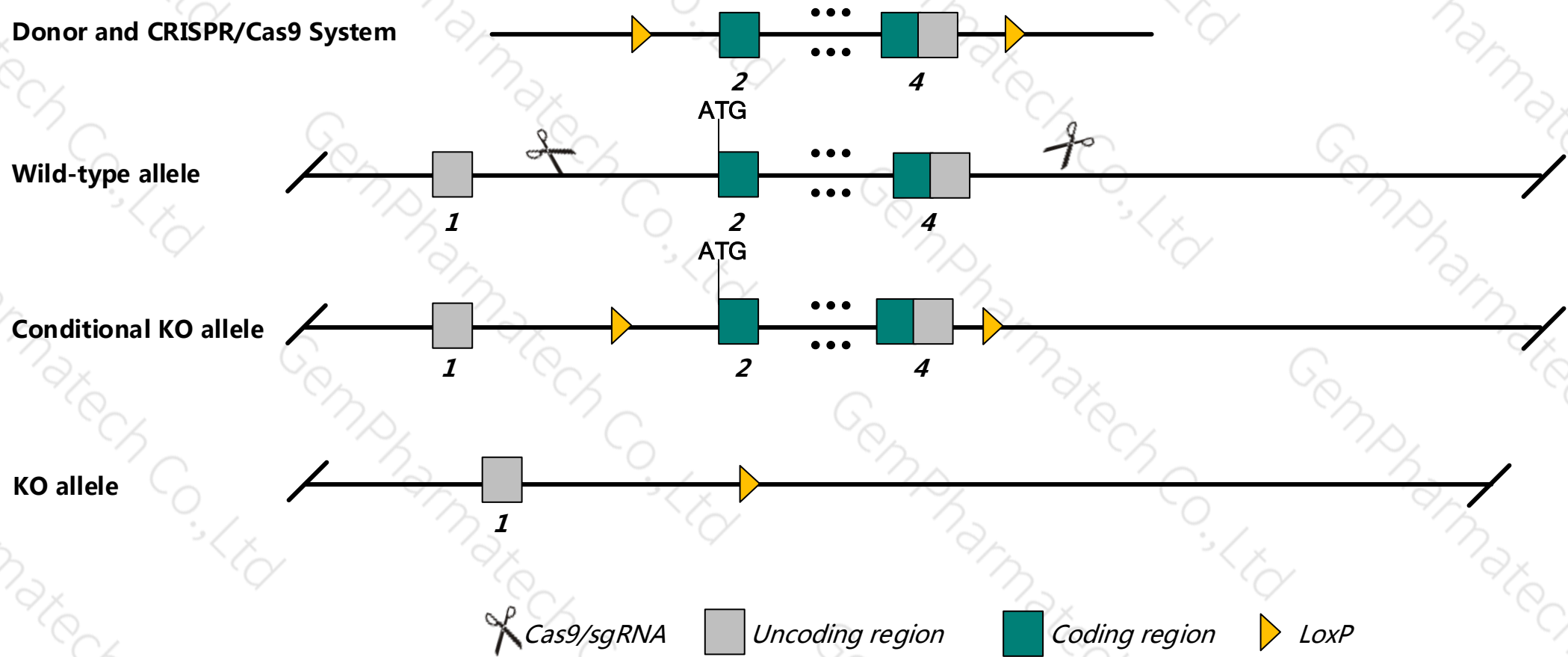
Cas9-CKO

Animal background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Lymr1* gene. The schematic diagram is as follows:



Technical routes

- The *Lyrm1* gene has 9 transcripts, According to the structure of *Lyrm1* gene, exon2-exon4 of *Lyrm1*-202 transcript is recommended as the knockout region. The region contains the all of coding sequence. Knock out the region, result in destruction of protein.
- This project uses CRISPR/Cas9 technology to modify *Lyrm1* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed, Cas9, sgRNA and donor were microinjected into fertilized eggs of C57BL/6JGpt mice and homologous recombination was carried out to obtain F0 mice. A stable and hereditary F1 generation mouse model was obtained by mating F0 generation mice with C57BL/6JGpt mice which were confirmed positive by PCR-sequencing.
- 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 *Lyrm1* gene is located in the Chr7. If the knockout mice are mixed with other mice, two target genes are avoided on the same chromosome as possible, otherwise the offspring of mice with double gene positive and homozygous gene knockout can not be obtained.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Lyrm1 LYR motif containing 1 [*Mus musculus* (house mouse)]

Gene ID: 73919, updated on 8-Dec-2018

Summary

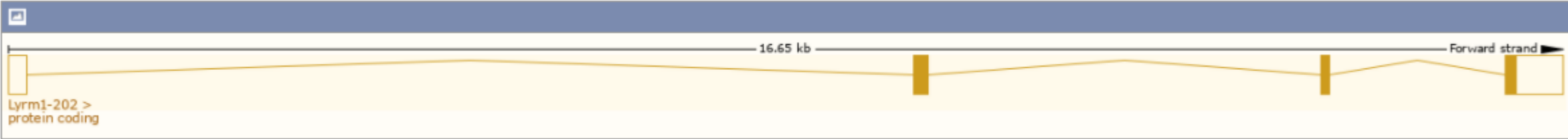
Official Symbol	Lyrm1 provided by MGI
Official Full Name	LYR motif containing 1 provided by MGI
Primary source	MGI:MGI:1921169
See related	Ensembl:ENSMUSG00000030922
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	1110065L10Rik; 2310004B22Rik; 4930404J24Rik
Expression	Broad expression in testis adult (RPKM 3.1), CNS E18 (RPKM 0.8) and 16 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

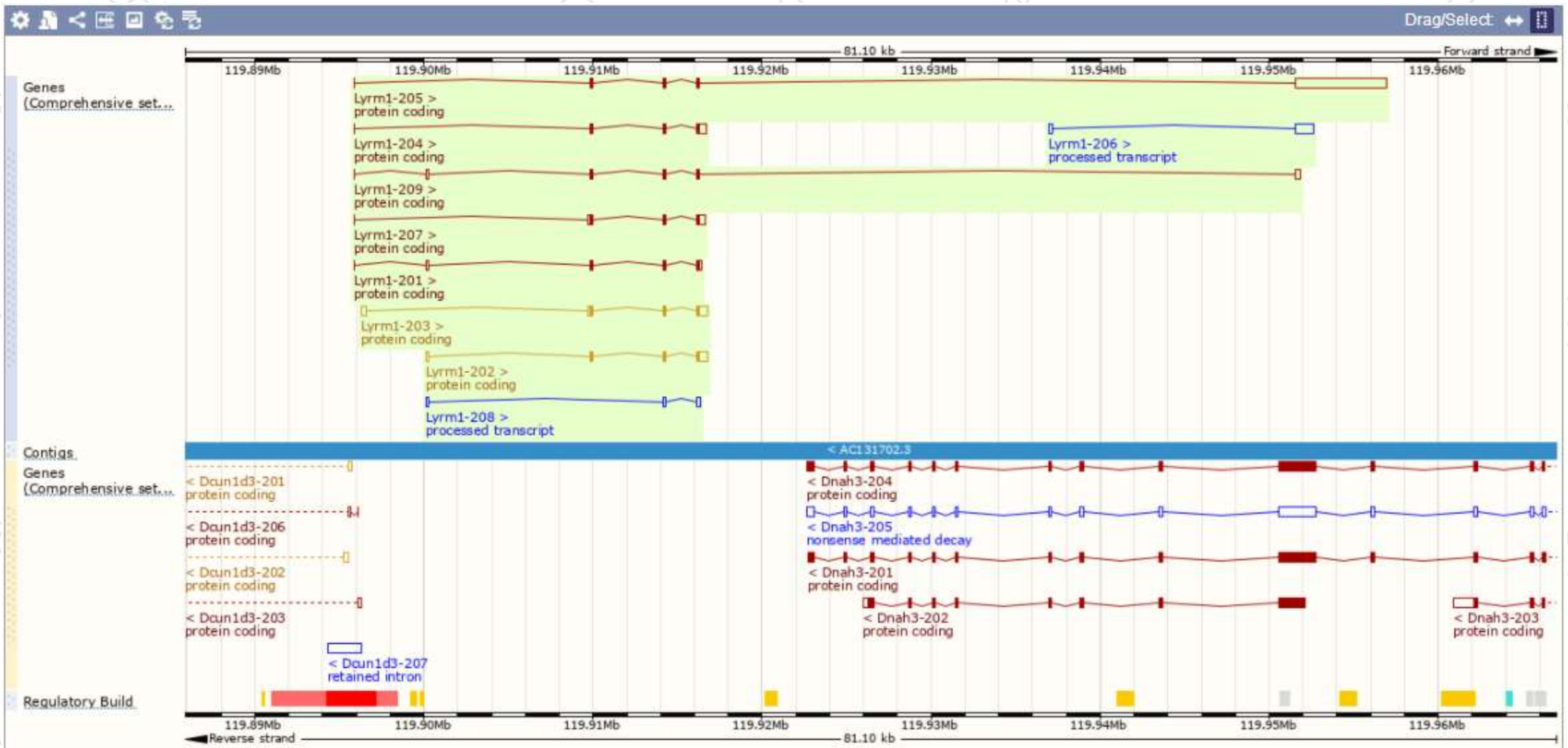
The gene has 9 transcripts, and all transcripts are shown below :

Show/hide columns (1 hidden)								Filter		
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags		
Lyrm1-205	ENSMUST00000207270.1	5845	122aa	Protein coding	CCDS21790	Q9CQB7	-	TSL:1	GENCODE basic	APPRIS P1
Lyrm1-203	ENSMUST00000106517.8	1279	122aa	Protein coding	CCDS21790	Q9CQB7	NM_029610 NP_083886	TSL:1	GENCODE basic	APPRIS P1
Lyrm1-202	ENSMUST00000106516.1	1069	122aa	Protein coding	CCDS21790	Q9CQB7	NM_001285961 NP_001272890	TSL:1	GENCODE basic	APPRIS P1
Lyrm1-207	ENSMUST00000208202.1	936	122aa	Protein coding	CCDS21790	Q9CQB7	NM_001285960 NP_001272889	TSL:5	GENCODE basic	APPRIS P1
Lyrm1-209	ENSMUST00000208424.1	888	122aa	Protein coding	CCDS21790	Q9CQB7	-	TSL:1	GENCODE basic	APPRIS P1
Lyrm1-204	ENSMUST00000106518.8	875	122aa	Protein coding	CCDS21790	Q9CQB7	NM_001285959 NP_001272888	TSL:3	GENCODE basic	APPRIS P1
Lyrm1-201	ENSMUST00000054440.10	752	122aa	Protein coding	CCDS21790	Q9CQB7	-	TSL:5	GENCODE basic	APPRIS P1
Lyrm1-206	ENSMUST00000207680.1	1294	No protein	Processed transcript	-	-	-	TSL:1		
Lyrm1-208	ENSMUST00000208411.1	456	No protein	Processed transcript	-	-	NR_126475	TSL:3		

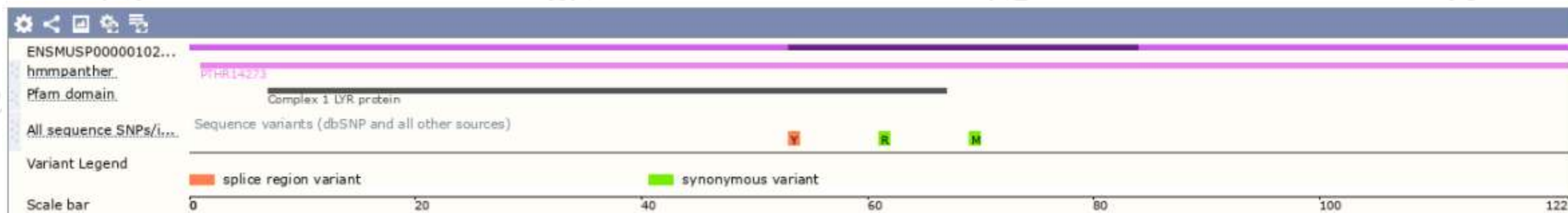
The strategy is based on the design of *Lyrm1-202* transcript, The transcription is shown below :



Genomic location distribution



Protein domain



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