Cd24a Cas9-CKO Strategy

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Project Overview

Project Name	***Cd24a***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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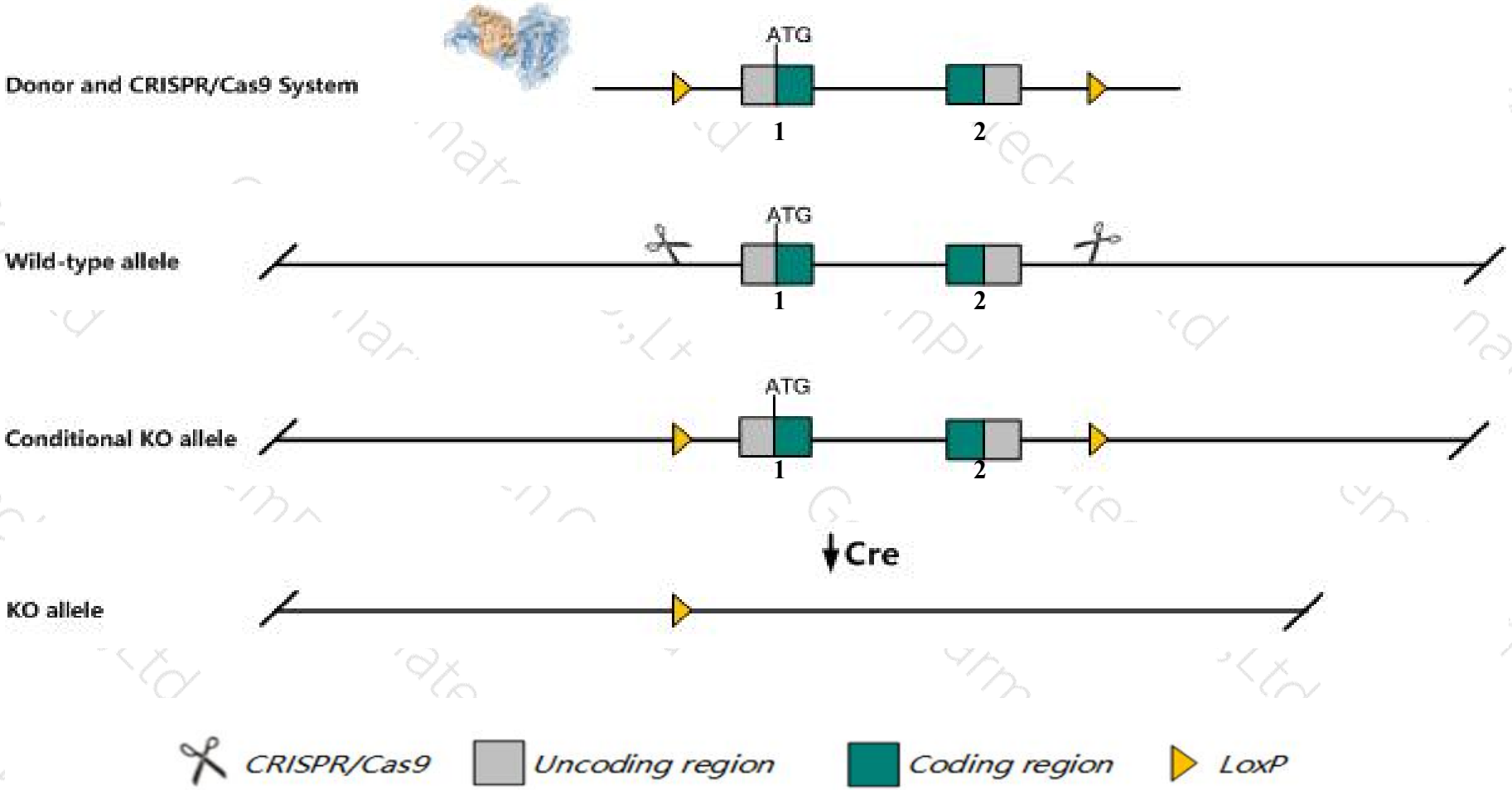
This model will use CRISPR/Cas9 technology to edit the *Cd24a* gene. The schematic diagram is as follows:



Technical routes

- The *Cd24a* gene has 3 transcripts. According to the structure of *Cd24a* gene, exon1-exon2 of *Cd24a-201* (ENSMUST00000058714.9) transcript is recommended as the knockout region.The region contains all of the coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Cd24a* 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

- According to the existing MGI data,Homozygous mutation of this gene results in slight impairment of B cell development. Mutant erythrocytes have increased tendency to aggregate.

- The *Cd24a* gene is located on the Chr10. 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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Cd24a CD24a antigen [Mus musculus (house mouse)]

Gene ID: 12484, updated on 31-Jan-2019

Summary

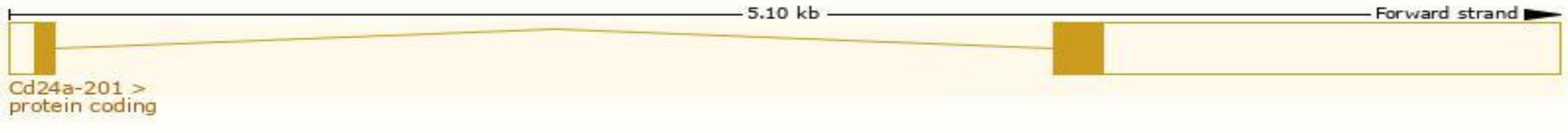
Official Symbol	Cd24a provided by MGI
Official Full Name	CD24a antigen provided byMGI
Primary source	MGI:MGI:88323
See related	Ensembl:ENSMUSG00000047139
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Cd24, HSA, Ly-52, nectadrin
Expression	Broad expression in liver E14.5 (RPKM 694.7), liver E14 (RPKM 640.9) and 20 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

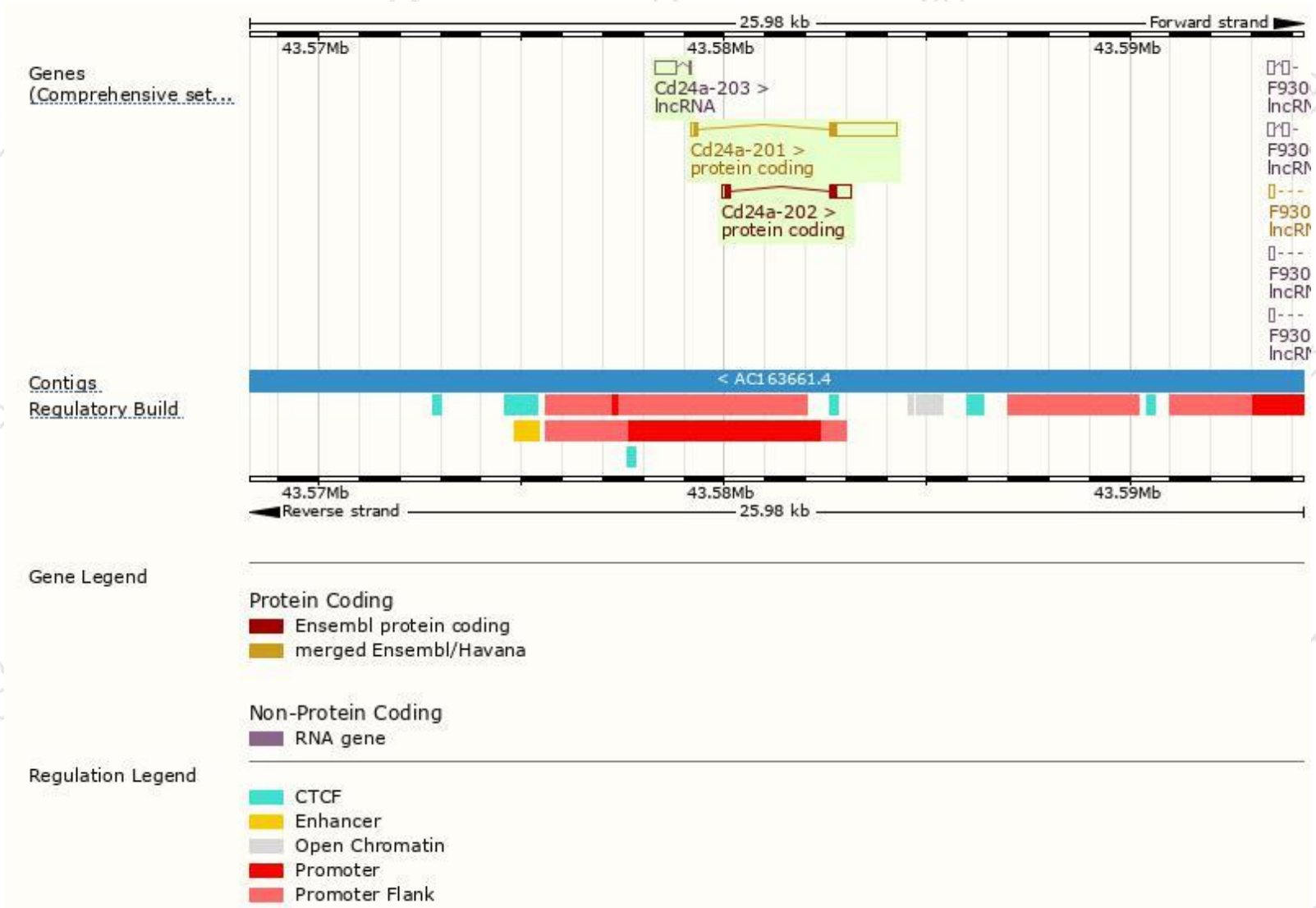
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cd24a-201	ENSMUST00000058714.9	1816	76aa	Protein coding	CCDS23821	P24807 Q3THW4	TSL:1 GENCODE basic APPRIS P2
Cd24a-202	ENSMUST00000214476.1	743	98aa	Protein coding	-	A0A1L1SQ70	TSL:3 GENCODE basic APPRIS ALT2
Cd24a-203	ENSMUST00000214532.1	574	No protein	lncRNA	-	-	TSL:5

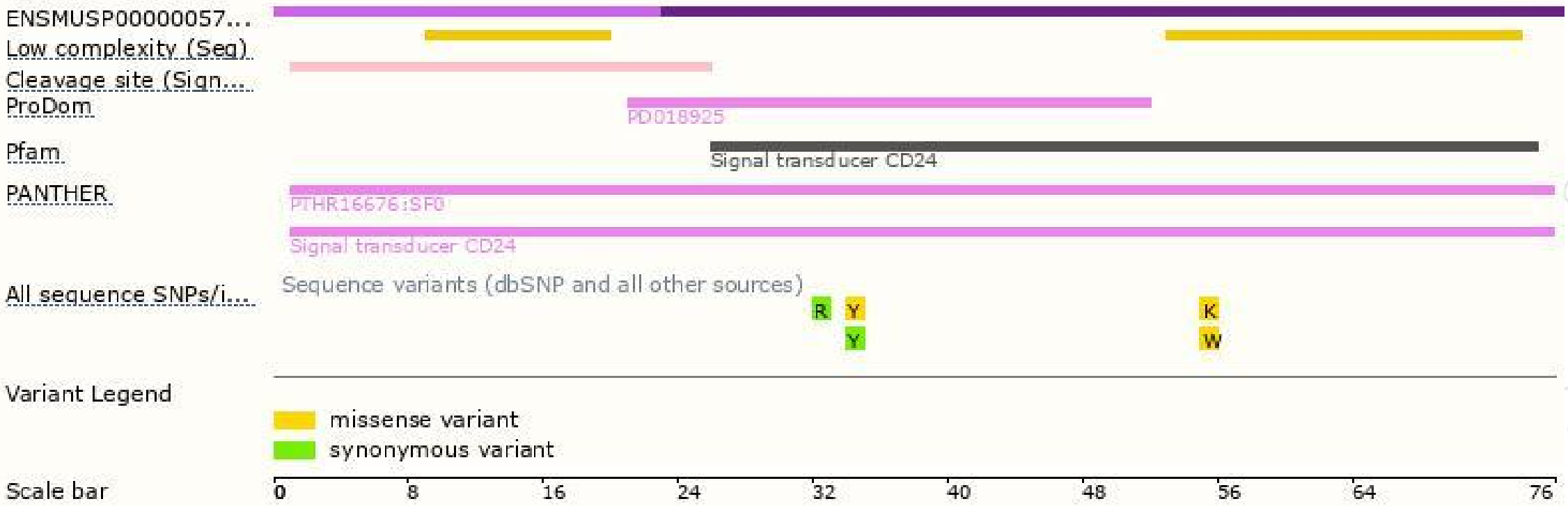
The strategy is based on the design of *Cd24a-201* transcript,The transcription is shown below



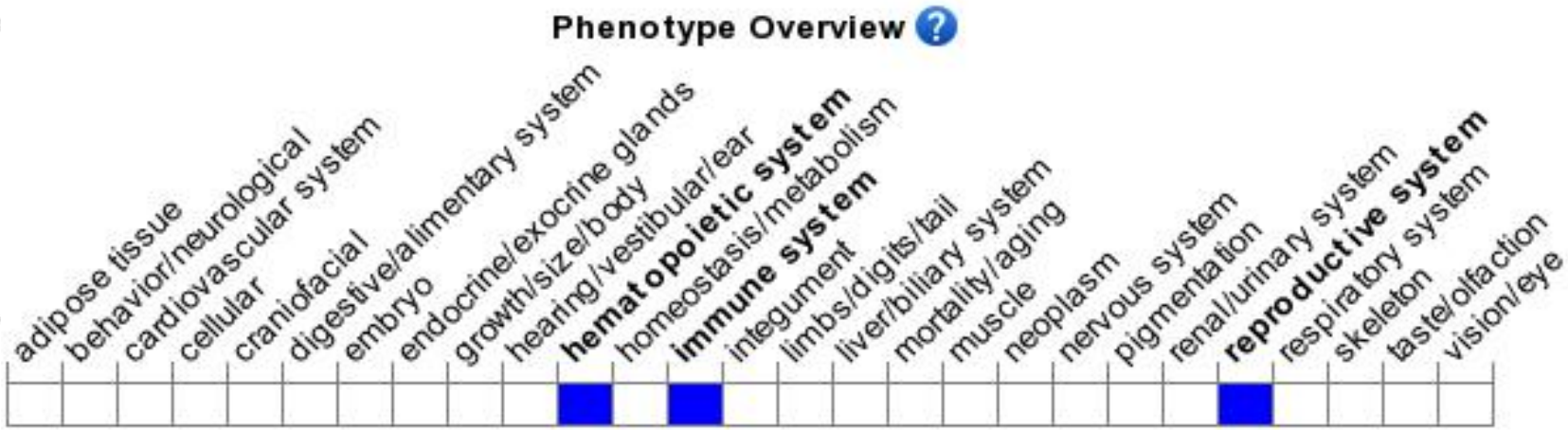
Genomic location distribution



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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