Dock5 Cas9-CKO Strategy

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Design Date:2019-09-05

Project Overview

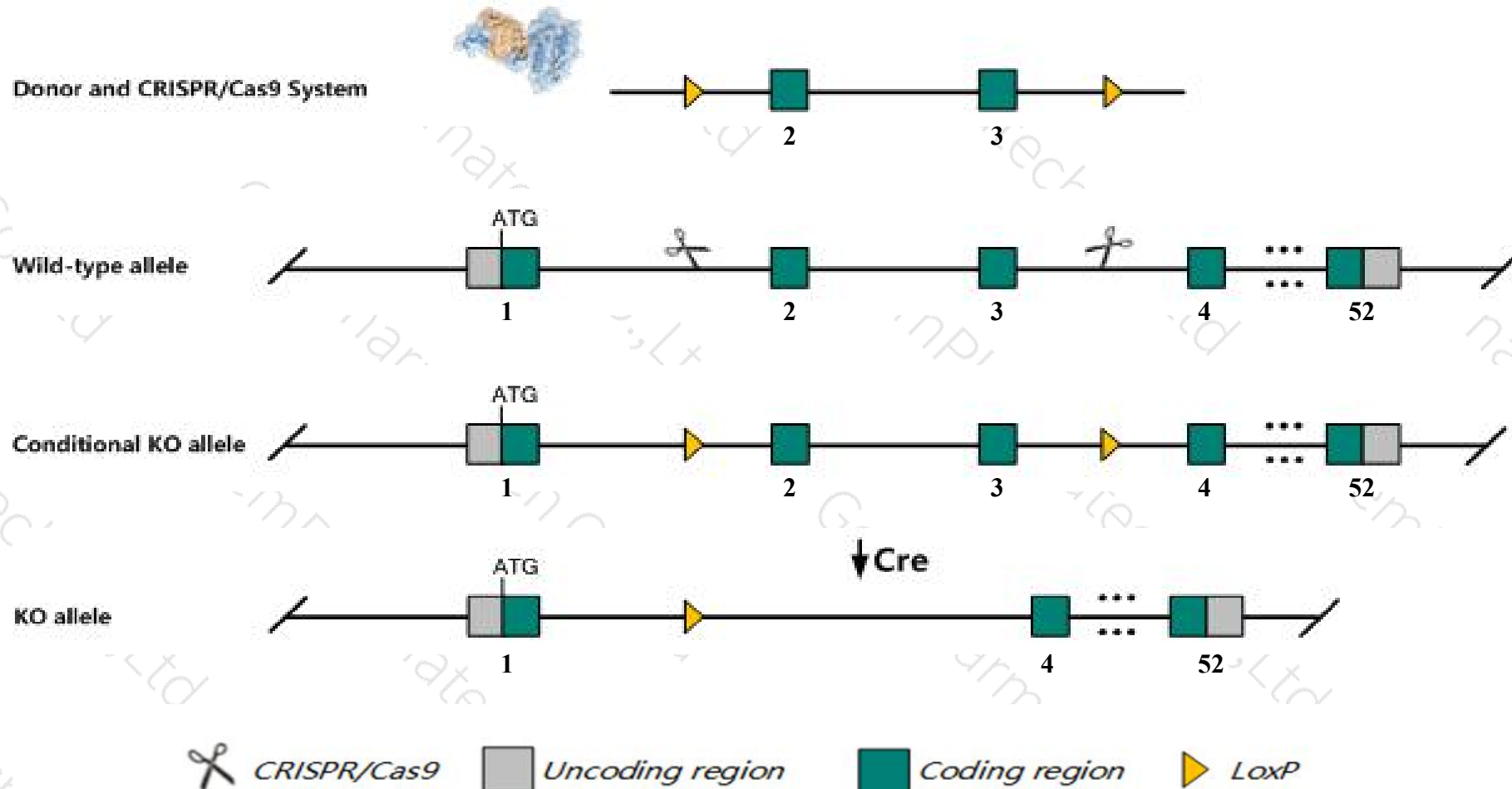|	
Project Name	*Dock5*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dock5* gene. The schematic diagram is as follows:

Technical routes

➤ The *Dock5* gene has 3 transcripts. According to the structure of *Dock5* gene, exon2-exon3 of *Dock5-201* (ENSMUST00000039135.5) transcript is recommended as the knockout region.The region contains Ens 125bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Dock5* 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,Mutations at this locus result in lens abnormalities involving cataracts and rupturing of the lens nucleus.

➢ Transcript 203 is unaffected.

➢ The *Dock5* gene is located on the Chr14. 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）

Dock5 dedicator of cytokinesis 5 [*Mus musculus* (house mouse)]

Gene ID: 68813, updated on 12-Aug-2019

▲ Summary

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Official Symbol	Dock5 provided by MGI
Official Full Name	dedicator of cytokinesis 5 provided by MGI
Primary source	MGI:MGI:2652871
See related	Ensembl:ENSMUSG00000044447
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	Ir2; rlc; AI666732; AI956923; BC016533; E130320D18; 1110060D06Rik
Expression	Ubiquitous expression in large intestine adult (RPKM 5.9), small intestine adult (RPKM 4.5) and 28 other tissues See 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
Dock5-201	ENSMUST00000039135.5	9988	1868aa	Protein coding	CCDS36963	B2RY04	TSL:1 GENCODE basic APPRIS P1
Dock5-202	ENSMUST00000224823.1	3954	No protein	Retained intron	-	-	-
Dock5-203	ENSMUST00000226033.1	1846	No protein	Retained intron	-	-	-

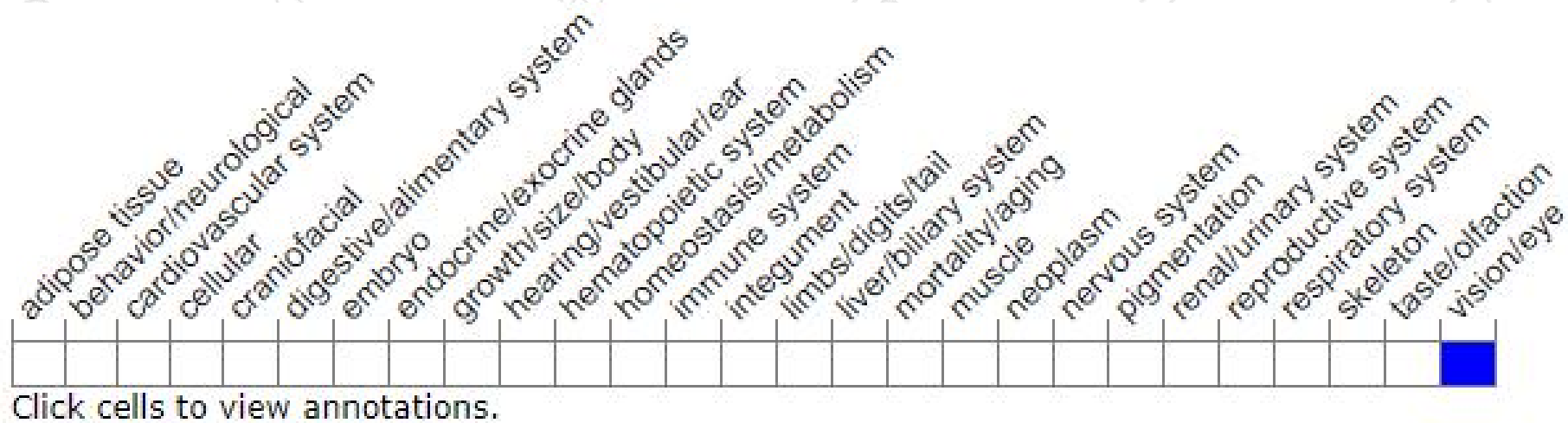The strategy is based on the design of *Dock5-201* transcript,The transcription is shown below

< Dock5-201
protein coding

Reverse strand

181.30 kb
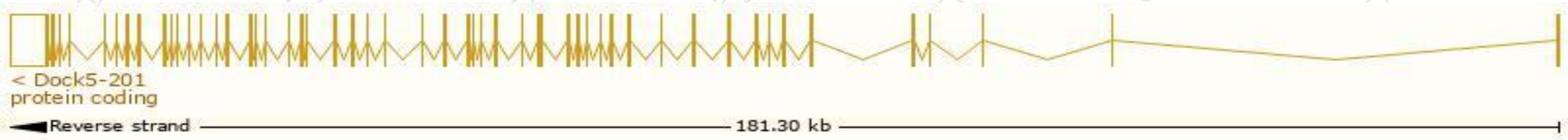
Genomic location distribution
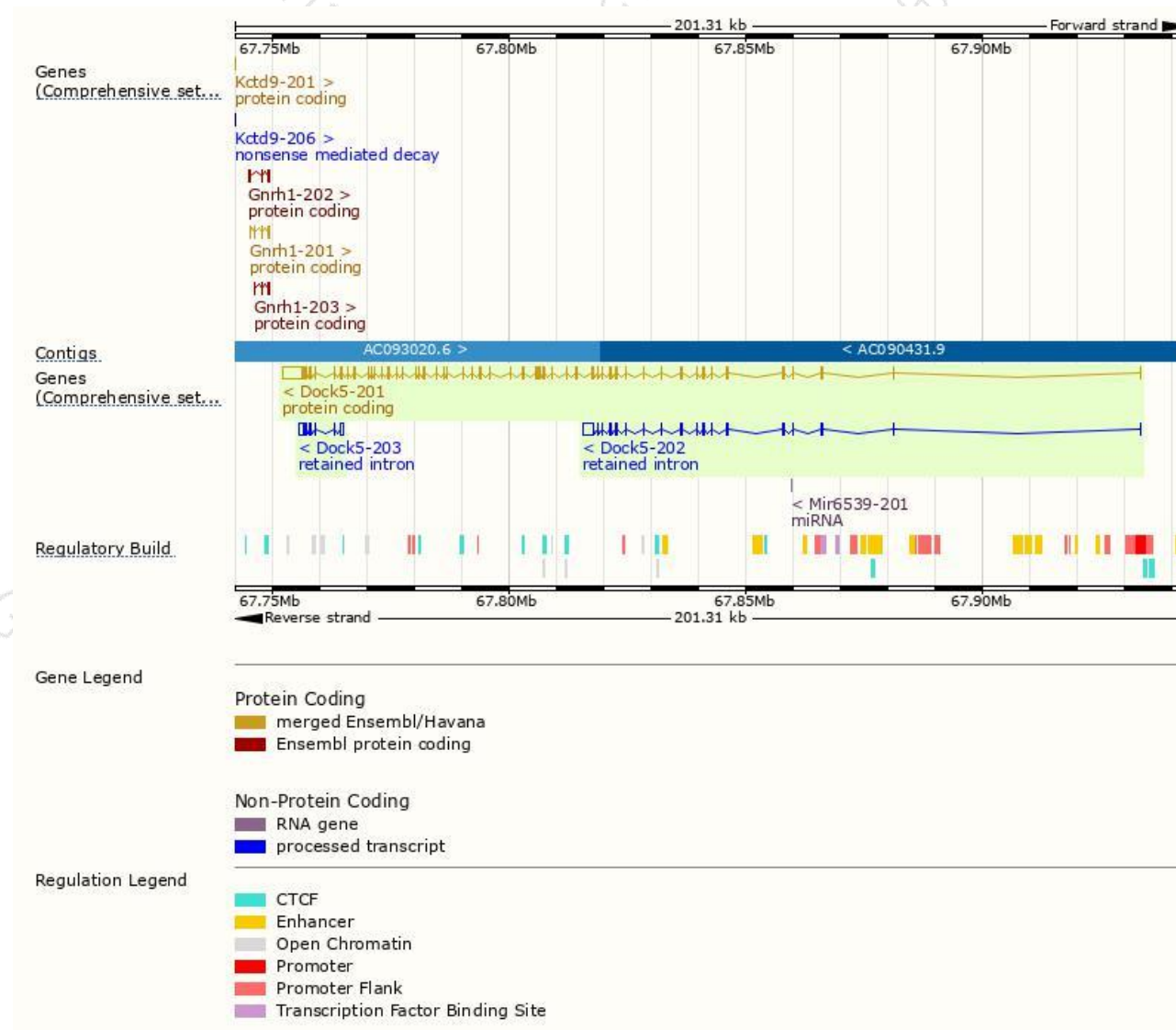
Protein domain
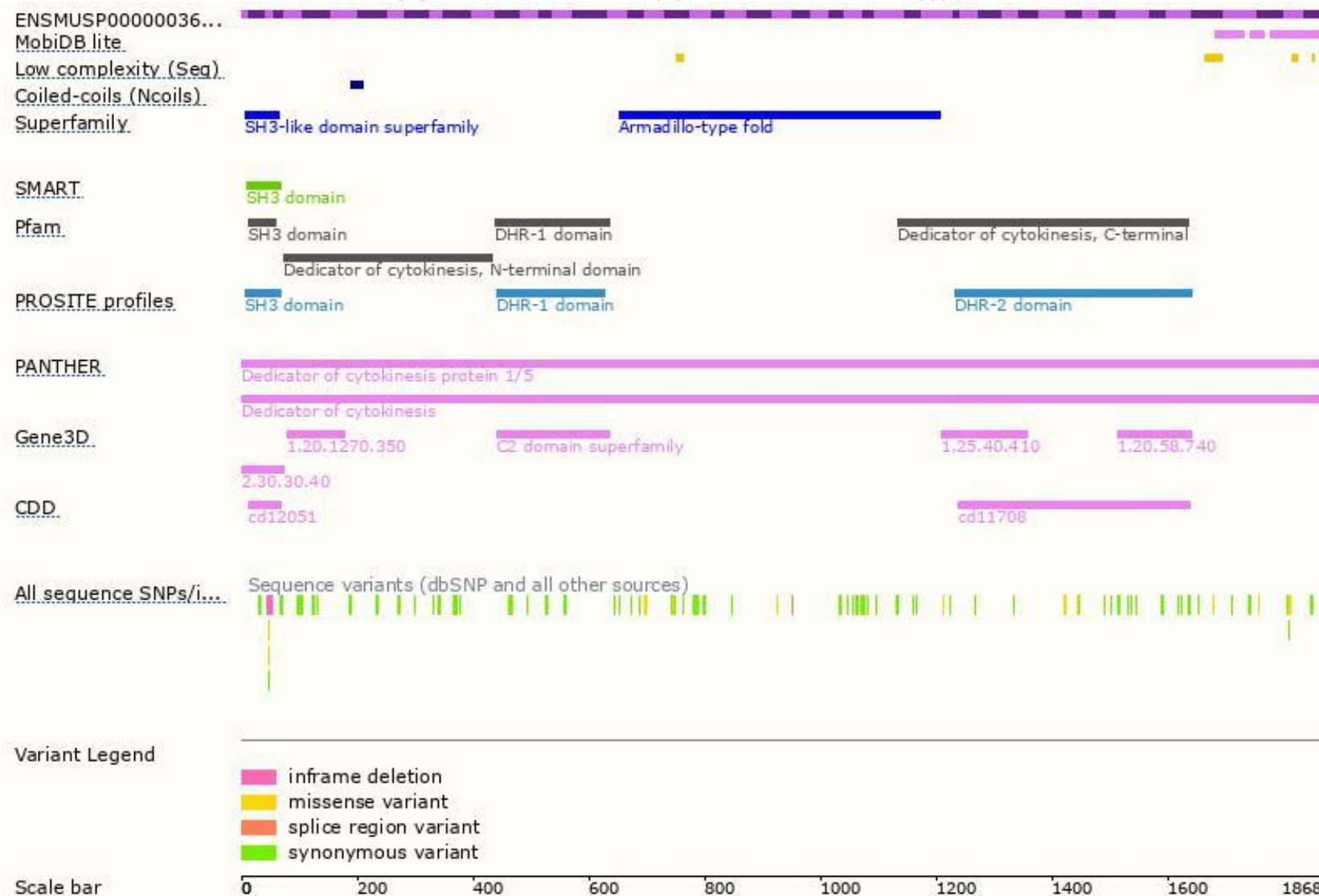
Mouse phenotype description(MGI)

Click cells to view annotations.

Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/).

According to the existing MGI data,Mutations at this locus result in lens abnormalities involving cataracts and rupturing of the lens nucleus.

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