Crb1 Cas9-KO Strategy

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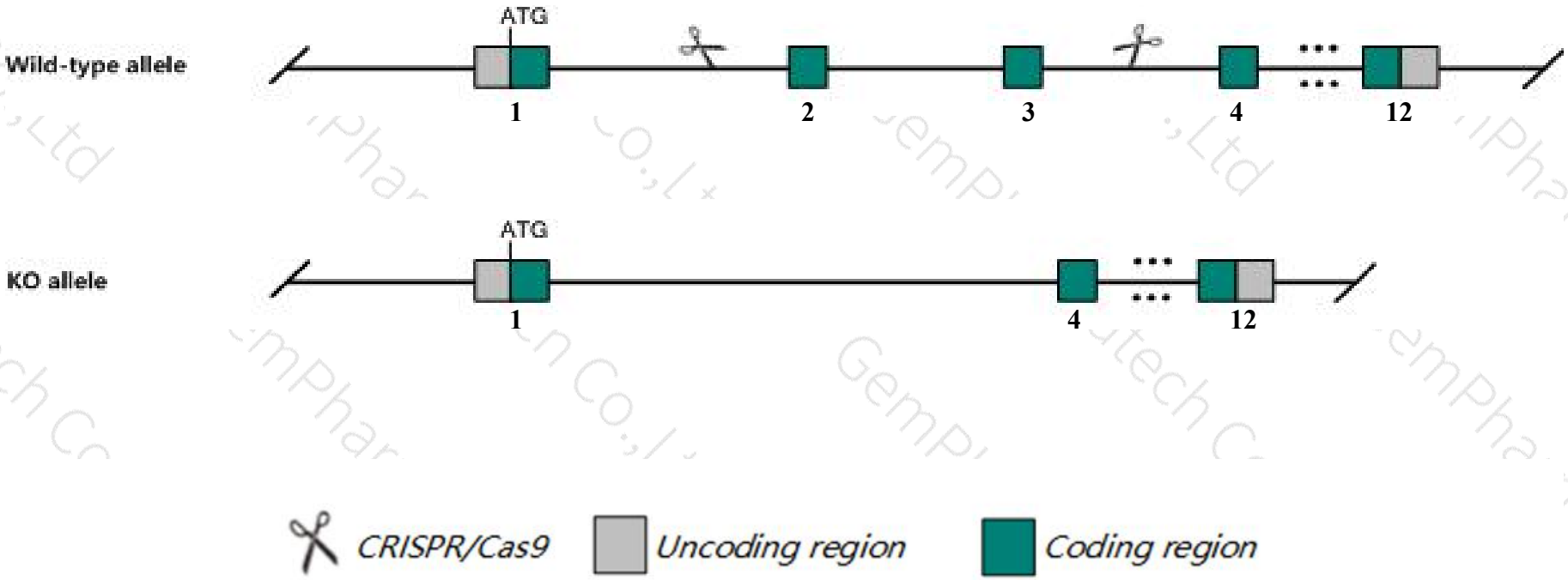
Project Overview

Project Name	***Crb1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Crb1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Crb1* gene has 7 transcripts. According to the structure of *Crb1* gene, exon2-exon3 of *Crb1-201* (ENSMUST00000059825.11) transcript is recommended as the knockout region.The region contains 775bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Crb1* gene. The brief process is as follows: CRISPR/Cas9 system v

Notice

- According to the existing MGI data,Homozygotes for a null allele show focal retinal lesions, loss of adherens junctions between photoreceptors and Muller glia cells, and light-accelerated retinal degeneration. Homozygotes for a spontaneous allele show background-sensitive retinal spotting, photoreceptor dysplasia and degeneration.

- The *Crb1* gene is located on the Chr1. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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Crb1 crumbs family member 1, photoreceptor morphogenesis associated [Mus musculus (house mouse)]

Gene ID: 170788, updated on 16-Mar-2019

Summary

Official Symbol	Crb1 provided by MGI
Official Full Name	crumbs family member 1, photoreceptor morphogenesis associated provided by MGI
Primary source	MGI:MGI:2136343
See related	Ensembl:ENSMUSG00000063681
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	7530426H14Rik, A930008G09Rik
Expression	Low expression observed in reference dataset See more
Orthologs	human all

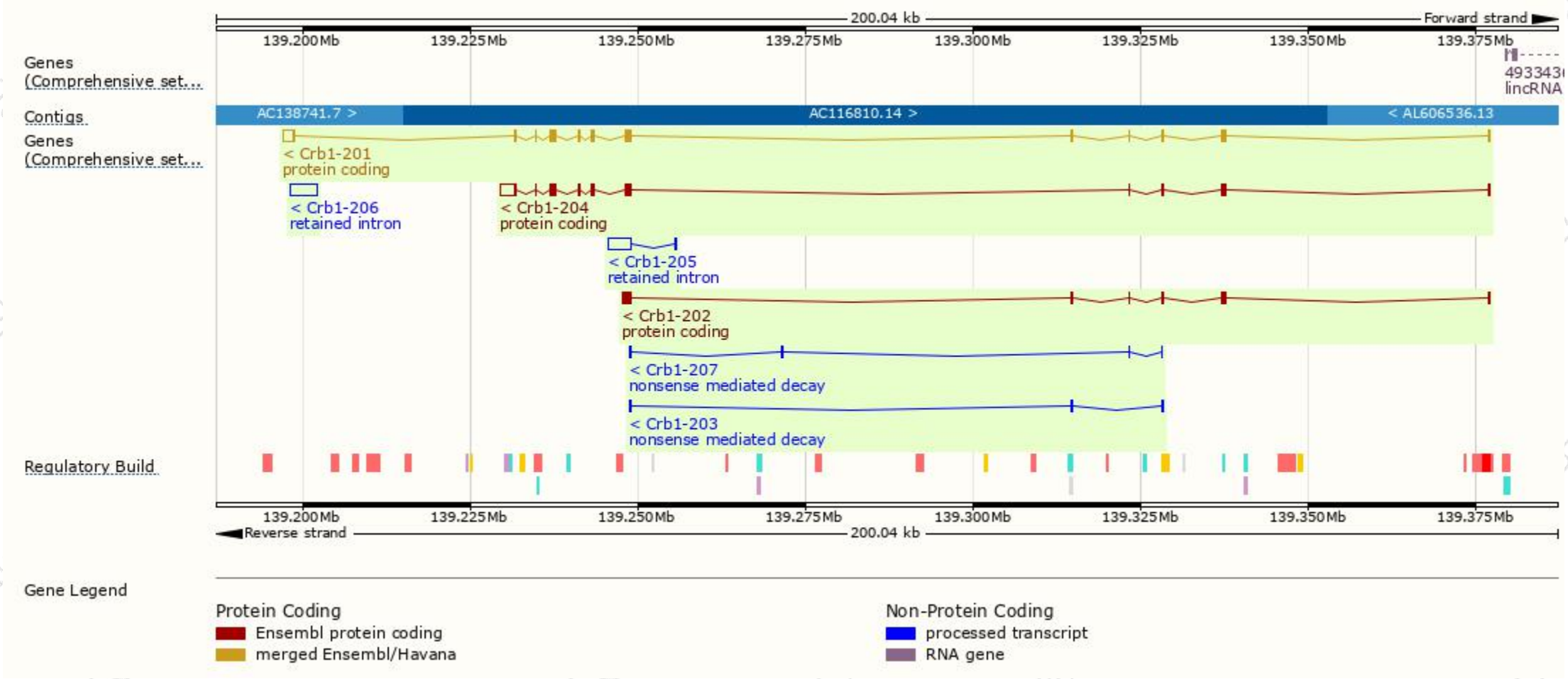
Transcript information（Ensembl）

The gene has 7 transcripts,all transcripts are shown below:

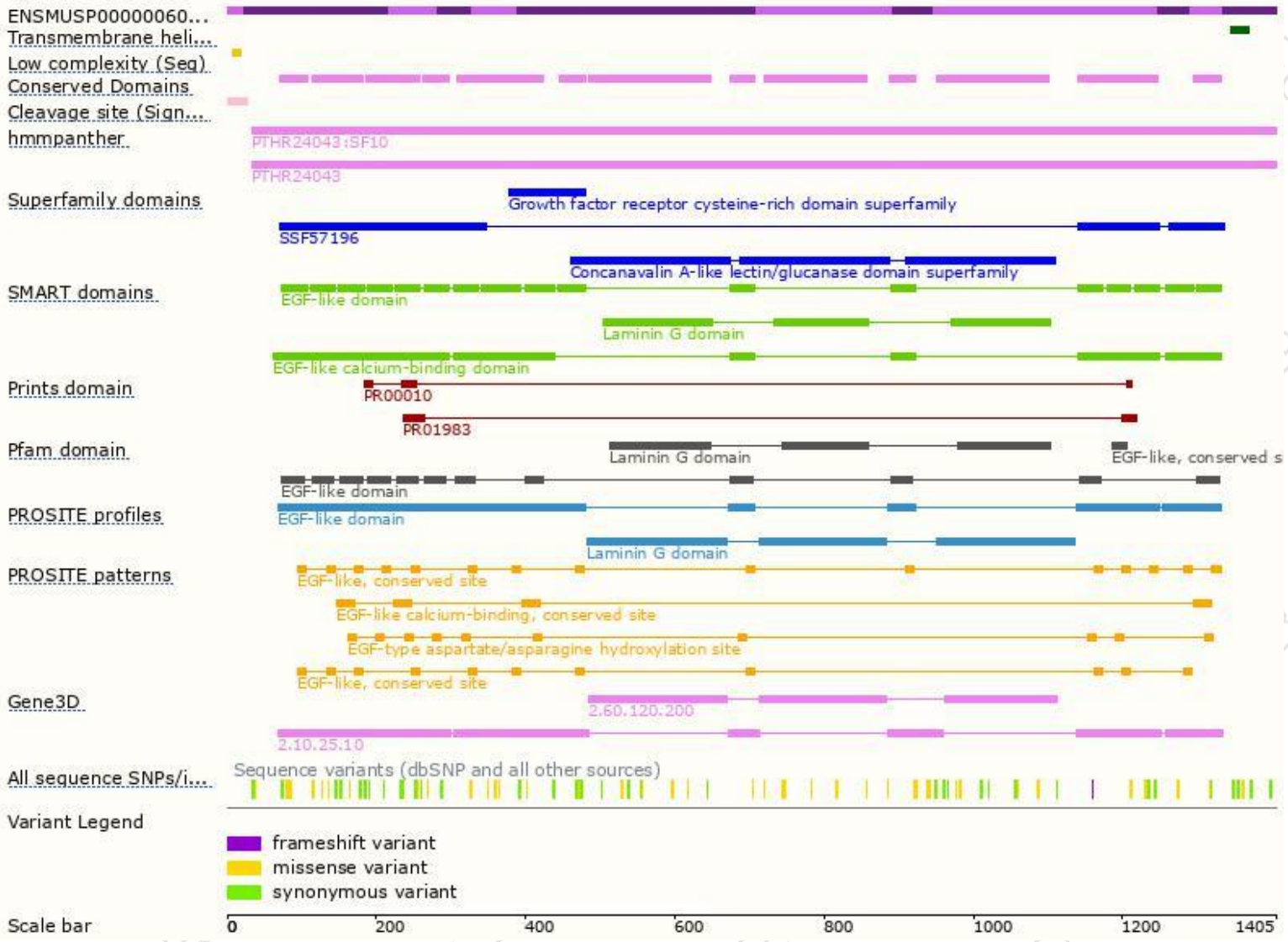
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Crb1-201	ENSMUST00000059825.11	5901	1405aa	Protein coding	CCDS15336	Q8VHS2	TSL:1 GENCODE basic APPRIS P2
Crb1-204	ENSMUST00000198445.4	6135	1314aa	Protein coding	-	A0A0G2JDY0	TSL:1 GENCODE basic APPRIS ALT2
Crb1-202	ENSMUST00000196402.4	2711	761aa	Protein coding	-	Q8VHS2	TSL:1 GENCODE basic
Crb1-207	ENSMUST00000200340.1	757	100aa	Nonsense mediated decay	-	A0A0G2JEU4	CDS 5' incomplete TSL:3
Crb1-203	ENSMUST00000197035.1	636	46aa	Nonsense mediated decay	-	A0A0G2JG15	CDS 5' incomplete TSL:3
Crb1-206	ENSMUST00000199479.1	4033	No protein	Retained intron	-	-	TSL:NA
Crb1-205	ENSMUST00000199291.1	3671	No protein	Retained intron	-	-	TSL:1

The strategy is based on the design of *Crb1-201* transcript,The transcription is shown below

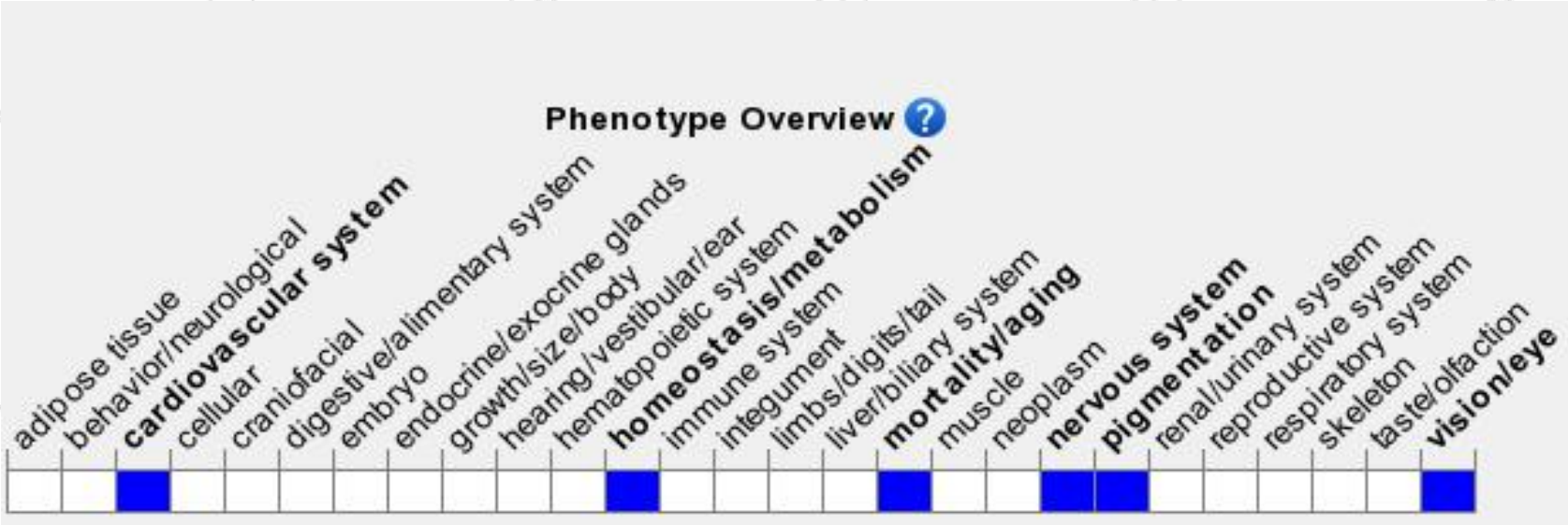
Genomic location distribution



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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