

# ***Cryba4 Cas9-CKO Strategy***

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**Reviewer:**

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# Project Overview

**Project Name**

*Cryba4*

**Project type**

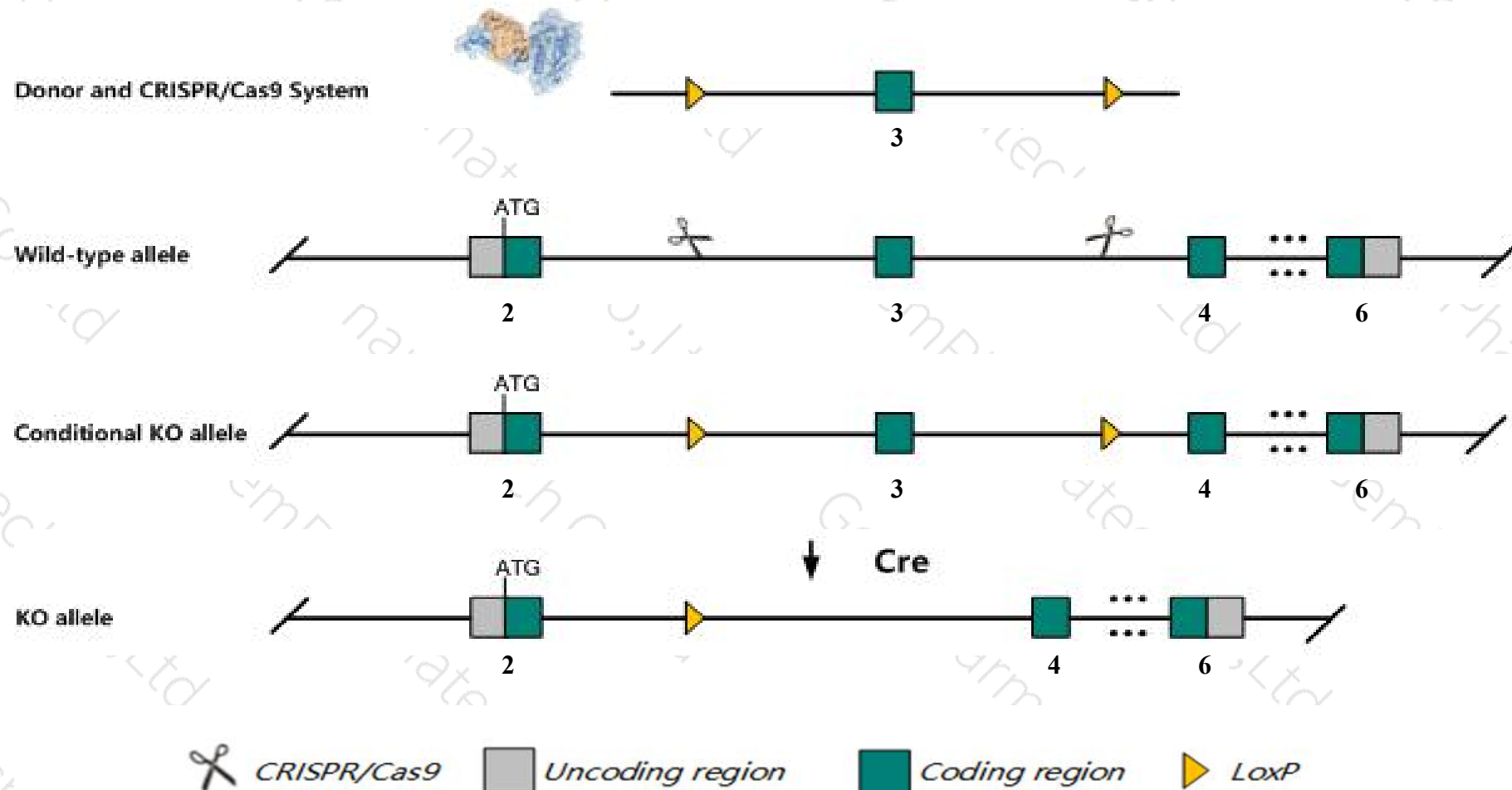
**Cas9-CKO**

**Strain background**

**C57BL/6JGpt**

# Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cryba4* gene. The schematic diagram is as follows:



- The *Cryba4* gene has 3 transcripts. According to the structure of *Cryba4* gene, exon3 of *Cryba4*-203 (ENSMUST00000112385.7) transcript is recommended as the knockout region. The region contains 119bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cryba4* 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

- The *Cryba4* gene is located on the Chr5. 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)

## Cryba4 crystallin, beta A4 [Mus musculus (house mouse)]

Gene ID: 12959, updated on 5-Mar-2019

### Summary



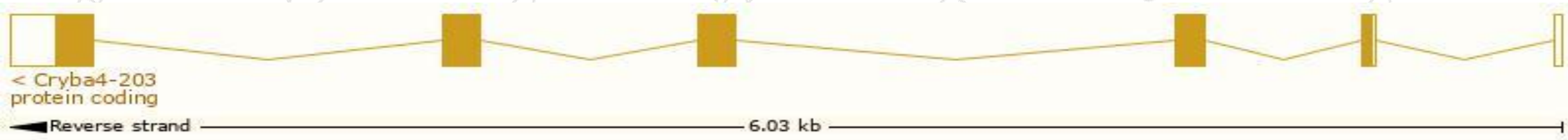
<b>Official Symbol</b>	Cryba4 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	crystallin, beta A4 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:102716</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000066975</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	REVIEWED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Summary</b>	This gene encodes a member of the crystallin family of proteins that contribute to the transparency and refractive properties of the ocular lens. Certain mutations in the human ortholog of this gene are associated with cataract and bilateral microphthalmia. This gene is located adjacent to a related crystallin gene on chromosome 5. Alternative splicing results in multiple transcript variants encoding different isoforms. [provided by RefSeq, Aug 2015]
<b>Expression</b>	Biased expression in genital fat pad adult (RPKM 82.6), adrenal adult (RPKM 22.3) and 2 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

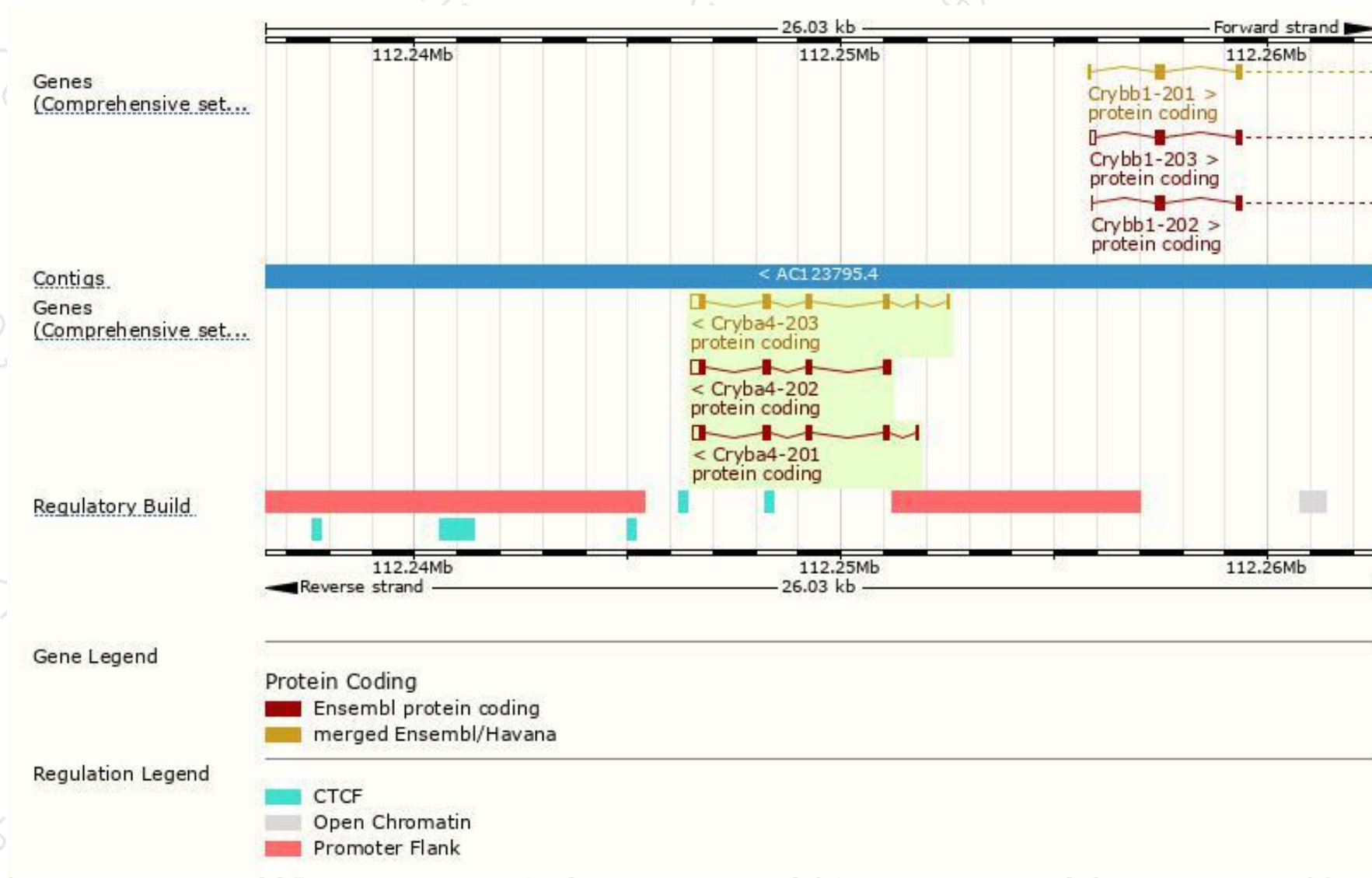
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cryba4-203	<a href="#">ENSMUST00000112385.7</a>	808	<a href="#">196aa</a>	Protein coding	<a href="#">CCDS19536</a>	<a href="#">Q3V1A0</a> <a href="#">Q9JJV0</a>	TSL:1 GENCODE basic APPRIS P1
Cryba4-202	<a href="#">ENSMUST00000112383.7</a>	754	<a href="#">183aa</a>	Protein coding	<a href="#">CCDS84931</a>	<a href="#">E9QAS6</a>	TSL:1 GENCODE basic
Cryba4-201	<a href="#">ENSMUST00000086629.5</a>	746	<a href="#">196aa</a>	Protein coding	<a href="#">CCDS19536</a>	<a href="#">Q3V1A0</a> <a href="#">Q9JJV0</a>	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Cryba4-203* transcript,The transcription is shown below

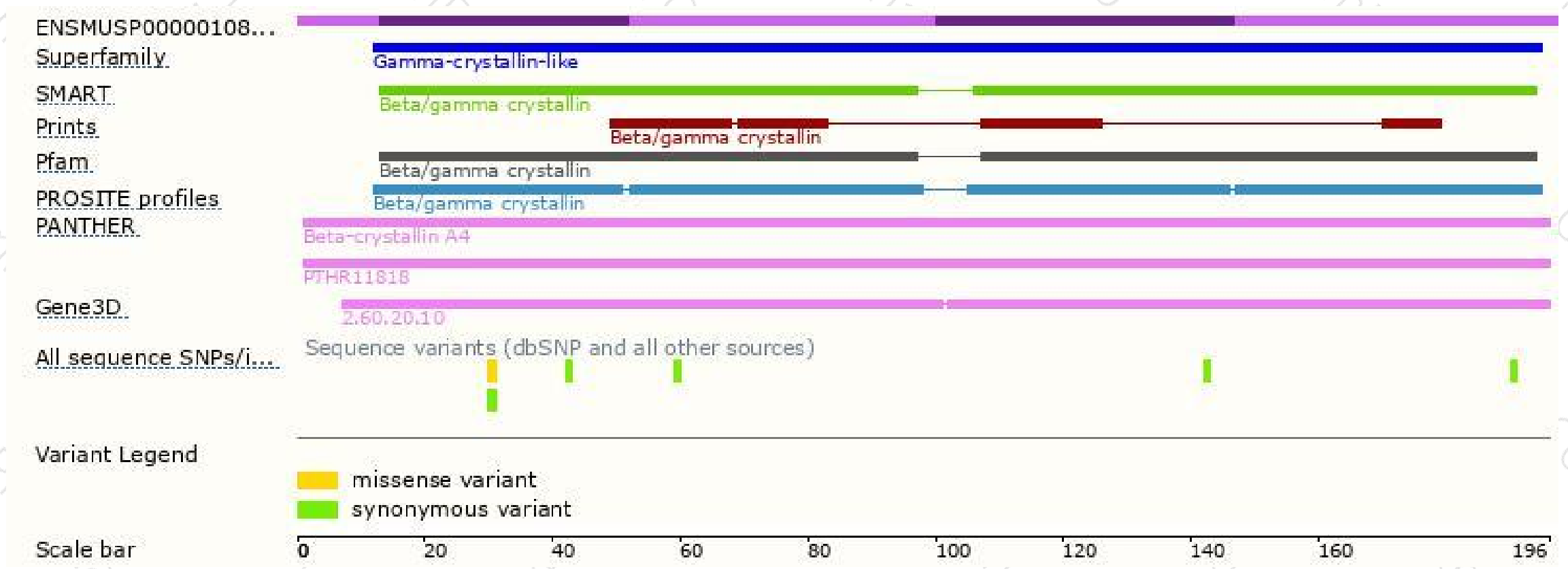


# Genomic location distribution





# Protein domain



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

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