

Gpr143 Cas9-CKO Strategy

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Project Overview

Project Name

Gpr143

Project type

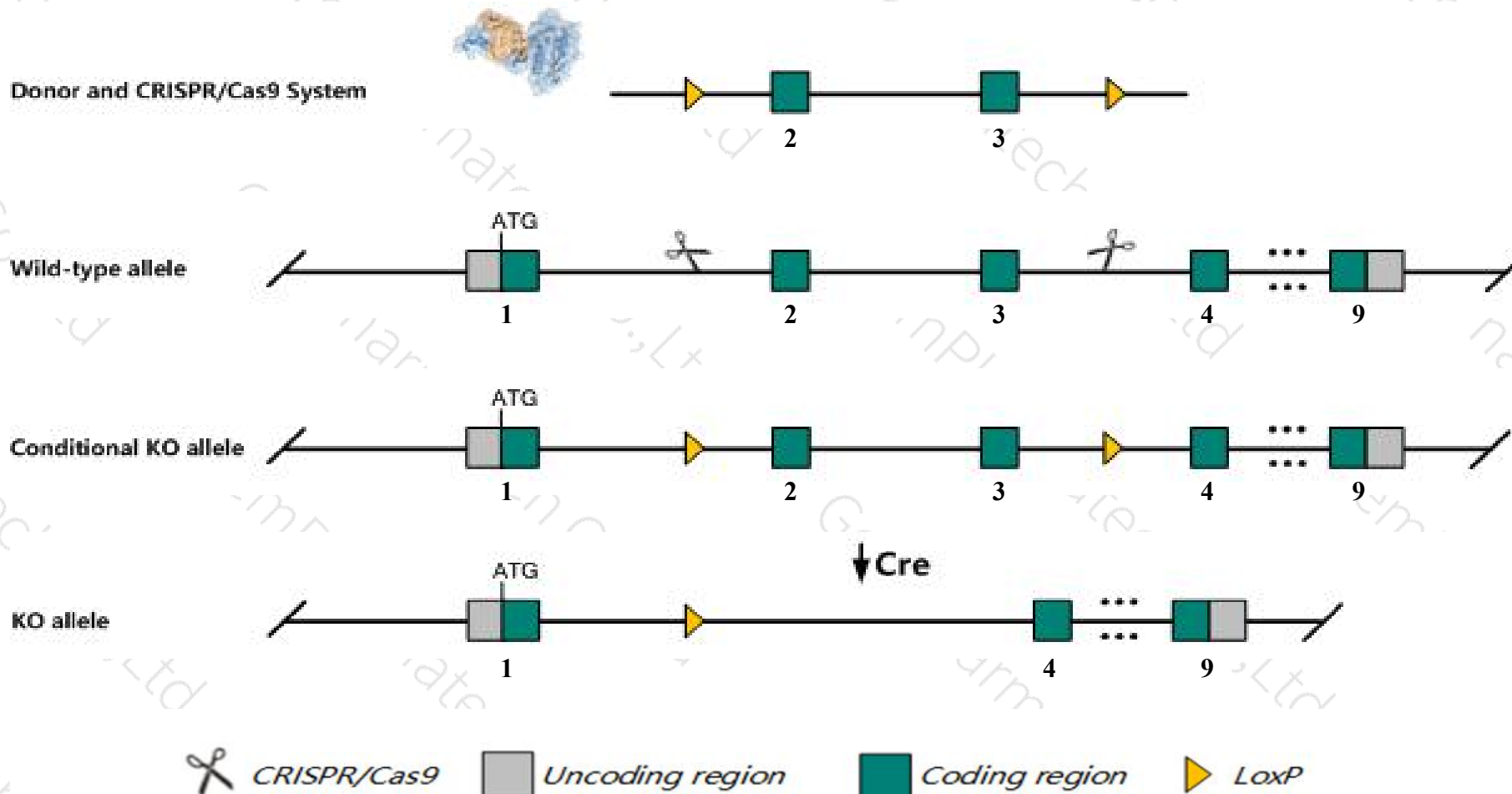
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gpr143* gene. The schematic diagram is as follows:



- The *Gpr143* gene has 3 transcripts. According to the structure of *Gpr143* gene, exon2-exon3 of *Gpr143-201* (ENSMUST00000026383.3) transcript is recommended as the knockout region. The region contains 205bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gpr143* gene. The brief process is as follows: gRNA was transcribed in vitro, donor was constructed. Cas9, gRNA 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.

- According to the existing MGI data, Hemizygous males exhibit hypopigmentation of the ocular fundus, misrouting of the optic fibers at the chiasm, and the presence of giant melanosomes in the pigment epithelium of the eye.
- The *Gpr143* gene is located on the ChrX. 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)

Gpr143 G protein-coupled receptor 143 [*Mus musculus* (house mouse)]

Gene ID: 18241, updated on 18-Apr-2019

Summary

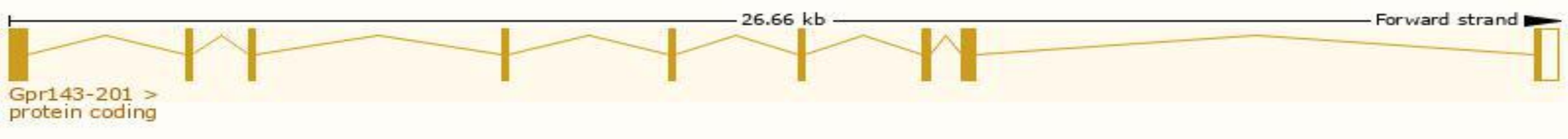
Official Symbol	Gpr143 provided by MGI
Official Full Name	G protein-coupled receptor 143 provided by MGI
Primary source	MGI:MGI:107193
See related	Ensembl:ENSMUSG00000025333
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Oa1
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information (Ensembl)

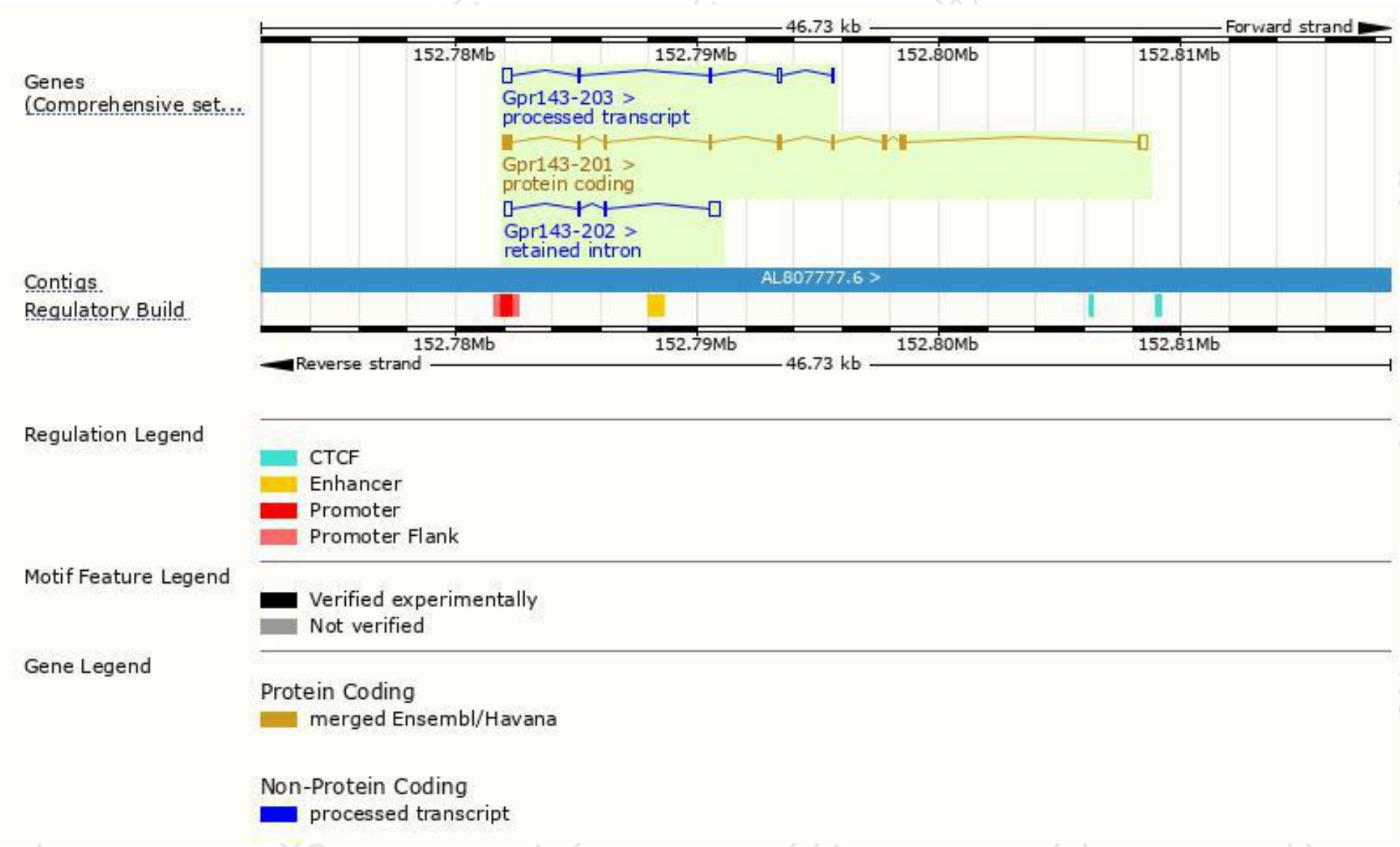
The gene has 3 transcripts,all transcripts are shown below:

Show/hide columns (1 hidden)							Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags	
Gpr143-203	ENSMUST00000151819.7	745	No protein	lncRNA	-	-	TSL:5	
Gpr143-202	ENSMUST00000139310.1	917	No protein	Retained intron	-	-	TSL:1	
Gpr143-201	ENSMUST00000026383.3	1586	405aa	Protein coding	CCDS30476	P70259 Q549B6	TSL:1	GENCODE basic APPRIS P1

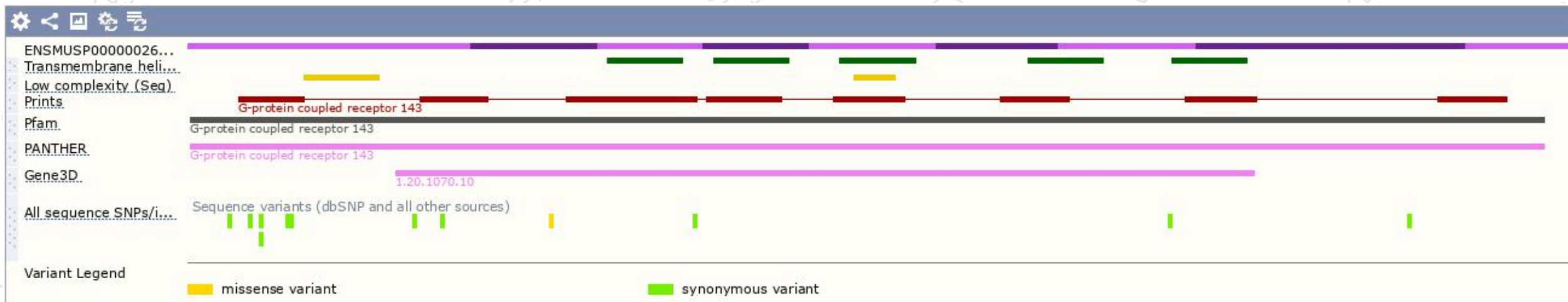
The strategy is based on the design of *Gpr143-201* transcript,The transcription is shown below



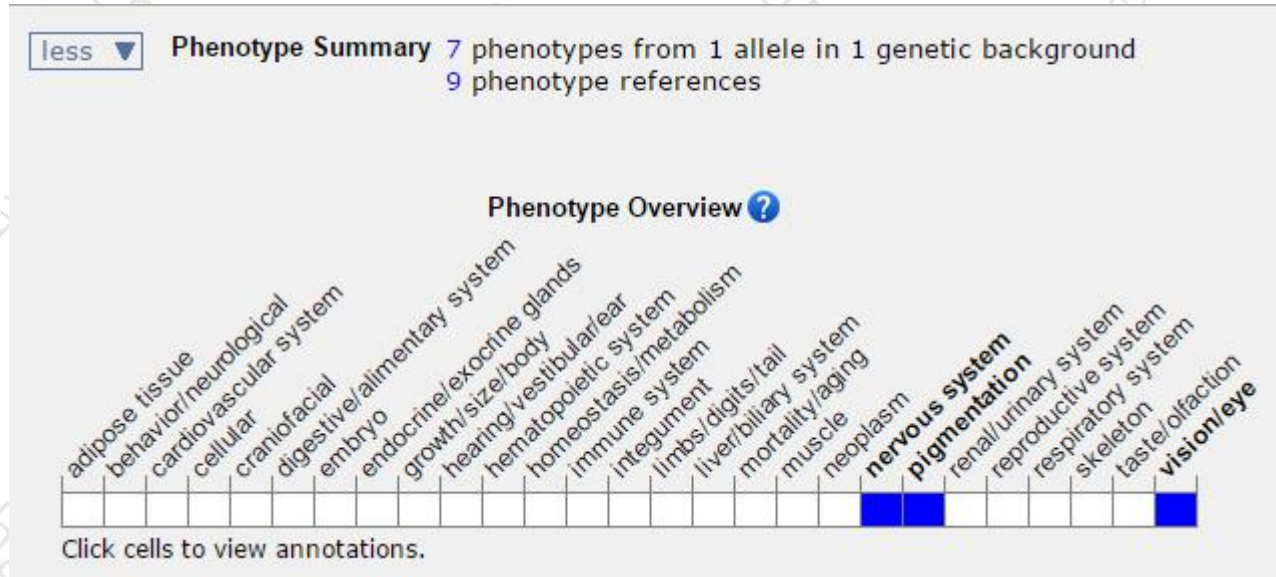
Genomic location distribution



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/>).

According to the existing MGI data, Hemizygous males exhibit hypopigmentation of the ocular fundus, misrouting of the optic fibers at the chiasm, and the presence of giant melanosomes in the pigment epithelium of the eye.

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

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