

Gpr143 Cas9-KO Strategy

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Project Overview

Project Name

Gpr143

Project type

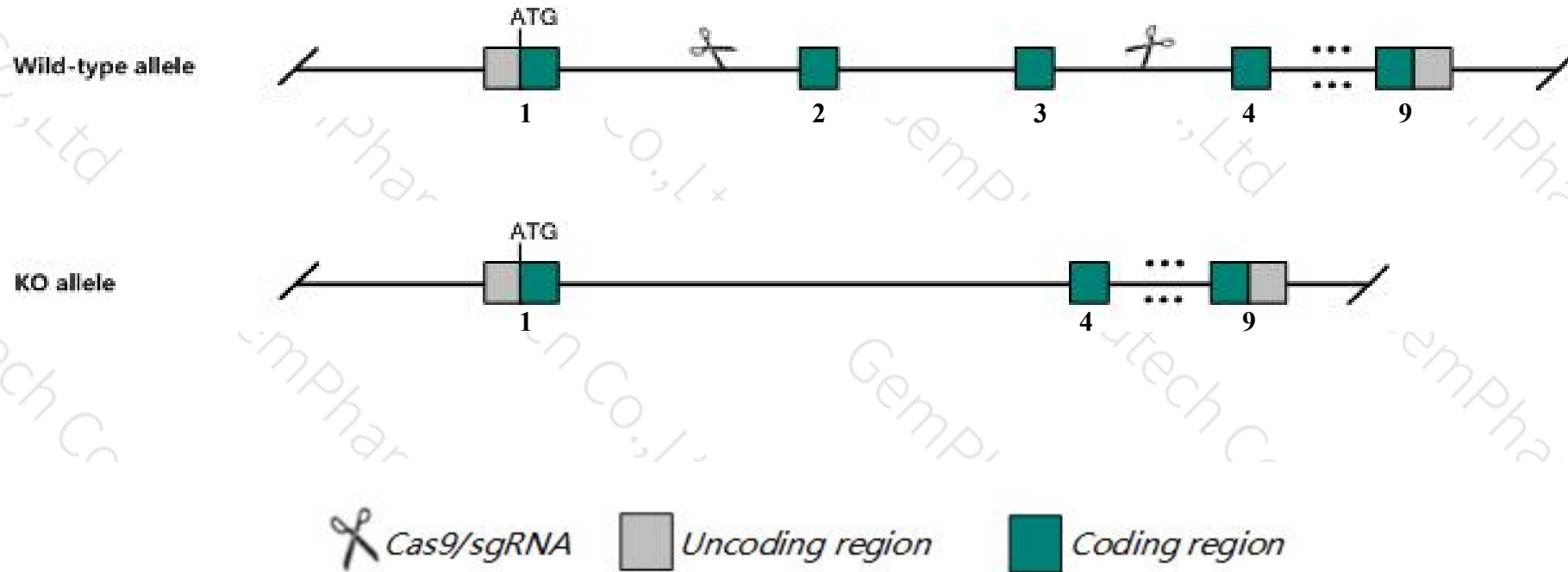
Cas9-KO

Strain background

C57BL/6J

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: sgRNA was transcribed in vitro. Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

- 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

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

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

Summary

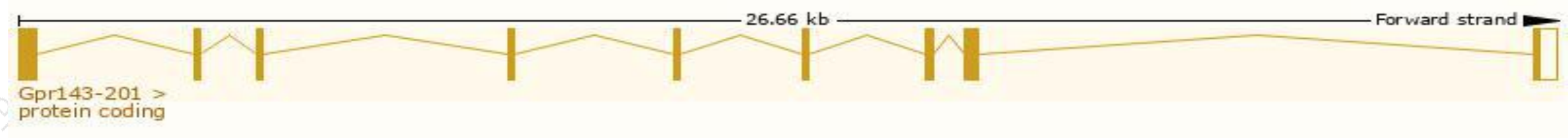
Official Symbol Gpr143 provided by [MGI](#)
Official Full Name G protein-coupled receptor 143 provided by [MGI](#)
Primary source [MGI:MGI:107193](#)
See related [Ensembl:ENSMUSG00000025333](#)
Gene type protein coding
RefSeq status VALIDATED
Organism [Mus musculus](#)
Lineage Eukaryota; Metazoa; Chordata; 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)

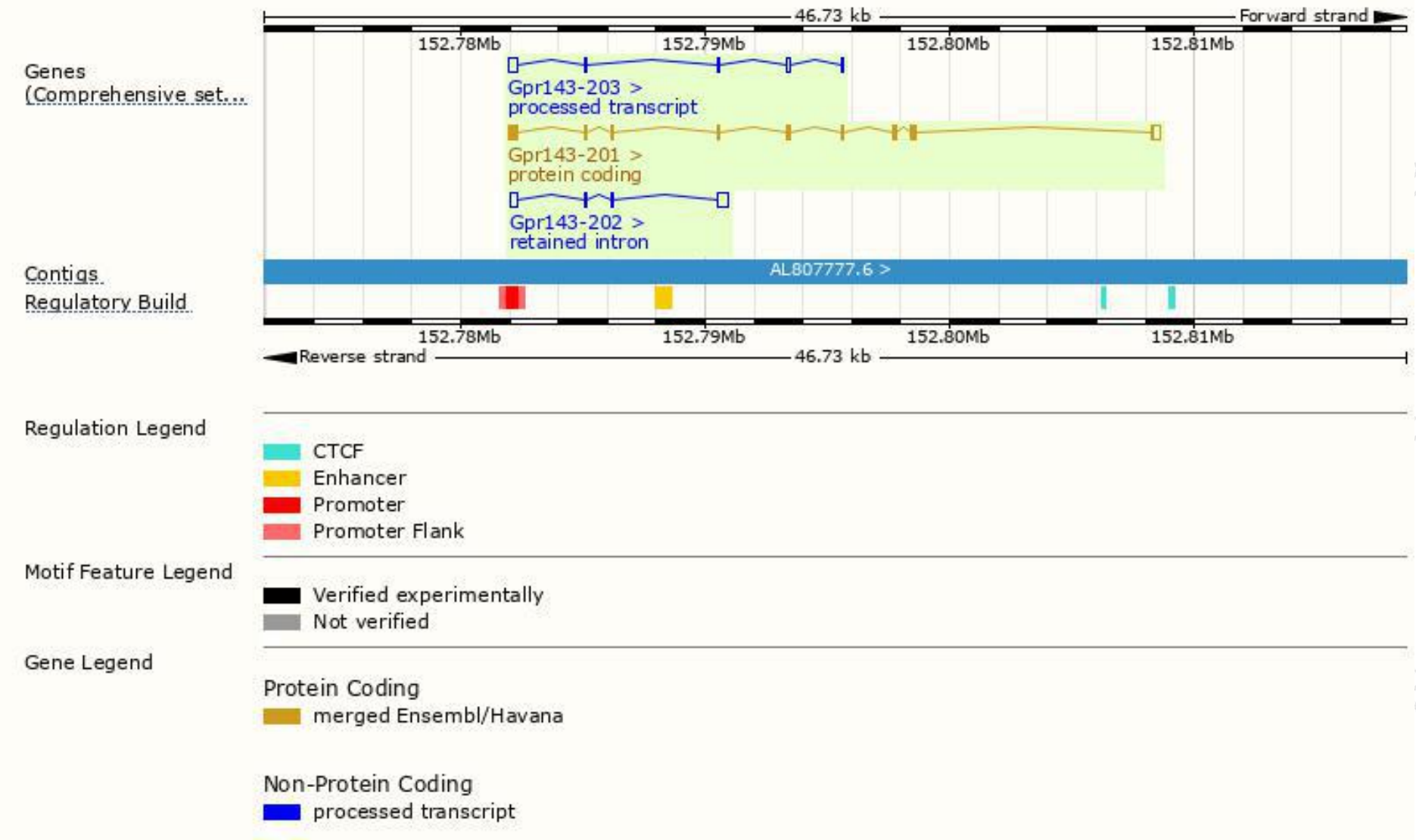
The gene has 3 transcripts,all transcripts are shown below:

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

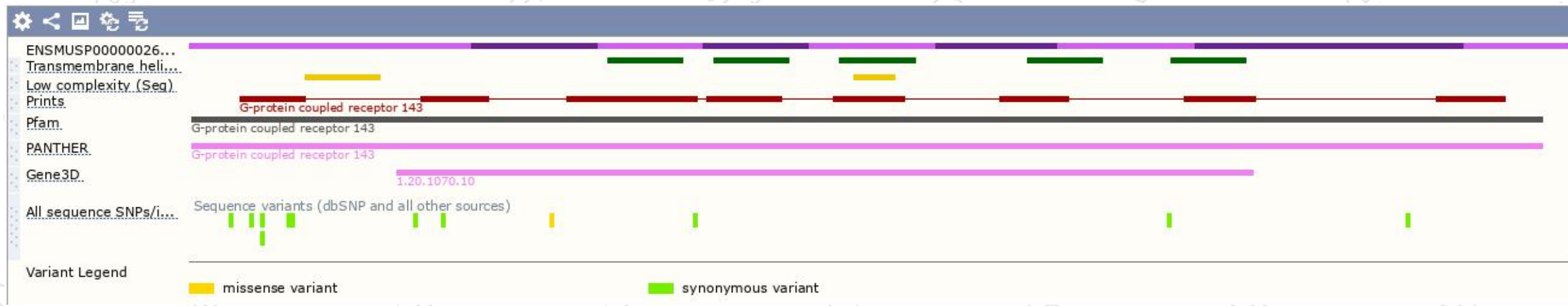
The strategy is based on the design of *Gpr143-201* transcript,The transcription is shown below



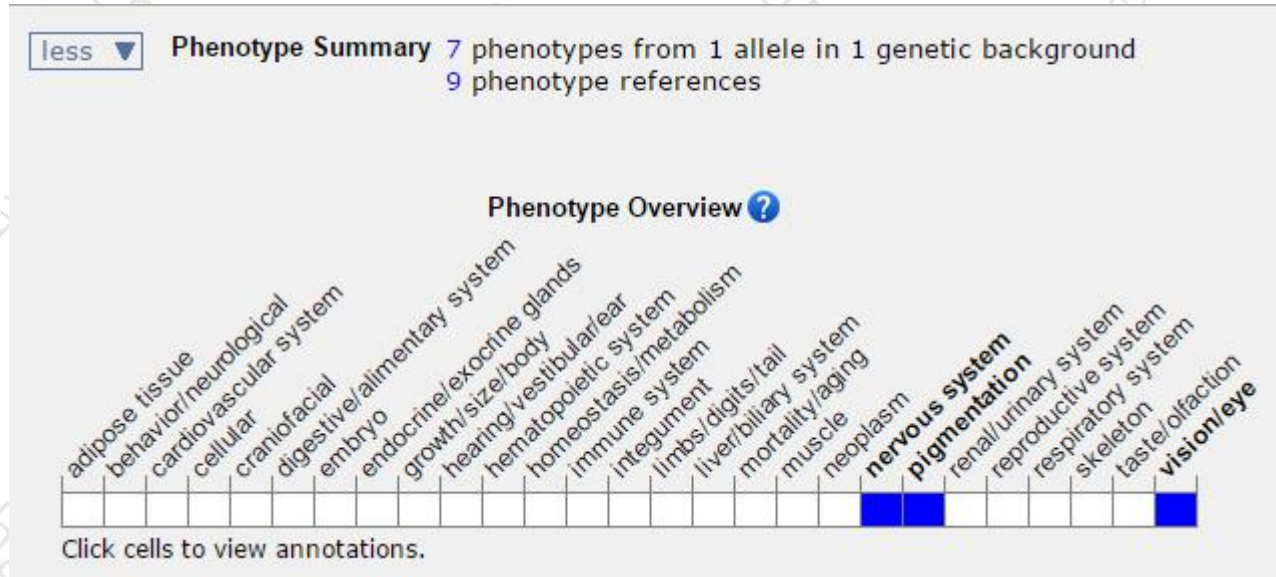
Genomic location distribution



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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