

Ogn Cas9-KO Strategy

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Project Overview

Project Name

Ogn

Project type

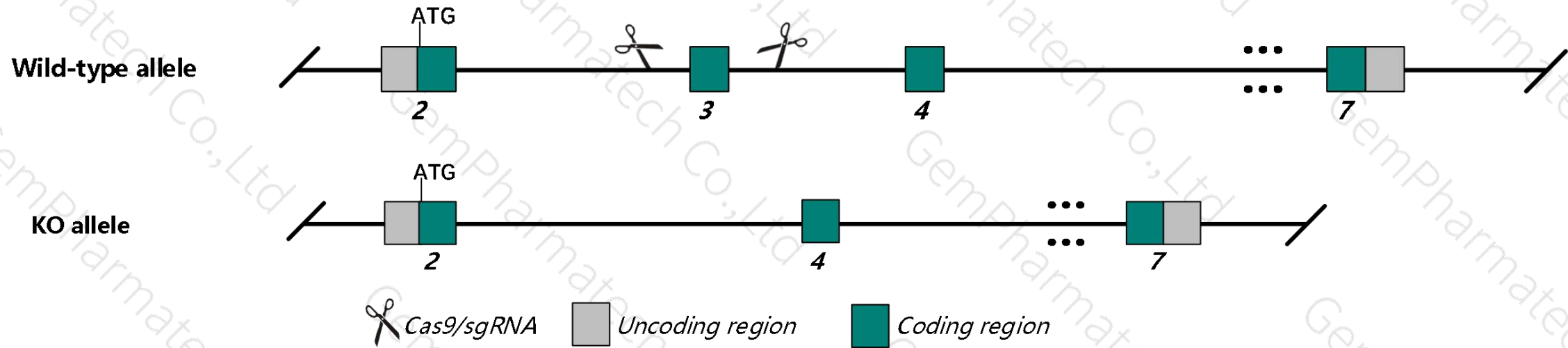
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



➤ The *Ogn* gene has 1 transcripts. According to the structure of *Ogn* gene, exon3 of *Ogn-201* (ENSMUST00000021822.6) transcript is recommended as the knockout region. The region contains 94bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Ogn* gene. The brief process is as follows: gRNA was transcribed in vitro. Cas9 and gRNA 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.

- According to the existing MGI data, mice homozygous for a disruption in this gene display reduced collagen fiber density and organization, as well as more variability in fibrillar diameter in both the skin and the cornea. Corneal clarity was unaffected whereas skin tensile strength was reduced.
- The *Ogn* gene is located on the Chr13. 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 gene was overlapped with the intron of *Cenpp* gene.
- This strategy is designed based on genetic information in existing databases. Due to the complexity of gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Ogn osteoglycin [*Mus musculus* (house mouse)]

Gene ID: 18295, updated on 18-Apr-2019

Summary

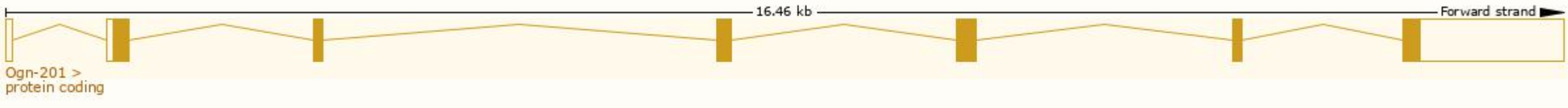
Official Symbol	Ogn provided by MGI
Official Full Name	osteoglycin provided by MGI
Primary source	MGI:MGI:109278
See related	Ensembl:ENSMUSG00000021390
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	OG; OIF; SLRR3A; mimecan; mimican; 3110079A16Rik
Expression	Broad expression in bladder adult (RPKM 41.4), limb E14.5 (RPKM 40.9) and 15 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

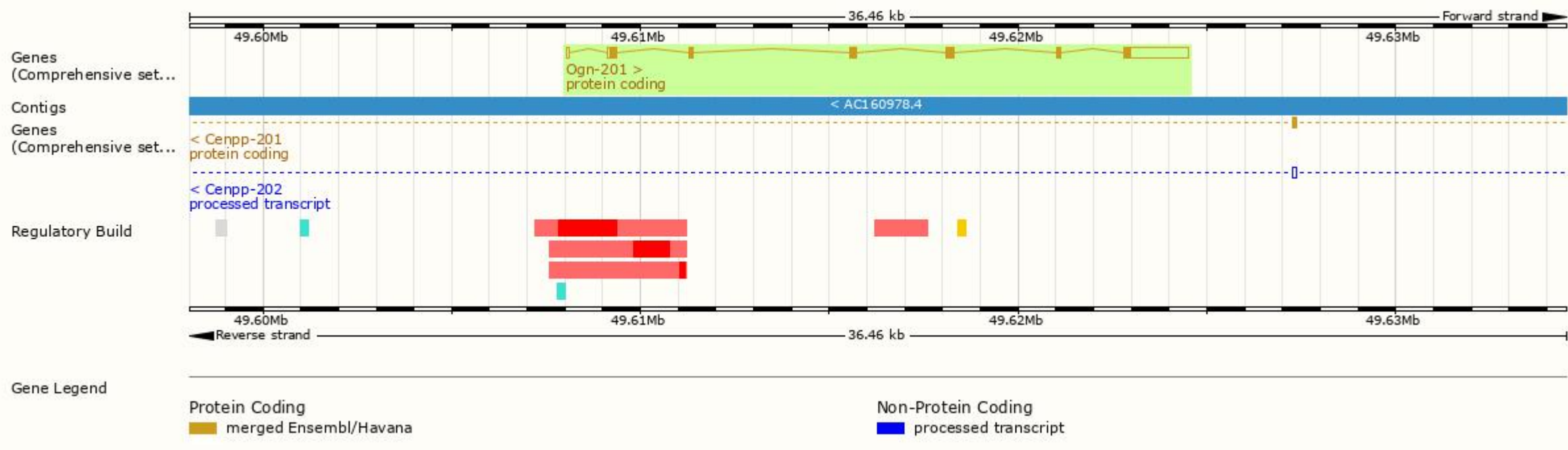
The gene has 1 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ogn-201	ENSMUST00000021822.6	2566	298aa	Protein coding	CCDS26505	Q543C5 Q62000	TSL:1 Gencode basic APPRIS P1

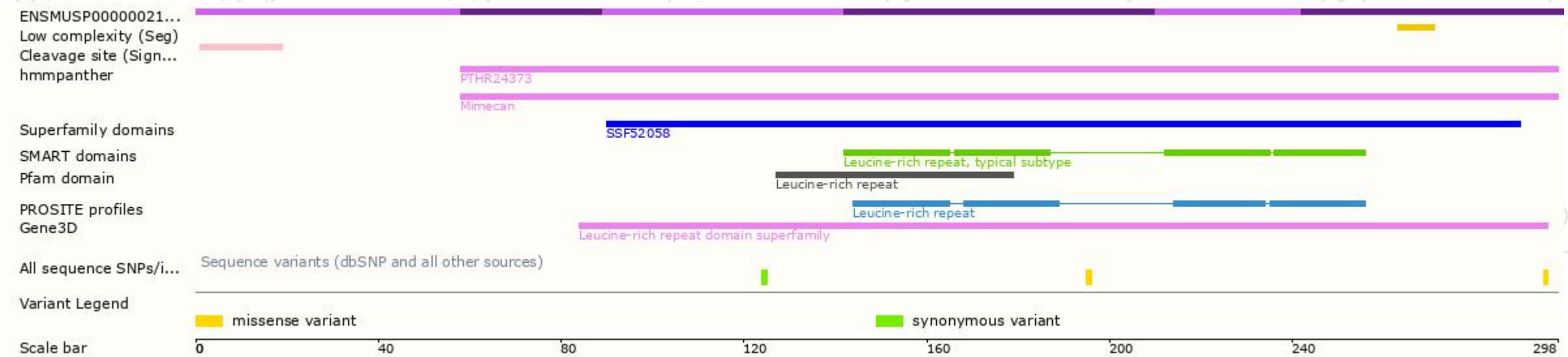
The strategy is based on the design of *Ogn-201* transcript, The transcription is shown below:



Genomic location distribution

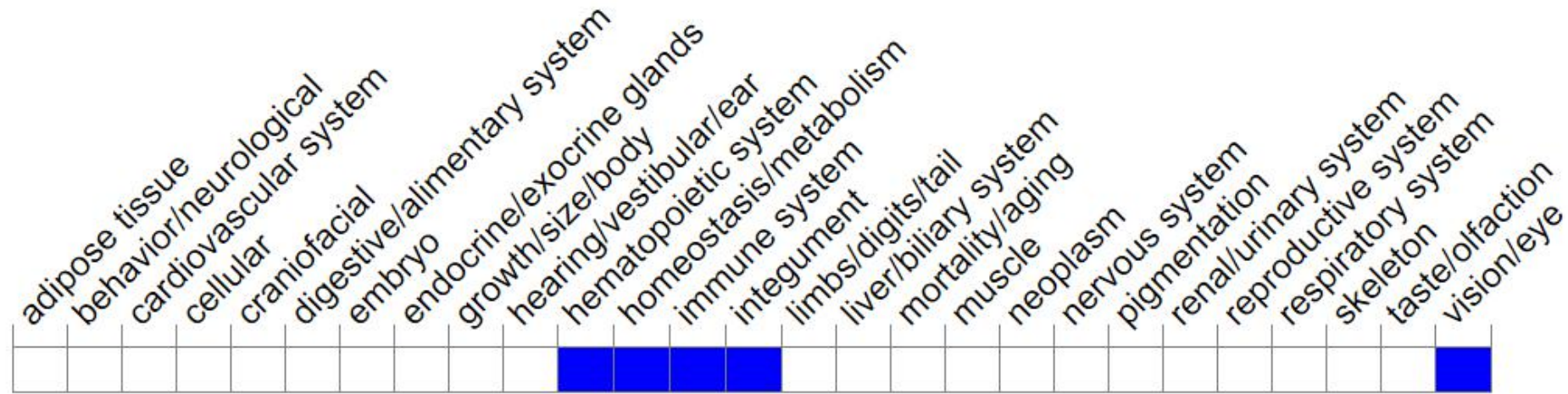


Protein domain



Mouse phenotype description(MGI)

Phenotype Overview ?



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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