# *Ogn* Cas9-CKO Strategy

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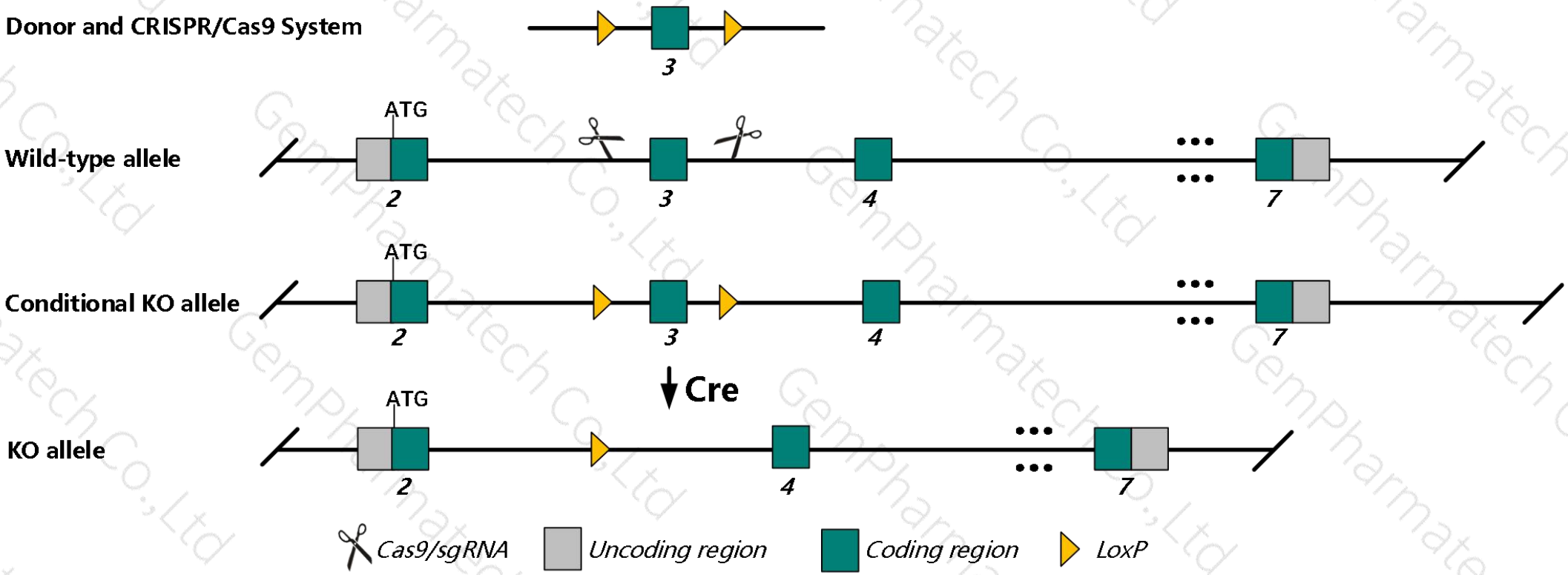
# Project Overview

| | |
|---|---|
| **Project Name** | ***Ogn*** |
| **Project type** | **Cas9-CKO** |
| **Strain background** | **C57BL/6JGpt** |

# Conditional Knockout strategy

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



# Technical routes

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- 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, 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.

# Notice

➢ 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 fibrilar diameter in both the skin and the cornea. Corneal clarity was unaffected whereas skin tensile strength was reduced.

➢ This gene was overlapped with the intron of *Cenpp* gene.

➢ The *Ogn* gene is located on the Chr13. If the conditional 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 gene transcription and translation processes, all risks cannot be predicted under existing information.

# Gene information （NCBI）

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

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

### Summary

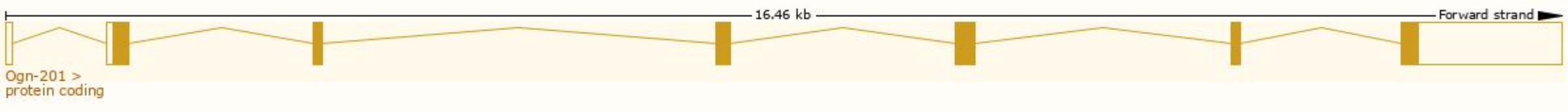
| | |
|---|---|
| **Official Symbol** | Ogn provided by MGI |
| **Official Full Name** | osteoglycin provided by MGI |
| **Primary source** | MGI:MGI:109278 |
| **See related** | Ensembl:ENSMUSG00000021390 |
| **Gene type** | protein coding |
| **RefSeq status** | VALIDATED |
| **Organism** | Mus musculus |
| **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）

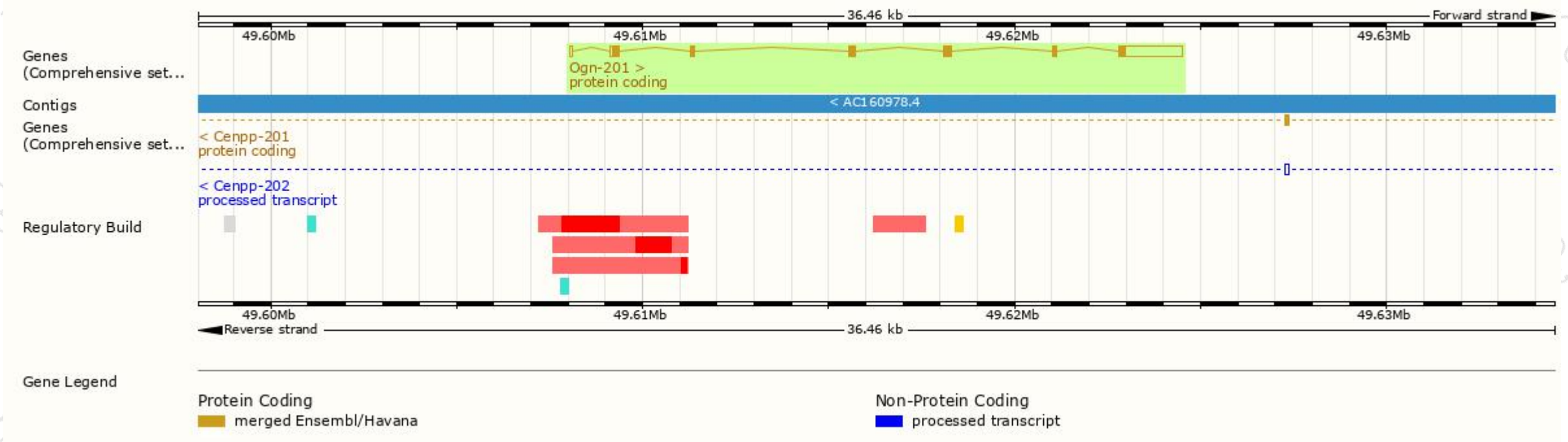
The gene has 1 transcripts,all transcripts are shown below:

| 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 |

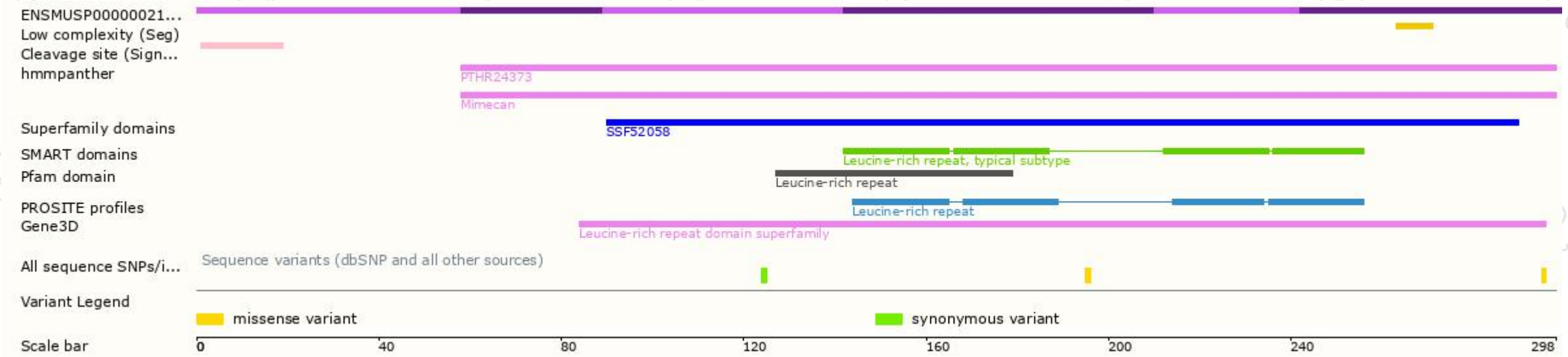
The strategy is based on the design of *Ogn-201* transcript, the transcription is shown below:



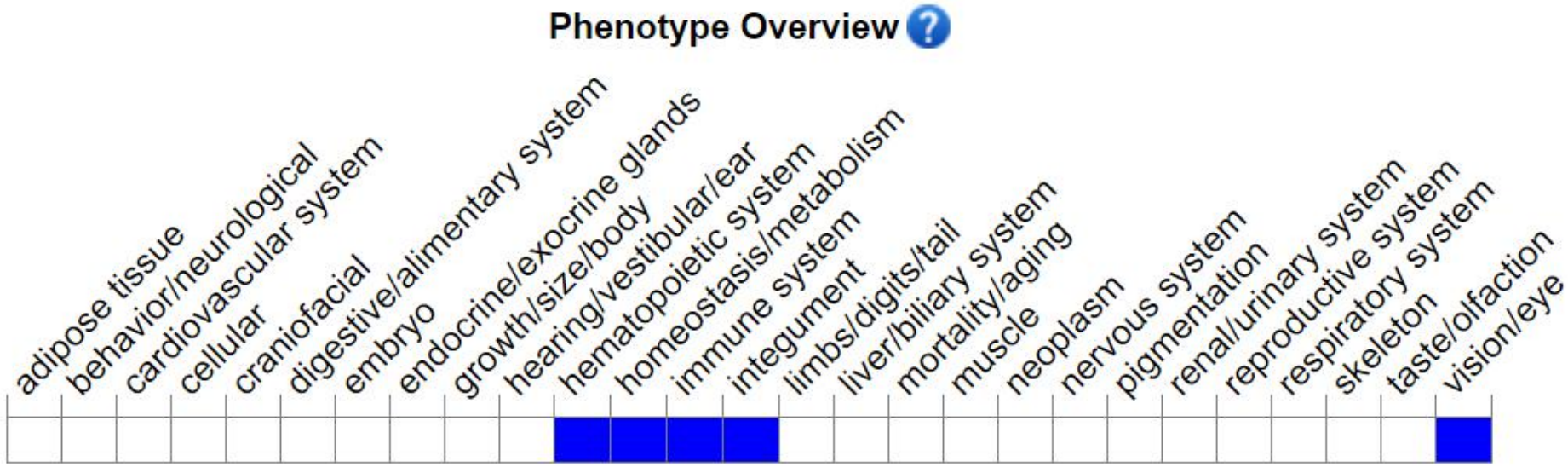
# Genomic location distribution



# Protein domain



# Mouse phenotype description(MGI )




*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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