

Gna11 Cas9-CKO Strategy

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Reviewer:

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Project Overview

Project Name

Gna11

Project type

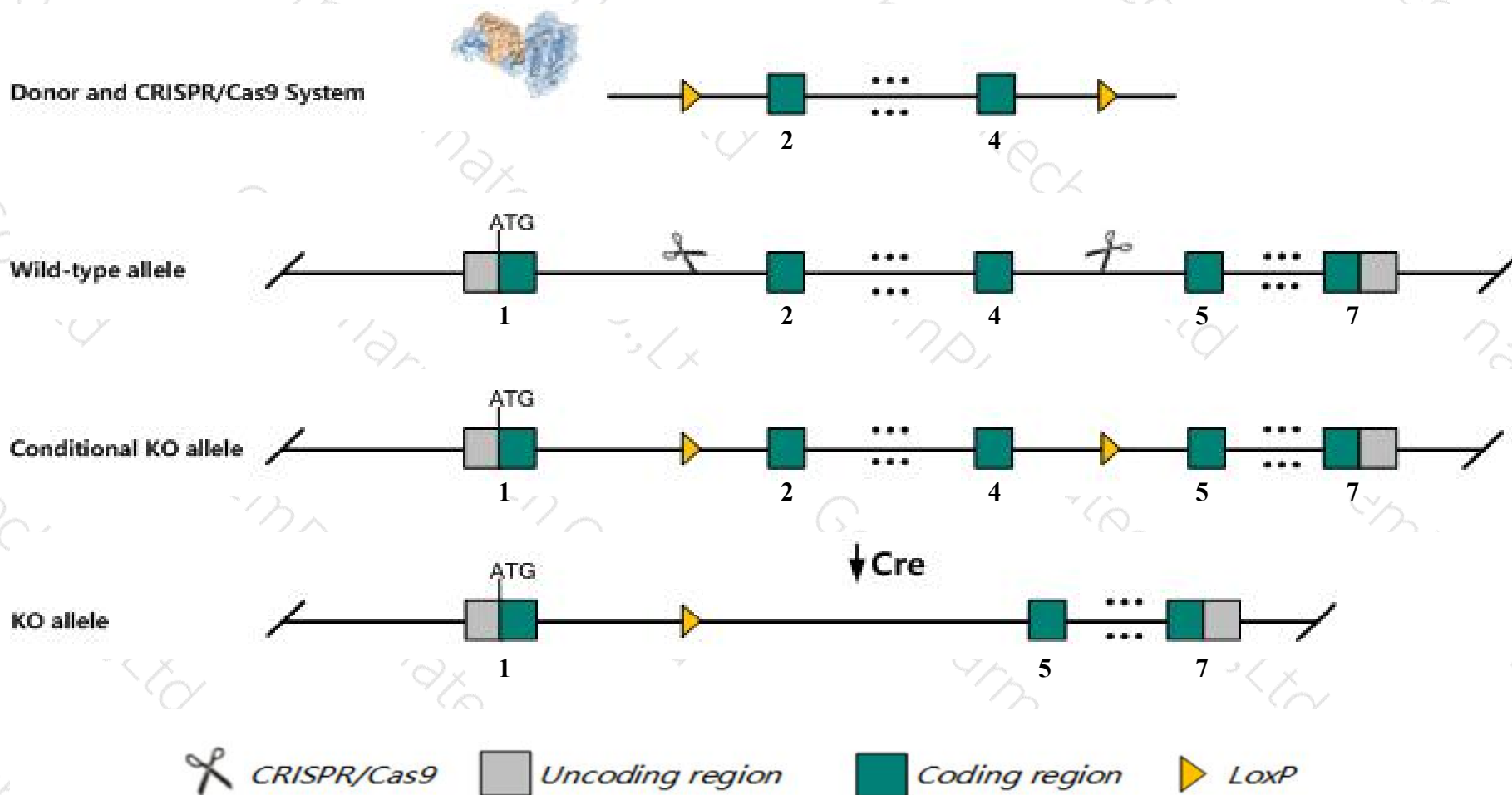
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Gnal1* gene. The schematic diagram is as follows:



- The *Gna11* gene has 3 transcripts. According to the structure of *Gna11* gene, exon2-exon4 of *Gna11-201* (ENSMUST00000043604.5) transcript is recommended as the knockout region. The region contains 469bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Gna11* 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.

- According to the existing MGI data, Mice deficient for this gene do not exhibit any detectable abnormalities.
- The *Gnall* gene is located on the Chr10. 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)

Gna11 guanine nucleotide binding protein, alpha 11 [*Mus musculus* (house mouse)]

Gene ID: 14672, updated on 10-Oct-2019

Summary

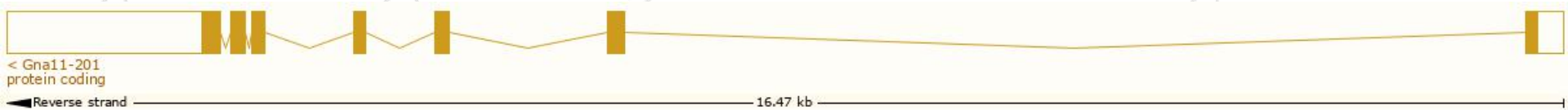
Official Symbol	Gna11 provided by MGI
Official Full Name	guanine nucleotide binding protein, alpha 11 provided by MGI
Primary source	MGI:MGI:95766
See related	Ensembl:ENSMUSG00000034781
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Dsk7; E430025L19; g alpha-11
Expression	Broad expression in duodenum adult (RPKM 262.5), small intestine adult (RPKM 254.3) and 24 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

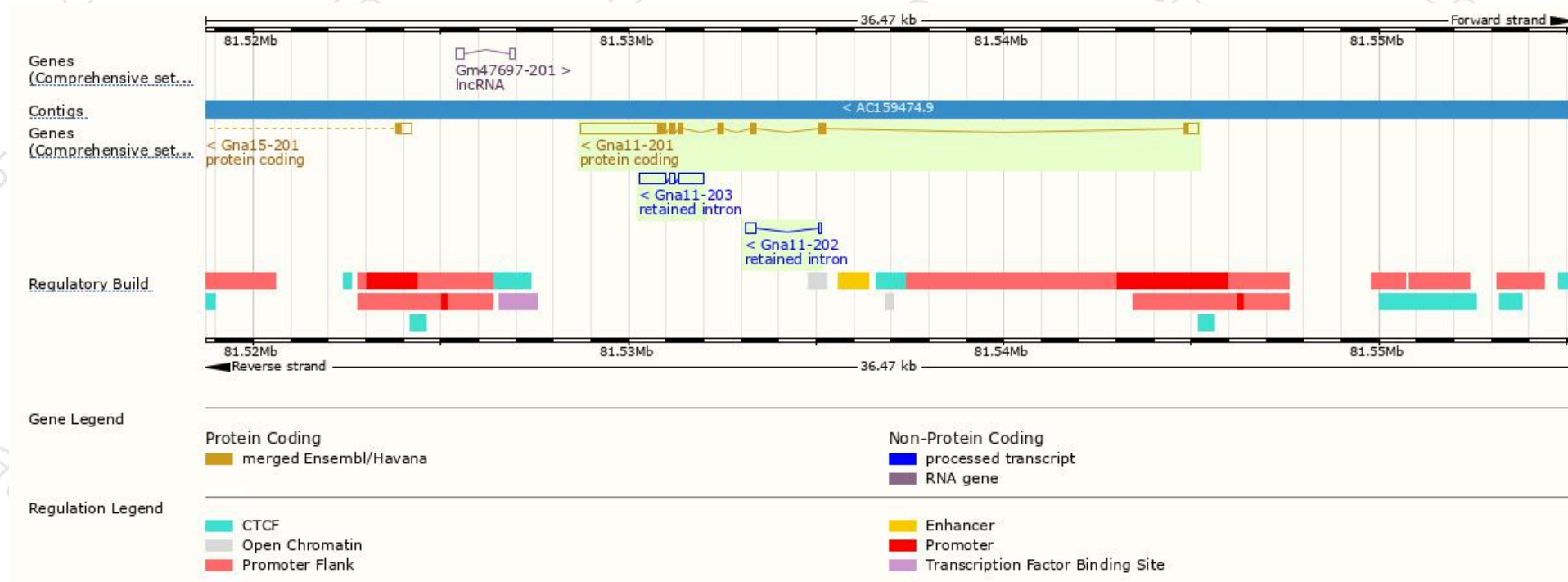
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Gna11-201	ENSMUST00000043604.5	3414	359aa	Protein coding	CCDS24061	P21278 Q3UPA1	TSL:1 GENCODE basic APPRIS P1
Gna11-203	ENSMUST00000146984.1	1547	No protein	Retained intron	-	-	TSL:1
Gna11-202	ENSMUST00000134354.1	328	No protein	Retained intron	-	-	TSL:3

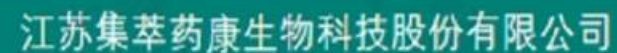
The strategy is based on the design of *Gna11-201* transcript,The transcription is shown below



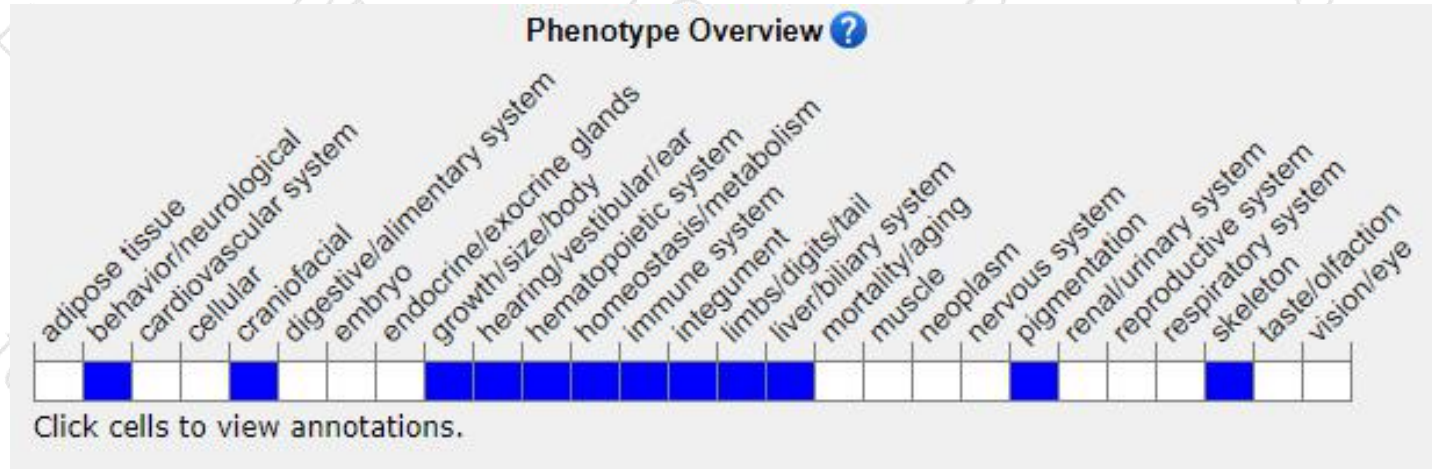
Genomic location distribution



集萃药康
GemPharmatech



Mouse phenotype description(MGI)



Phenotypes affected by the gene are marked in blue. Data quoted from MGI database(<http://www.informatics.jax.org/>).

Mice deficient for this gene do not exhibit any detectable abnormalities.

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

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