

Oxgr1 Cas9-CKO Strategy

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Design Date: 2019-8-5

Project Overview

Project Name

Oxgr1

Project type

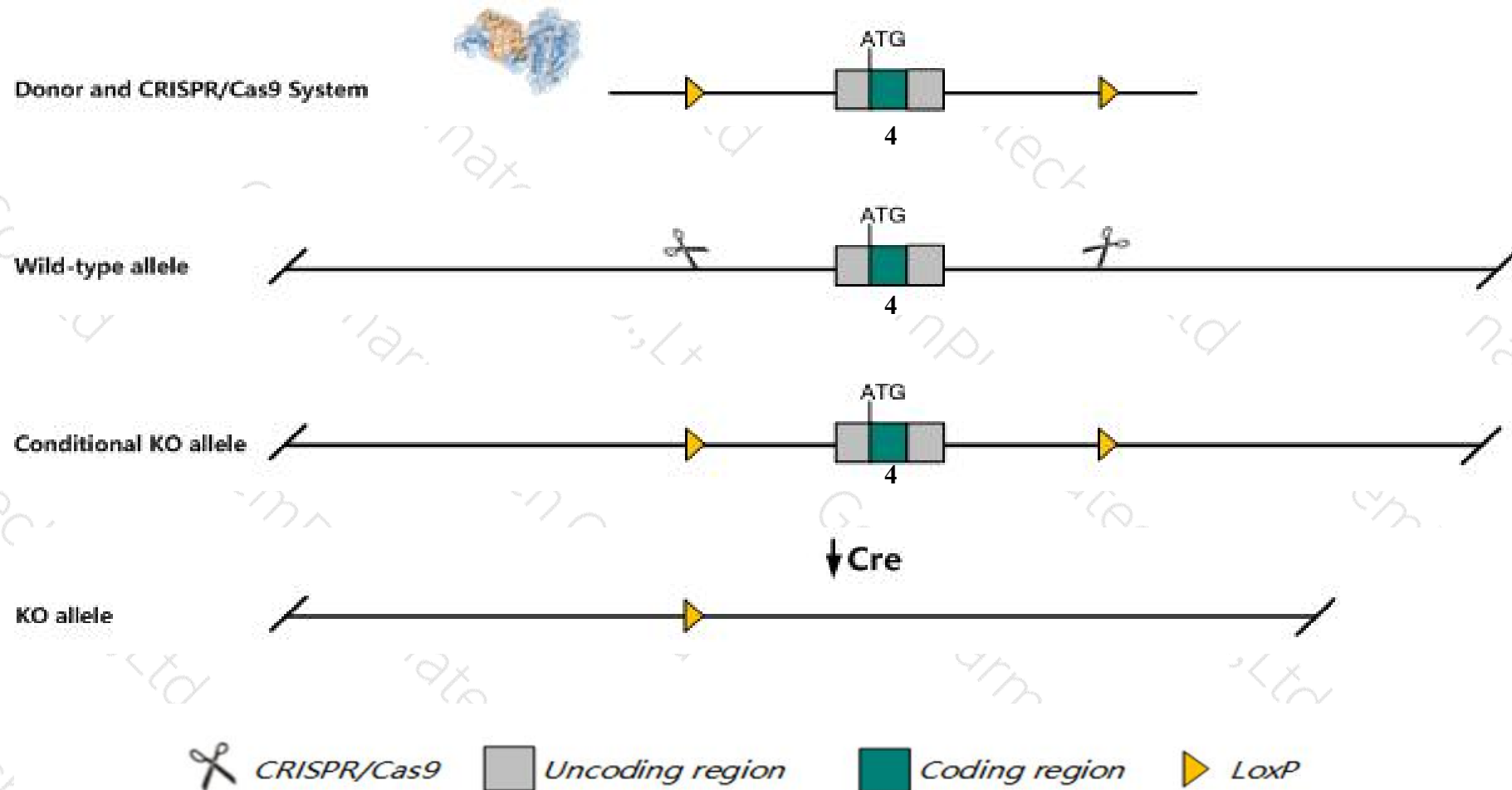
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Oxgr1* gene. The schematic diagram is as follows:



Technical routes

- The *Oxgr1* gene has 1 transcript. According to the structure of *Oxgr1* gene, exon4 of *Oxgr1-201* (ENSMUST00000058213.5) transcript is recommended as the knockout region. The region contains all of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Oxgr1* 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 homozygous for a knock-out allele exhibit reduced leukotriene E4 ligand (LTE4)-induced ear edema at low and intermediate doses and abnormal acid-base balance.
- The *Oxgr1* gene is located on the Chr14. 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)

Oxgr1 oxoglutarate (alpha-ketoglutarate) receptor 1 [Mus musculus (house mouse)]

Gene ID: 239283, updated on 31-Jan-2019

Summary



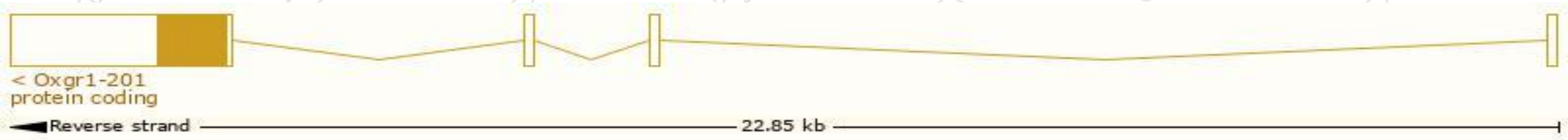
Official Symbol	Oxgr1 provided by MGI
Official Full Name	oxoglutarate (alpha-ketoglutarate) receptor 1 provided by MGI
Primary source	MGI:MGI:2685145
See related	Ensembl:ENSMUSG00000044819
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Cysltr3, Gm299, Gpr80, Gpr99, P2Y15
Expression	Restricted expression toward kidney adult (RPKM 6.8) See more
Orthologs	human all

Transcript information (Ensembl)

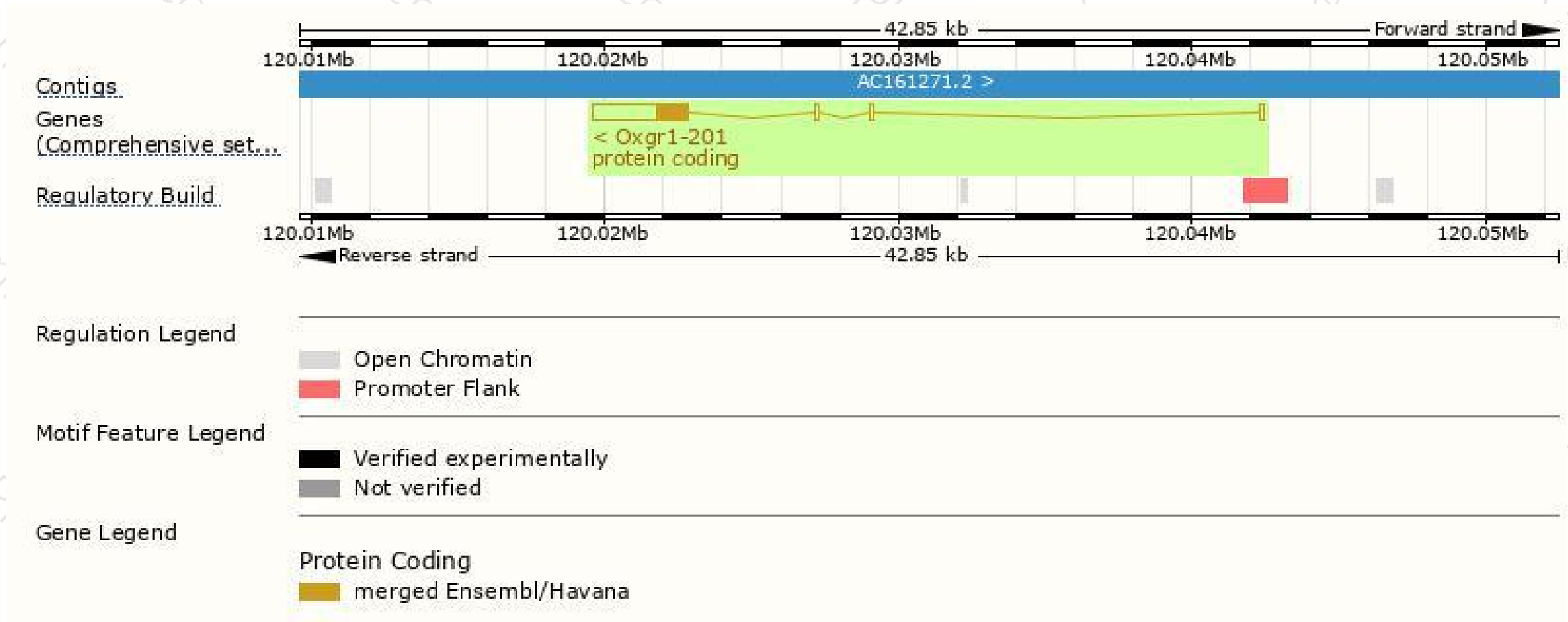
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Oxgr1-201	ENSMUST00000058213.5	3732	337aa	Protein coding	CCDS27340	Q6IYF8	TSL:1 GENCODE basic APPRIS P1

The strategy is based on the design of *Oxgr1-201* transcript, The transcription is shown below



Genomic location distribution



Protein domain

ENSMUSP00000055...

Transmembrane heli...

Low complexity (Seg)

Conserved Domains

hmmpanther

PTHR24231

PTHR24231:SF15

Superfamily domains

SSF81321

Prints domain

PR01157

G protein-coupled receptor, rhodopsin-like

Pfam domain

G protein-coupled receptor, rhodopsin-like

PROSITE profiles

GPCR, rhodopsin-like, 7TM



Gene3D

1.20.1070.10

All sequence SNPs/i...

Sequence variants (dbSNP and all other sources)

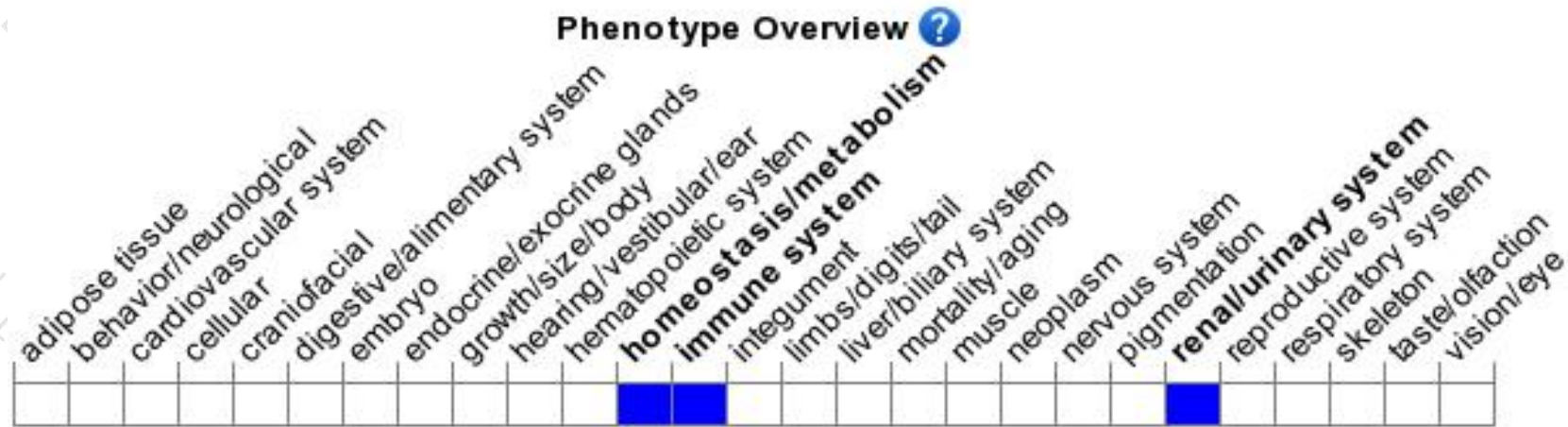
Variant Legend

 missense variant
 synonymous variant

Scale bar

0 40 80 120 160 200 240 280 337

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, Mice homozygous for a knock-out allele exhibit reduced leukotriene E4 ligand (LTE4)-induced ear edema at low and intermediate doses and abnormal acid-base balance.

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

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