

Olfr716 Cas9-CKO Strategy

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Project Overview

Project Name

Olfr716

Project type

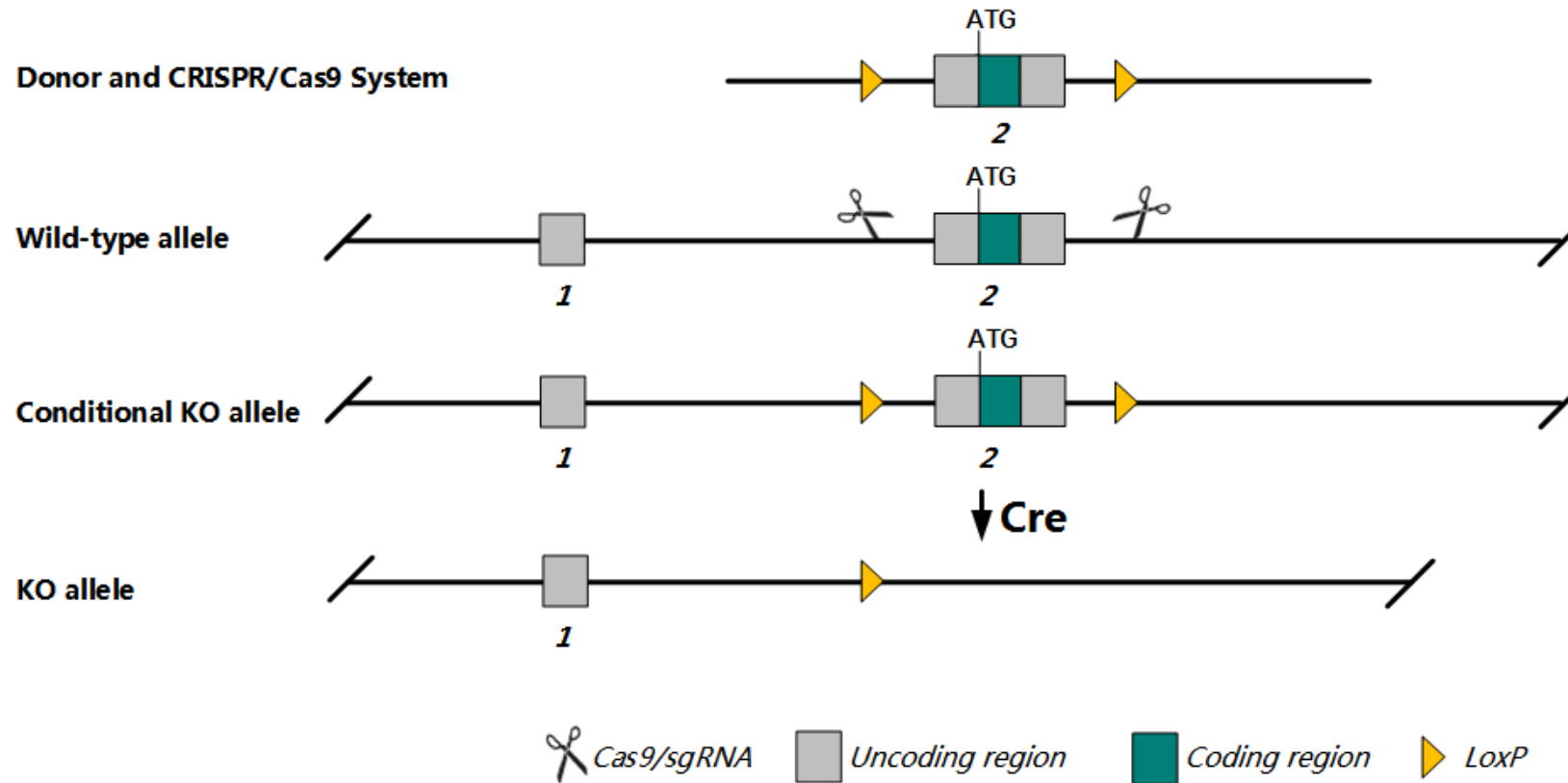
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Olfr716* gene. The schematic diagram is as follows:



Technical routes

- The *Olfr716* gene has 7 transcripts. According to the structure of *Olfr716* gene, exon2 of *Olfr716*-207(ENSMUST00000216871.2) 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 *Olfr716* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA 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 was 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.

- The *Olfr716* gene is located on the Chr7. 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)

Olfr716 olfactory receptor 716 [*Mus musculus* (house mouse)]

Gene ID: 258597, updated on 25-Sep-2020

Summary



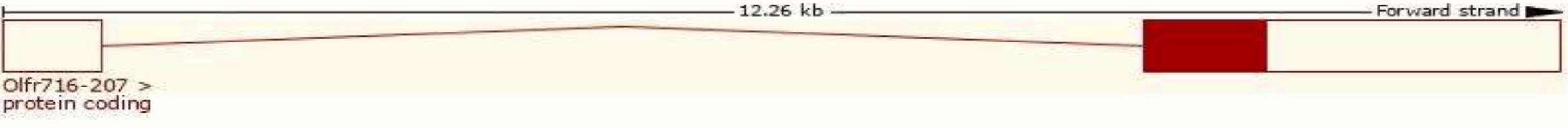
Official Symbol	Olfr716 provided by MGI
Official Full Name	olfactory receptor 716 provided by MGI
Primary source	MGI:MGI:3030550
See related	Ensembl:ENSMUSG000000073896
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	MOR260; MOR260-2
Summary	Olfactory receptors interact with odorant molecules in the nose, to initiate a neuronal response that triggers the perception of a smell. The olfactory receptor proteins are members of a large family of G-protein-coupled receptors (GPCR) arising from single coding-exon genes. Olfactory receptors share a 7-transmembrane domain structure with many neurotransmitter and hormone receptors and are responsible for the recognition and G protein-mediated transduction of odorant signals. The olfactory receptor gene family is the largest in the genome. The nomenclature assigned to the olfactory receptor genes and proteins for this organism is independent of other organisms. [provided by RefSeq, Jul 2008]
Orthologs	human all

Transcript information (Ensembl)

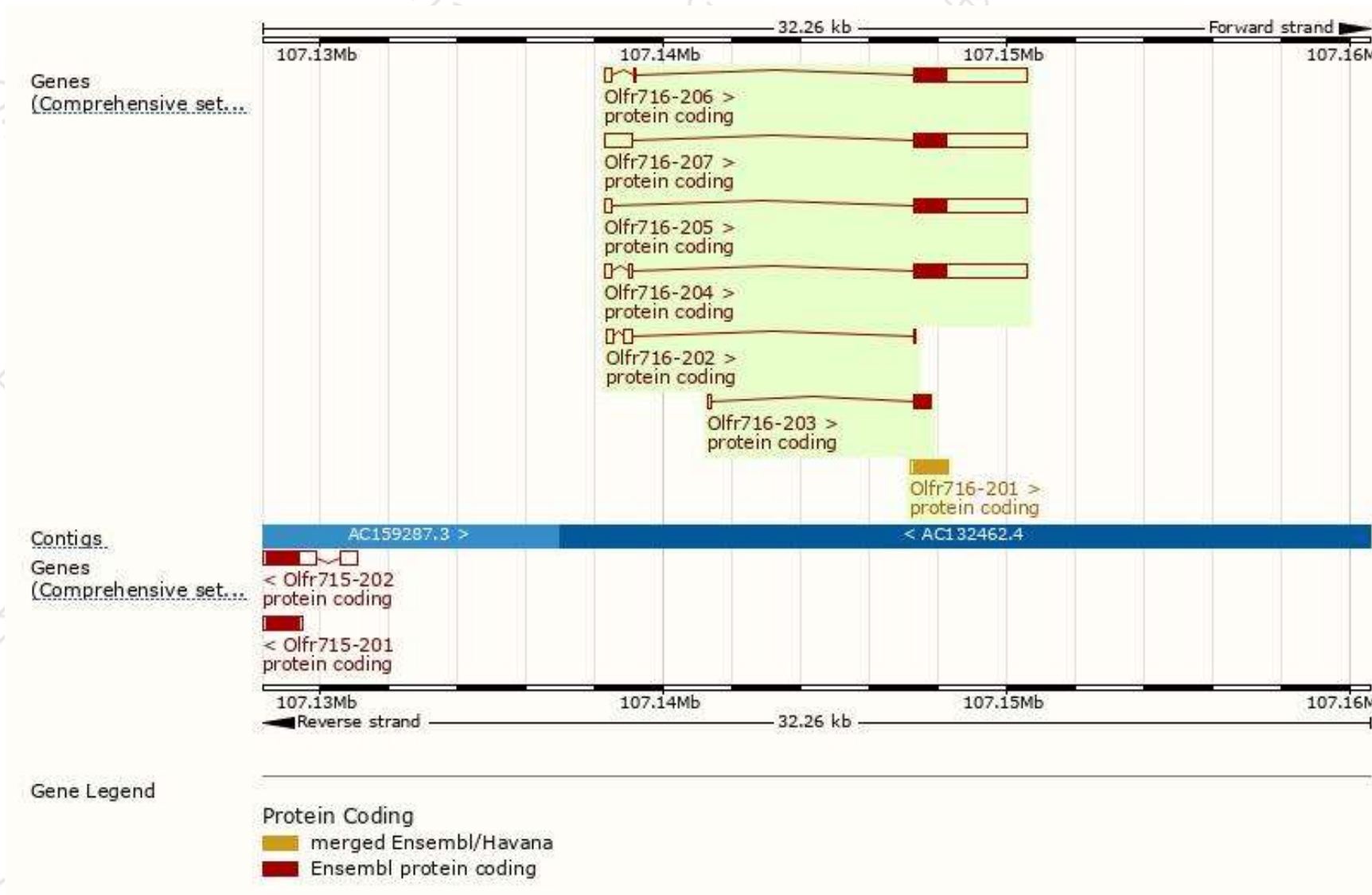
The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Olfr716-207	ENSMUST00000216871.2	4062	314aa	Protein coding	CCDS21687	Q9EPG6	TSL:5 GENCODE basic APPRIS P1
Olfr716-204	ENSMUST00000213367.2	3585	314aa	Protein coding	CCDS21687	Q9EPG6	TSL:5 GENCODE basic APPRIS P1
Olfr716-206	ENSMUST00000215284.2	3515	314aa	Protein coding	CCDS21687	Q9EPG6	TSL:5 GENCODE basic APPRIS P1
Olfr716-205	ENSMUST00000214819.2	3485	314aa	Protein coding	CCDS21687	Q9EPG6	TSL:5 GENCODE basic APPRIS P1
Olfr716-201	ENSMUST00000098137.2	1104	314aa	Protein coding	CCDS21687	Q9EPG6	TSL:NA GENCODE basic APPRIS P1
Olfr716-203	ENSMUST00000210474.1	637	169aa	Protein coding	-	A0A1B0GR93	CDS 3' incomplete TSL:3
Olfr716-202	ENSMUST00000209942.1	585	18aa	Protein coding	-	A0A1B0GR72	CDS 3' incomplete TSL:5

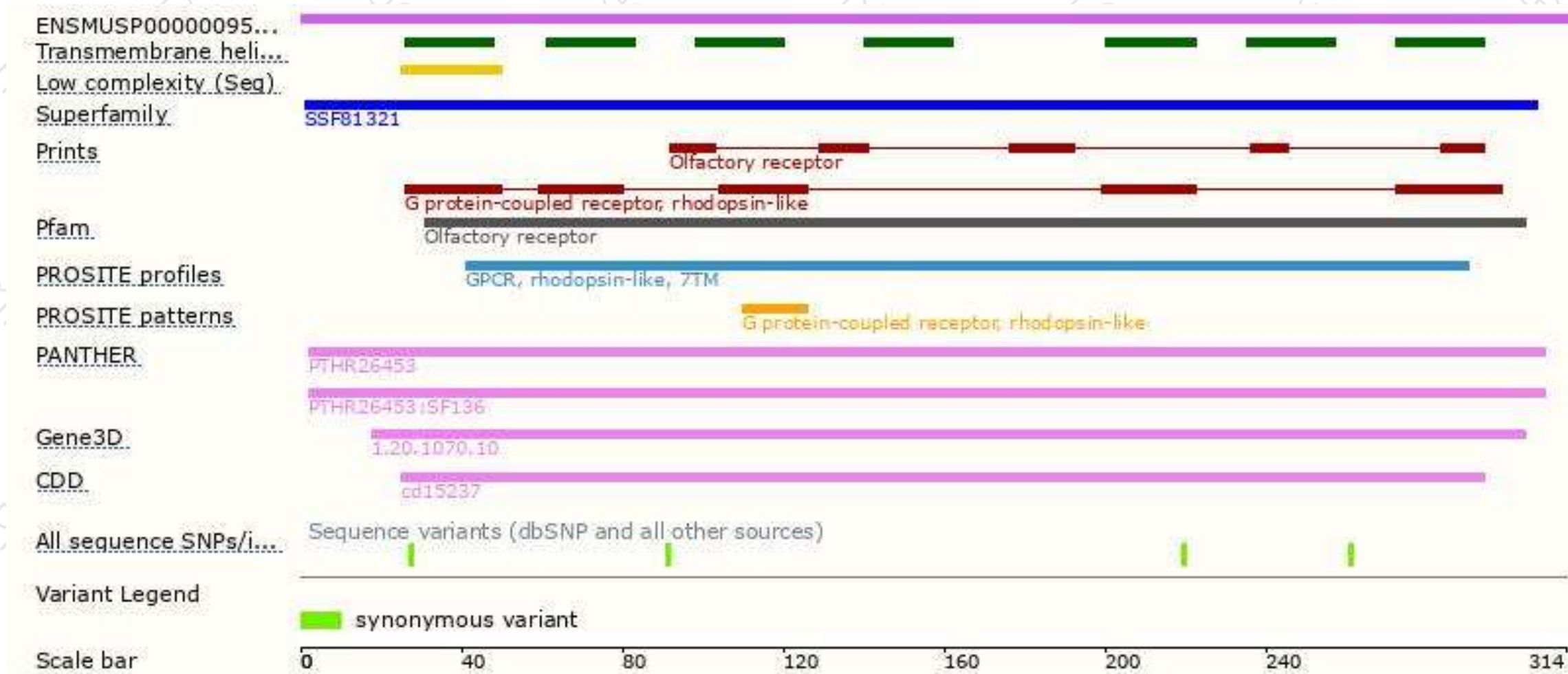
The strategy is based on the design of *Olfr716-207* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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

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