Olfr1357 Cas9-CKO Strategy

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Project Overview

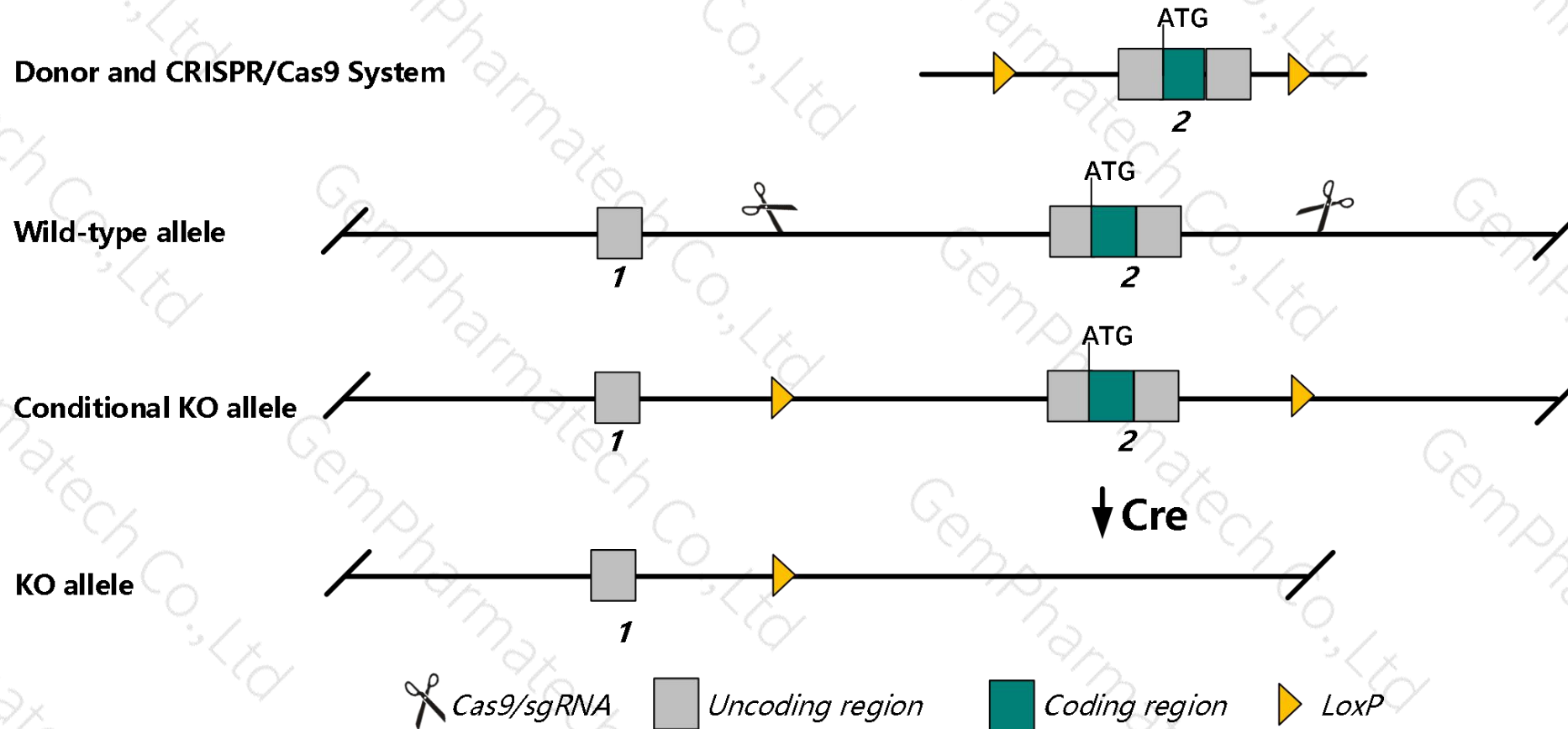|	
Project Name	*Olfr1357*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Olfr1357* gene. The schematic diagram is as follows:

Technical routes

➤ The *Olfr1357* gene has 4 transcripts. According to the structure of *Olfr1357* gene, exon2 of *Olfr1357-201* (ENSMUST00000095473.5) 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 *Olfr1357* 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

➢ The *Olfr1357* 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）

Olfr1357   olfactory receptor 1357 [*Mus musculus* (house mouse)]

Gene ID: 257883, updated on 12-Aug-2019

▲ Summary

Official Symbol	Olfr1357 provided by MGI
Official Full Name	olfactory receptor 1357 provided by MGI
Primary source	MGI:MGI:3031191
See related	Ensembl:ENSMUSG00000071185
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	MOR128-3; MOR128-4
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]
Expression	Low expression observed in reference dataset See more
Orthologs	human all

Transcript information（Ensembl）

The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Olfr1357-202	ENSMUST00000203305.2	2286	313aa	Protein coding	CCDS23968	Q7TQU7	TSL:5 GENCODE basic APPRIS P1
Olfr1357-204	ENSMUST00000213877.1	2161	313aa	Protein coding	CCDS23968	Q7TQU7	TSL:5 GENCODE basic APPRIS P1
Olfr1357-201	ENSMUST00000095473.5	1826	313aa	Protein coding	CCDS23968	Q7TQU7	TSL:2 GENCODE basic APPRIS P1
Olfr1357-203	ENSMUST00000205085.1	1012	313aa	Protein coding	CCDS23968	Q7TQU7	TSL:NA GENCODE basic APPRIS P1

The strategy is based on the design of *Olfr1357-201* transcript,The transcription is shown below

< Olfr1357-201
protein coding
◀ Reverse strand

7.07 kb
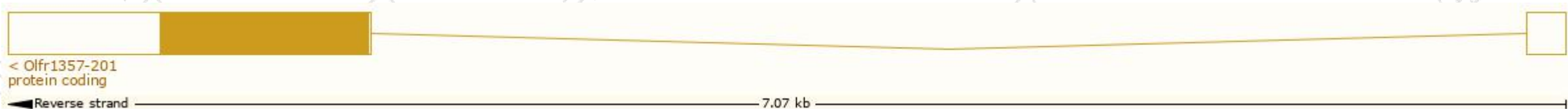
Genomic location distribution
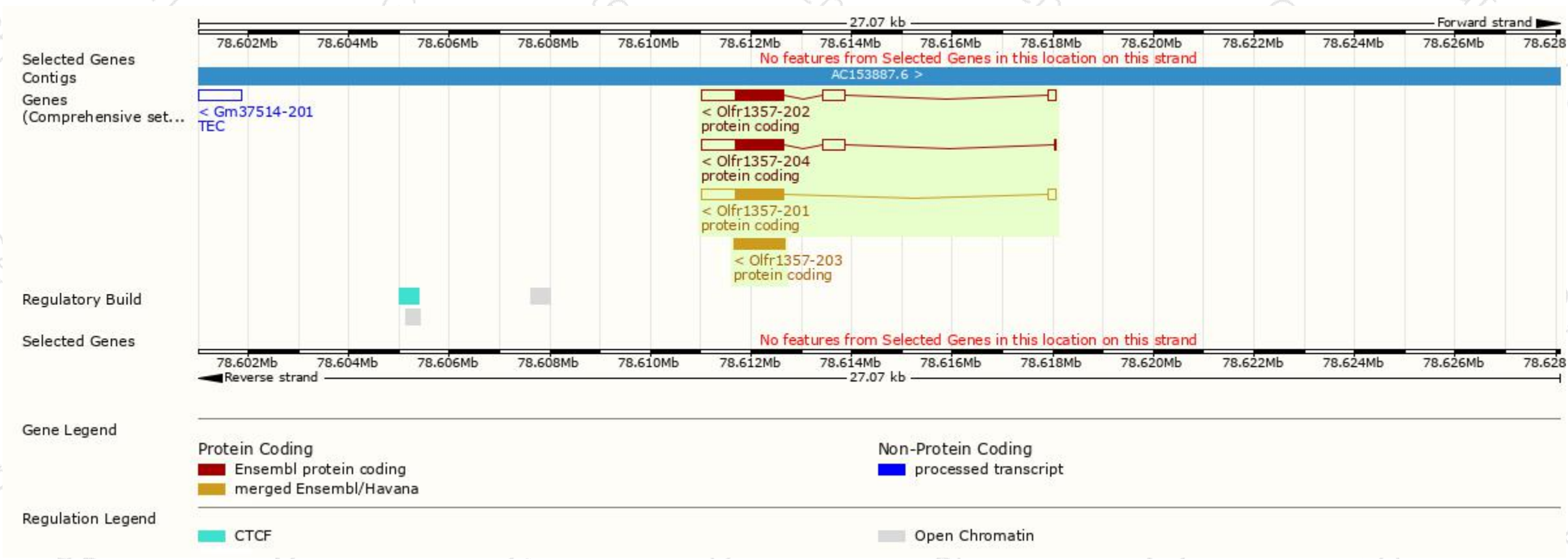
Protein domain

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