

# ***Olfr449*** Cas9-KO Strategy

Designer: Xueting Zhang

Design Date: 2019-8-5

# Project Overview

**Project Name**

***Olfr449***

**Project type**

**Cas9-KO**

**Strain background**

**C57BL/6JGpt**

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Olfcr449* gene. The schematic diagram is as follows:



- The *Olfr449* gene has 4 transcripts. According to the structure of *Olfr449* gene, exon2 of *Olfr449-202* (ENSMUST00000204072.3) 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 *Olfr449* gene. The brief process is as follows: gRNA was transcribed in vitro. Cas9 and gRNA 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 *Olf449* gene is located on the Chr6. 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.



# Gene information (NCBI)

## Olfr449 olfactory receptor 449 [ *Mus musculus* (house mouse) ]

Gene ID: 259067, updated on 31-Jan-2019

### Summary

Official Symbol	Olfr449 provided by <a href="#">MGI</a>
Official Full Name	olfactory receptor 449 provided by <a href="#">MGI</a>
Primary source	<a href="#">MGI:MGI:3030283</a>
See related	<a href="#">Ensembl:ENSMUSG000000049168</a>
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<a href="#">Mus musculus</a>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	MOR103-1; GA_x6K02T2P3E9-4722003-4721068
Summary	<p>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]</p>
Orthologs	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

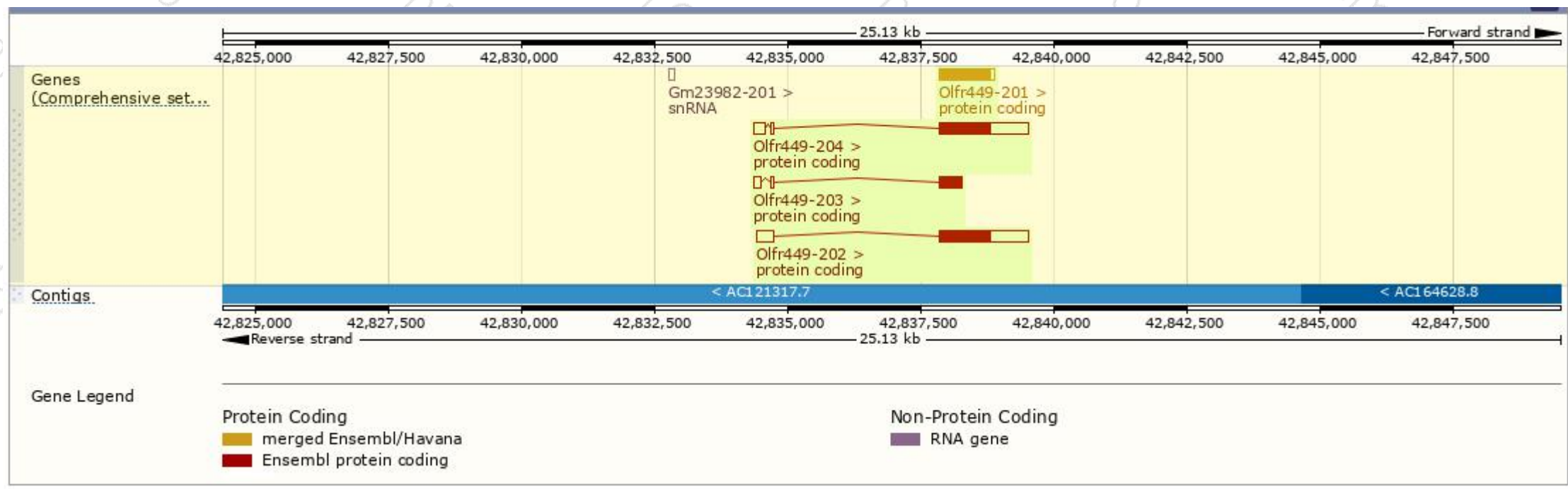
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Olfr449-201	<a href="#">ENSMUST00000050729.5</a>	1037	<a href="#">311aa</a>	Protein coding	<a href="#">CCDS20081</a>	<a href="#">Q8VGW8</a>	TSL:NA Gencode basic APPRIS P1
Olfr449-202	<a href="#">ENSMUST000000204072.3</a>	1974	<a href="#">311aa</a>	Protein coding	<a href="#">CCDS20081</a>	<a href="#">Q8VGW8</a>	TSL:3 Gencode basic APPRIS P1
Olfr449-203	<a href="#">ENSMUST000000204229.2</a>	593	<a href="#">130aa</a>	Protein coding	-	<a href="#">A0A0N4SVD5</a>	CDS 3' incomplete TSL:3
Olfr449-204	<a href="#">ENSMUST000000214687.2</a>	1921	<a href="#">311aa</a>	Protein coding	<a href="#">CCDS20081</a>	<a href="#">Q8VGW8</a>	TSL:2 Gencode basic APPRIS P1

The strategy is based on the design of *Olfr449-202* transcript,The transcription is shown below

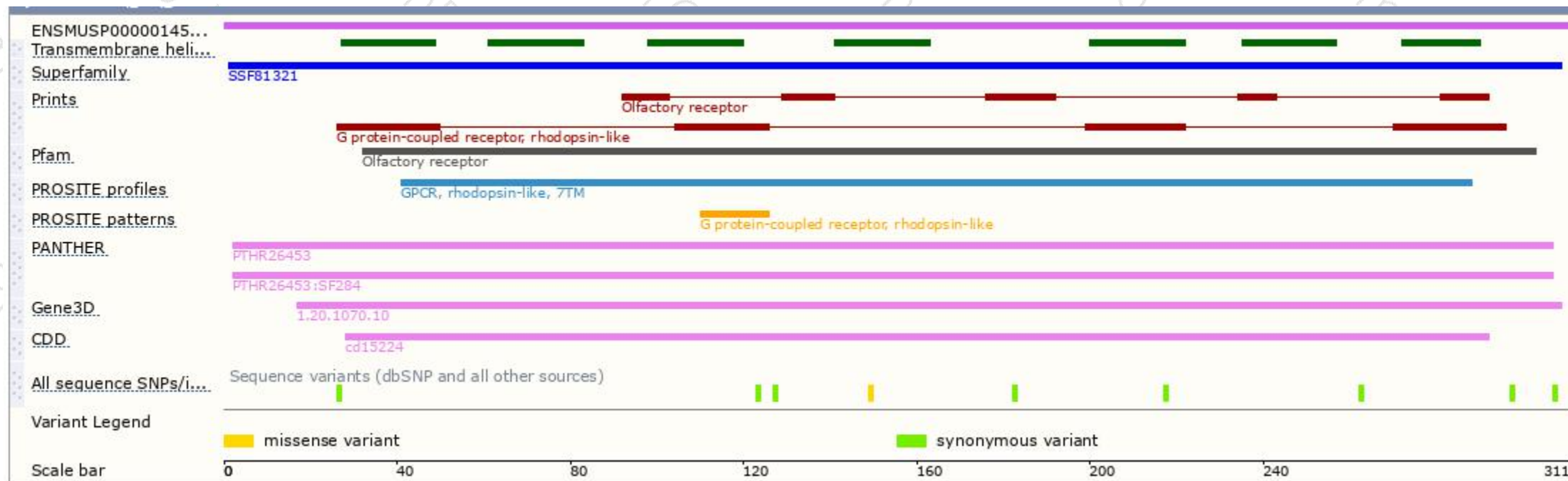


# Genomic location distribution





# Protein domain



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

Tel: 400-9660890

