

Olfr424 Cas9-KO Strategy

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Project Overview

Project Name

Olfr424

Project type

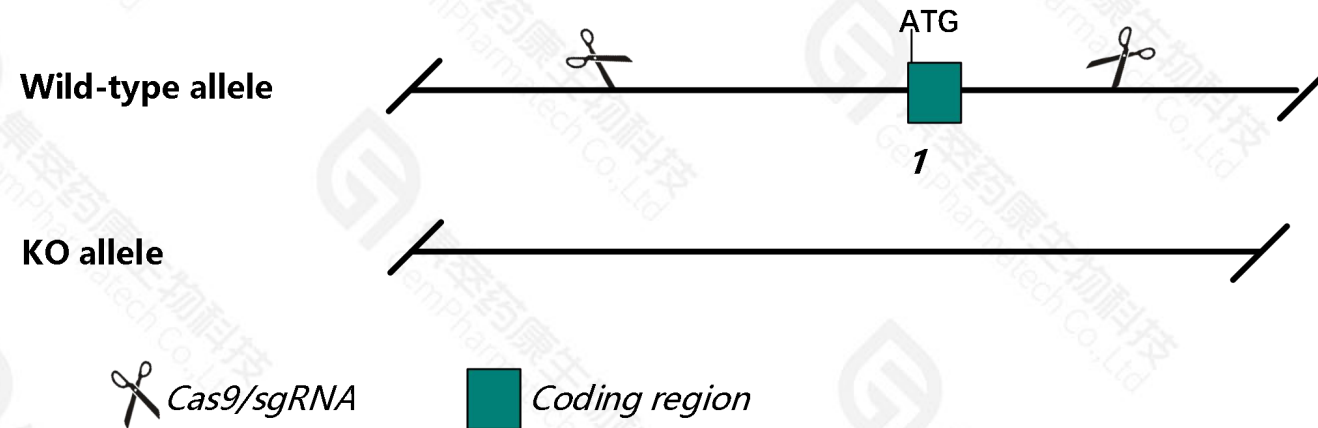
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Olfr424* gene. The schematic diagram is as follows:



- The *Olfr424* gene has 2 transcripts. According to the structure of *Olfr424* gene, exon1 of *Olfr424-201*(ENSMUST00000053941.3) 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 *Olfr424* gene. The brief process is as follows: CRISPR/Cas9 system 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 *Olfr424* gene is located on the Chr1. 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.
- The knockout region is near to the N-terminal of *Olfr258-ps1* gene, this strategy may influence the regulatory function of the N-terminal of *Olfr258-ps1* gene.
- 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.

Olfr424 olfactory receptor 424 [Mus musculus (house mouse)]

Gene ID: 258716, updated on 13-Mar-2020

Summary



Official Symbol Olfr424 provided by [MGI](#)

Official Full Name olfactory receptor 424 provided by [MGI](#)

Primary source [MGI:MGI:3030258](#)

See related [Ensembl:ENSMUSG00000051528](#)

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 MOR105-2

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]

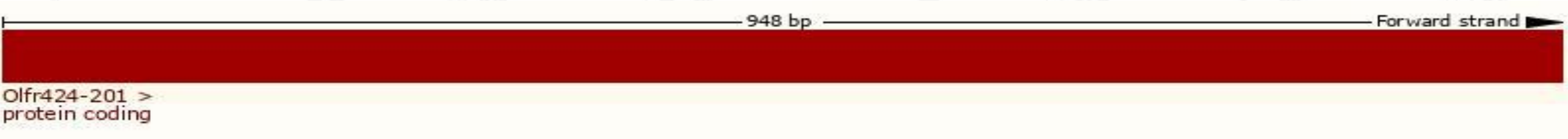
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

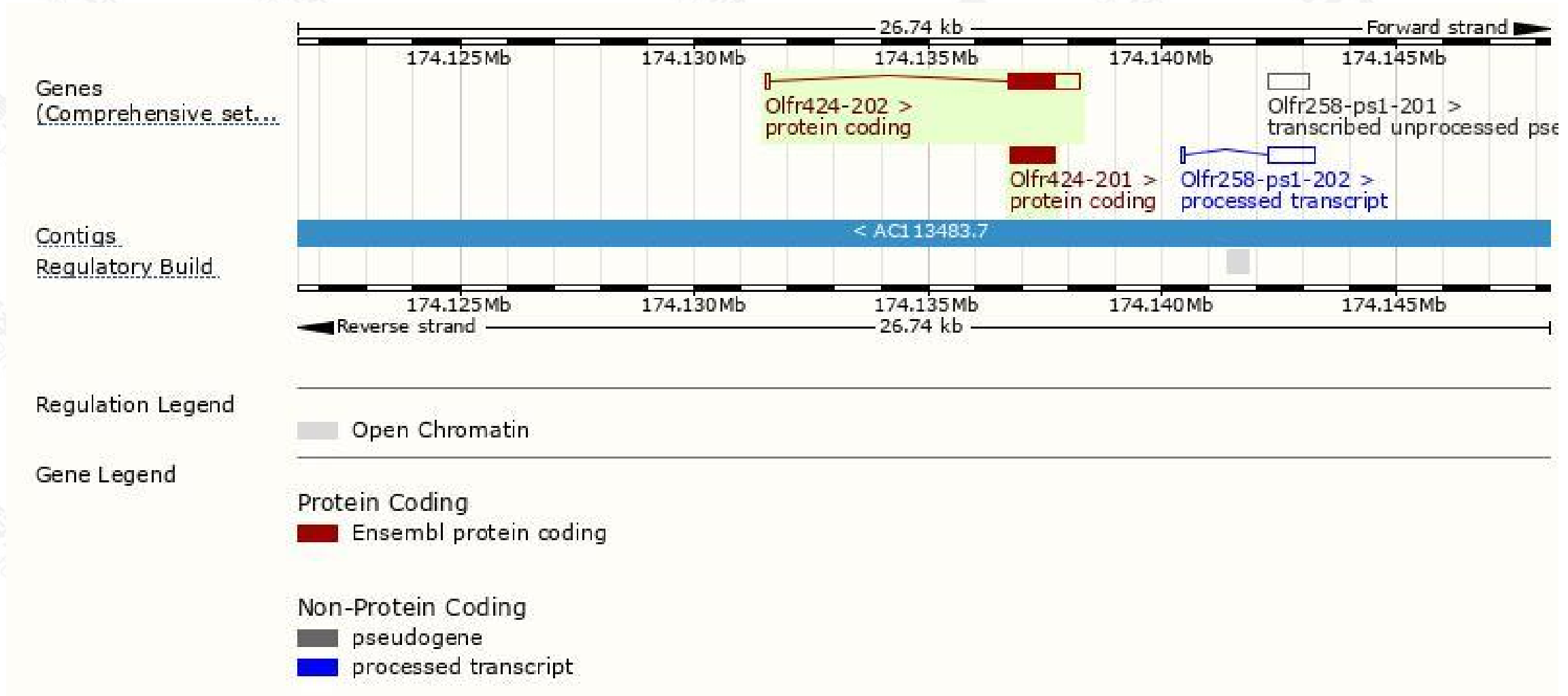
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Olfr424-202	ENSMUST00000214751.1	1642	315aa	Protein coding	CCDS15538	E9Q0Q2	TSL:5 GENCODE basic APPRIS P1
Olfr424-201	ENSMUST00000053941.3	948	315aa	Protein coding	CCDS15538	E9Q0Q2	TSL:NA GENCODE basic APPRIS P1

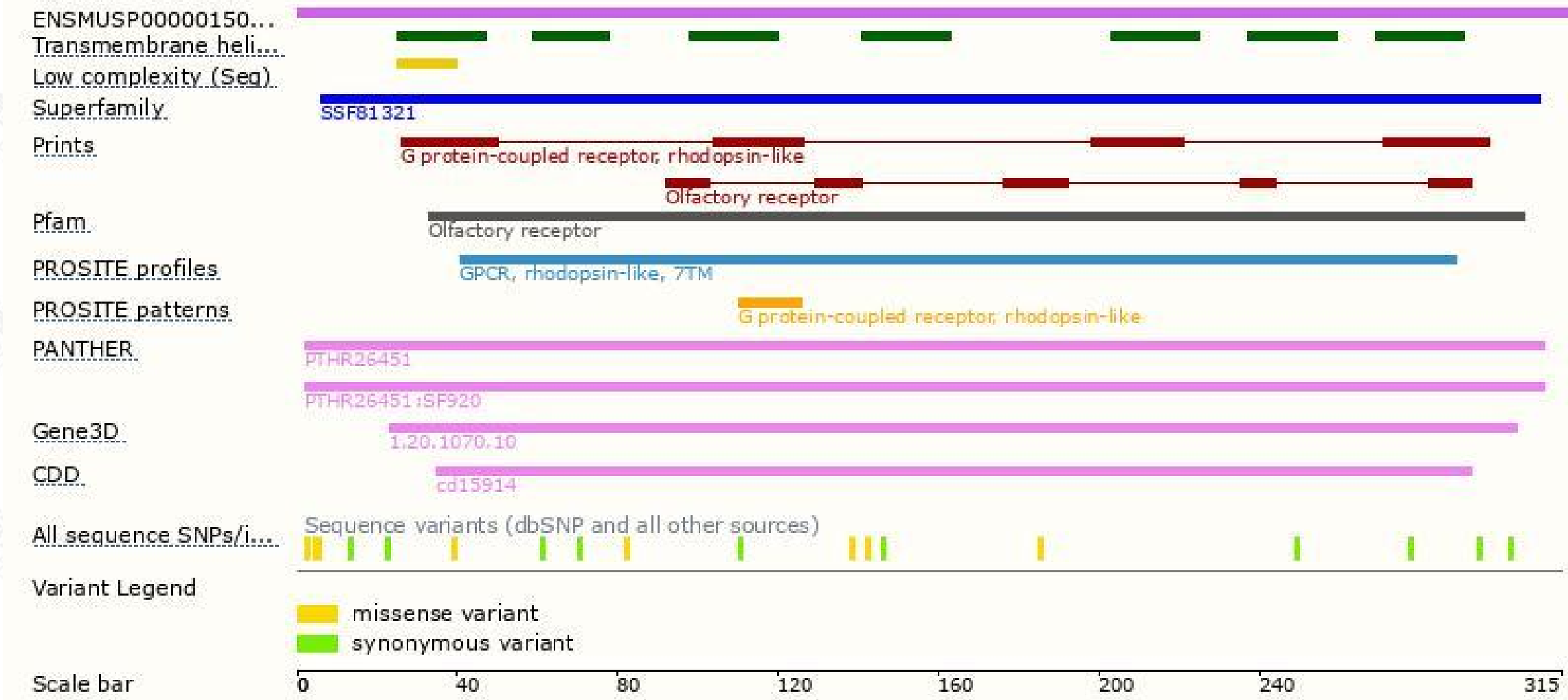
The strategy is based on the design of *Olfr424-201* transcript,the transcription is shown below:



Genomic location distribution



Protein domain



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