Olfr648 Cas9-KO Strategy

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Project Overview

Project Name	***Olfr648***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Olfr648* gene. The schematic diagram is as follows:

Technical routes

➢ The *Olfr648* gene has 2 transcripts. According to the structure of *Olfr648* gene, exon2 of *Olfr648-202* (ENSMUST00000216612.2) 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 *Olfr648* gene. The brief process is as follows: CRISPR/Cas9 syste

Notice

- The knockout region is near to the N-terminal of *Olfr647* gene,this strategy may influence the regulatory function of the N-terminal of *Olfr647* gene.
- The *Olfr648* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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Olfr648 olfactory receptor 648 [Mus musculus (house mouse)]

Gene ID: 258746, updated on 19-Feb-2019

Summary

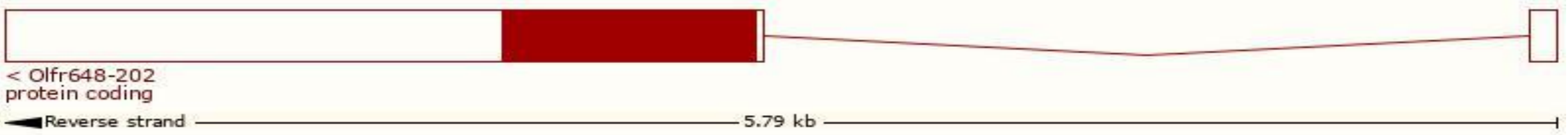
Official Symbol	Olfr648 provided by MGI
Official Full Name	olfactory receptor 648 provided by MGI
Primary source	MGI:MGI:3030482
See related	Ensembl:ENSMUSG00000042909
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	MOR31-12
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）

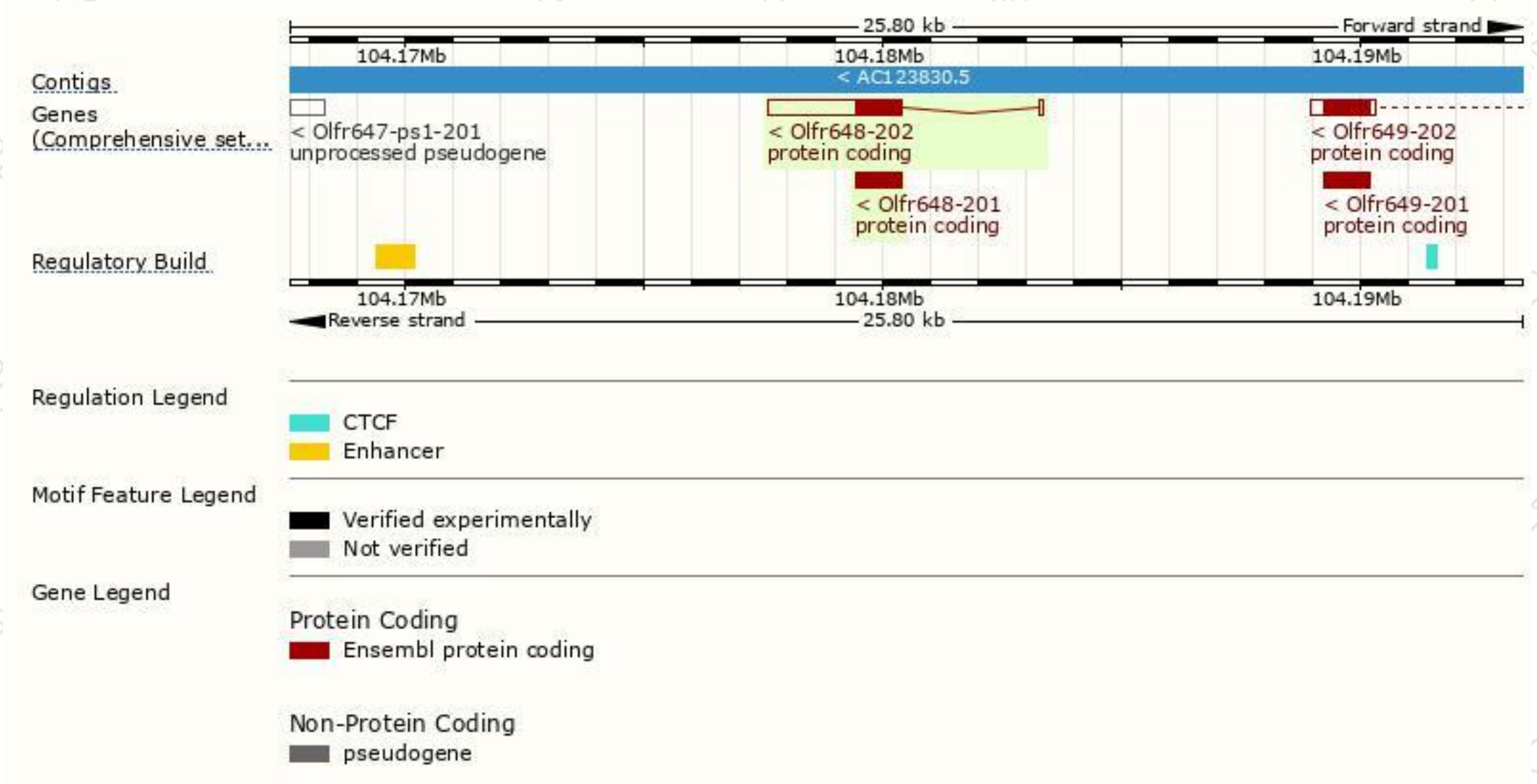
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Olfr648-202	ENSMUST00000216612.2	2929	316aa	Protein coding	CCDS21613	Q8VG19	TSL:2 GENCODE basic APPRIS P1
Olfr648-201	ENSMUST00000052659.1	951	316aa	Protein coding	CCDS21613	Q8VG19	TSL:NA GENCODE basic APPRIS P1

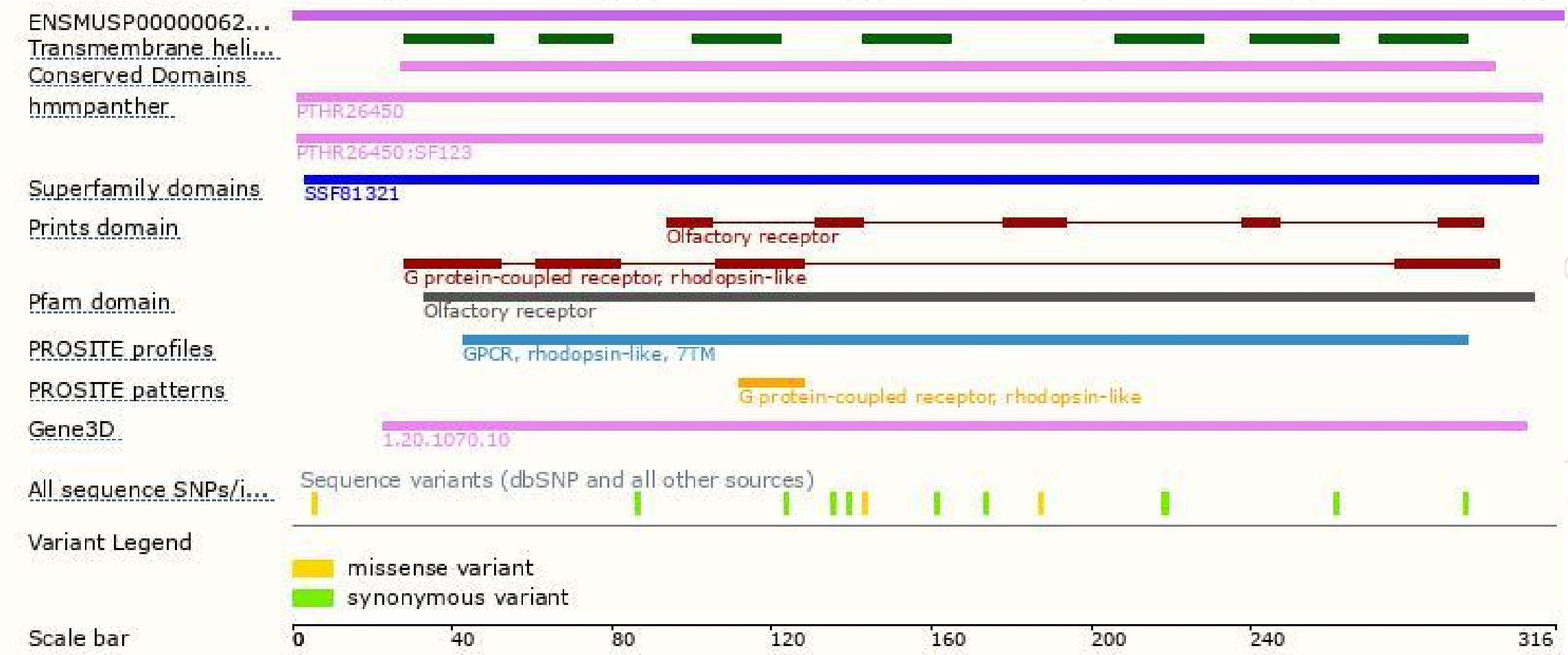
The strategy is based on the design of *Olfr648-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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