

Olfr520 Cas9-CKO Strategy

Designer:

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Design Date:

2019-7-22

Project Overview

Project Name

Olfr520

Project type

Cas9-CKO

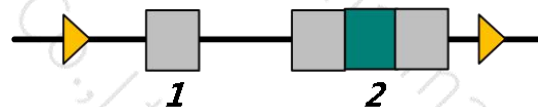
Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Olfr520* gene. The schematic diagram is as follows:

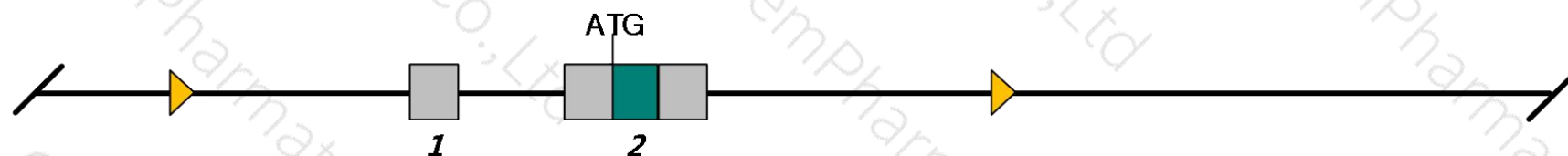
Donor and CRISPR/Cas9 System



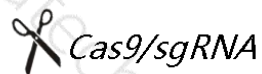
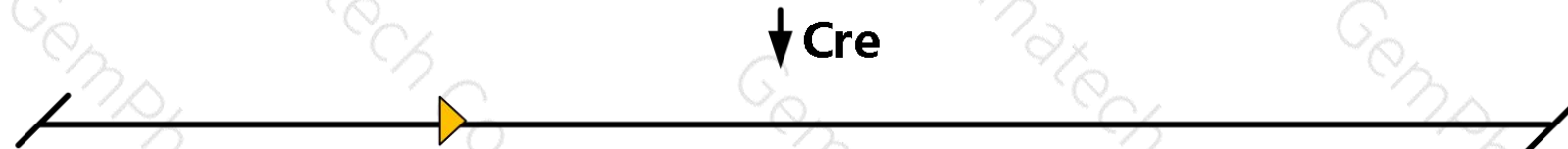
Wild-type allele



Conditional KO allele



KO allele



Uncoding region

Coding region

LoxP

- The *Olfr520* gene has 2 transcript. According to the structure of *Olfr520* gene, The predicted promoter and exon1-2 of *Olfr520*-202 (ENSMUST00000220185.1) transcript is recommended as the knockout region. The region contains all coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Olfr520* 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 or cell types.

- The *Olfr520* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information (NCBI)

Olfr520 olfactory receptor 520 [*Mus musculus* (house mouse)]

Gene ID: 259066, updated on 18-Sep-2018

Summary



Official Symbol Olfr520 provided by [MGI](#)

Official Full Name olfactory receptor 520 provided by [MGI](#)

Primary source [MGI:MGI:3030354](#)

See related [Ensembl:ENSMUSG000000073998](#) [Vega:OTTMUSG000000059109](#)

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 MOR101-1

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]

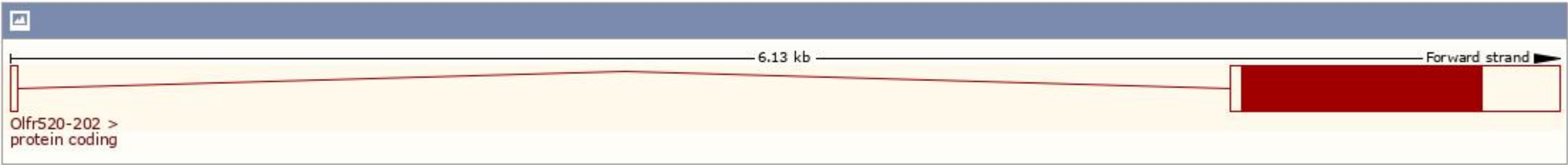
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

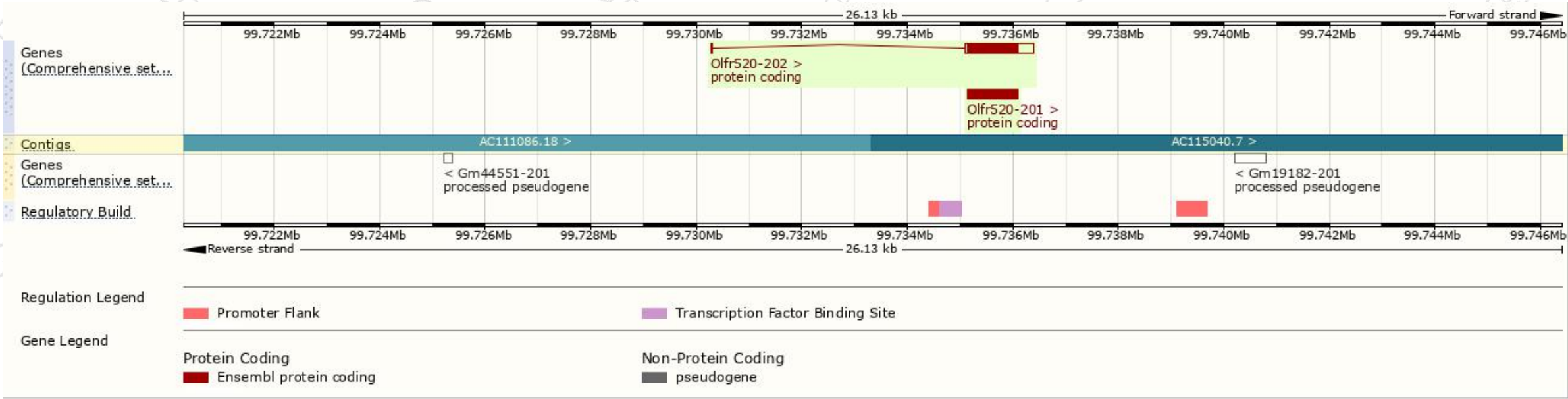
The gene has 2 transcripts, and all transcripts are shown below:

Show/hide columns (1 hidden)								Filter	
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags	
Olfr520-202	ENSMUST00000220185.1	1330	316aa	Protein coding	CCDS21486	E9Q518	-	TSL:5	GENCODE basic APPRIS P1
Olfr520-201	ENSMUST00000098264.1	951	316aa	Protein coding	CCDS21486	E9Q518	NM_147063 NP_667274	TSL:NA	GENCODE basic APPRIS P1

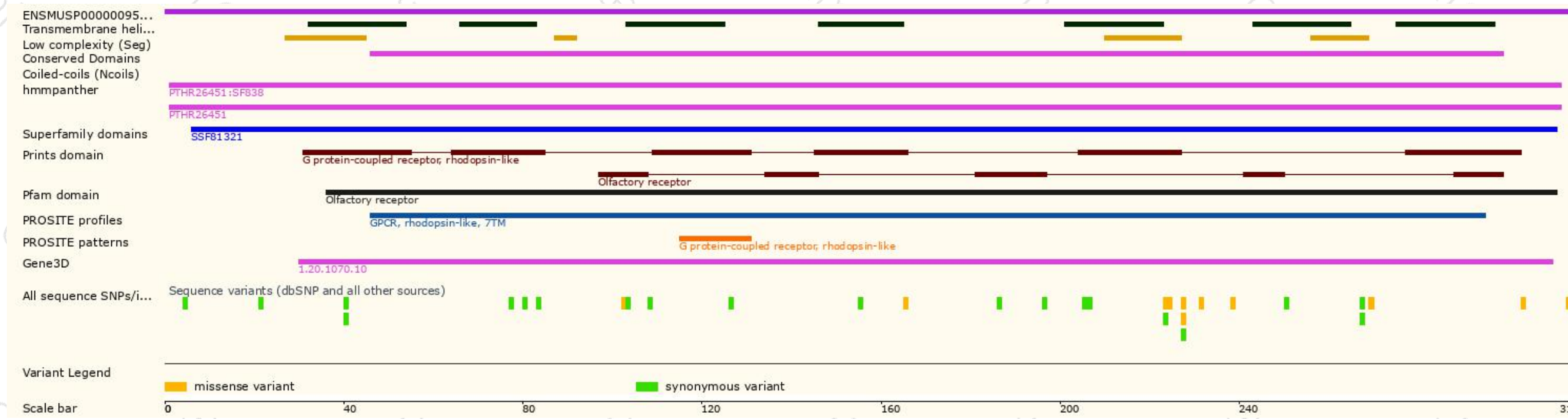
The strategy is based on the design of *Olfr520-202* transcript, The transcription is shown below



Genomic location distribution



Protein domain



If you have any questions, you are welcome to inquire.
Tel: 400-9660890



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