# *Vps11* Cas9-CKO *Strategy*

**Designer:** **Daohua Xu**

# Project Overview

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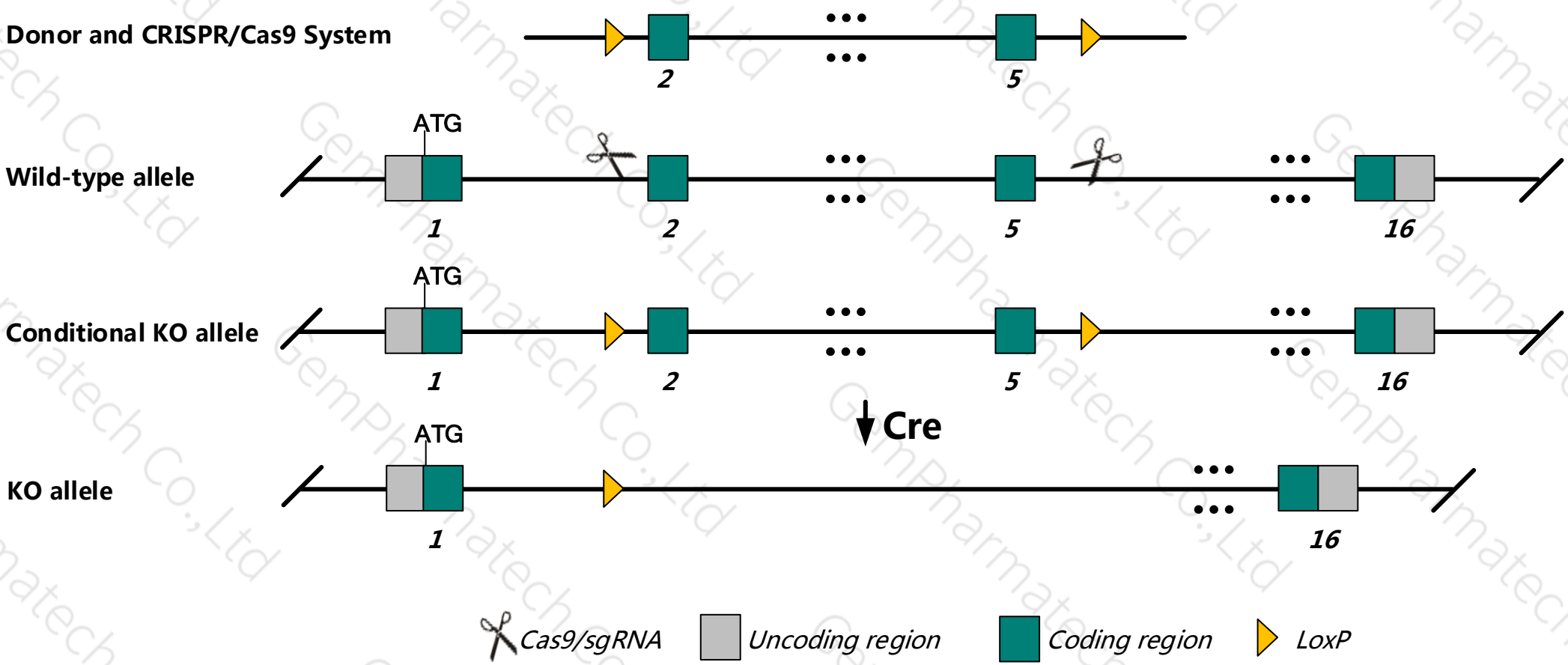
|---|---|
| **Project Name** | ***Vps11*** |
| **Project type** | **Cas9-CKO** |
| **Strain background** | **C57BL/6JGpt** |

# Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Vps11* gene. The schematic diagram is as follows:



# Technical routes

- The *Vps11* gene has 6 transcripts.According to the structure of *Vps11* gene, exon2-exon5 of *Vps11*-201 (ENSMUST00000034644.9) transcript is recommended as the knockout region.The region contains 697bp coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Vps11* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed.Cas9, sgRNA 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 was 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.

# Notice

- The *Vps11* gene is located on the Chr9. 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）

集萃药康 GemPharmatech

## Vps11 VPS11, CORVET/HOPS core subunit [ *Mus musculus* (house mouse) ]

Gene ID: 71732, updated on 9-Sep-2018

### Summary

| | |
|---|---|
| **Official Symbol** | Vps11 provided by MGI |
| **Official Full Name** | VPS11, CORVET/HOPS core subunit provided by MGI |
| **Primary source** | MGI:MGI:1918982 |
| **See related** | Ensembl:ENSMUSG00000032127 Vega:OTTMUSG00000063261 |
| **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** | 1200011A11Rik |
| **Expression** | Ubiquitous expression in genital fat pad adult (RPKM 17.1), adrenal adult (RPKM 17.0) and 28 other tissues See more |
| **Orthologs** | human all |

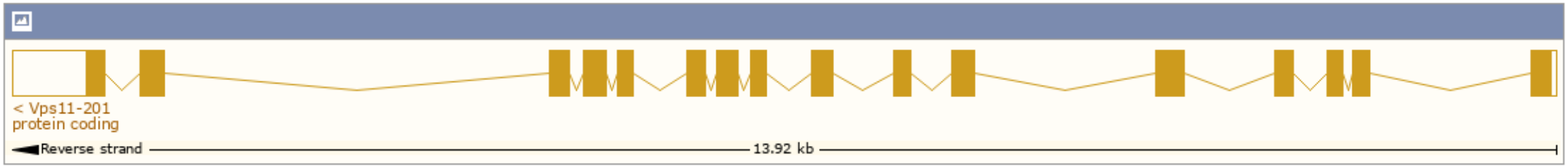
# Transcript information（Ensembl）

The gene has 6 transcripts, and all transcripts are shown below:

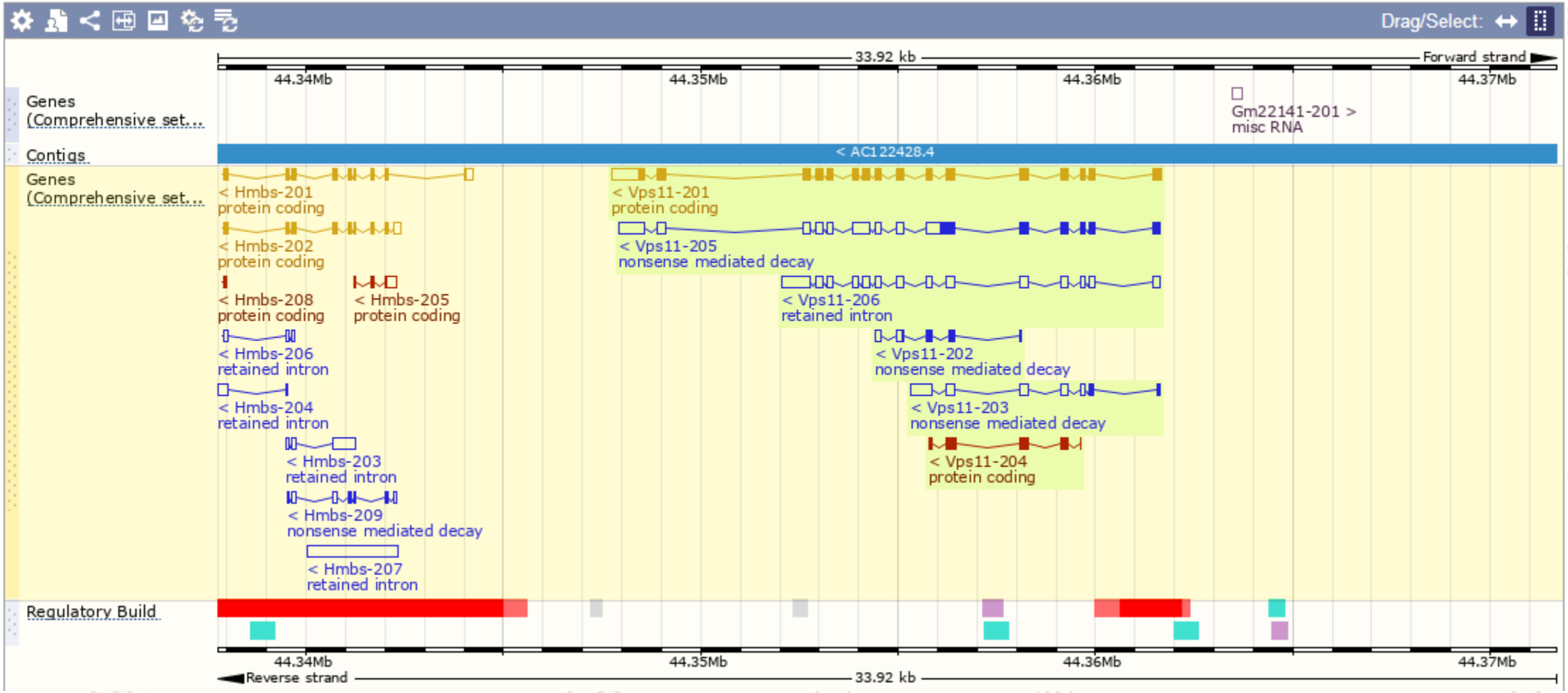
Show/hide columns (1 hidden) Filter

| Name | Transcript ID | bp | Protein | Biotype | CCDS | UniProt | RefSeq | Flags |
|---|---|---|---|---|---|---|---|---|
| Vps11-201 | ENSMUST00000034644.9 | 3536 | 941aa | Protein coding | CCDS40599 | Q91W86 | NM_027889 NP_082165 | TSL:1 GENCODE basic APPRIS P1 |
| Vps11-204 | ENSMUST00000214460.1 | 745 | 249aa | Protein coding | - | A0A1L1SV27 | - | CDS 5' and 3' incomplete TSL:3 |
| Vps11-205 | ENSMUST00000214510.1 | 3812 | 407aa | Nonsense mediated decay | - | A0A1L1SRH3 | - | TSL:1 |
| Vps11-203 | ENSMUST00000213740.1 | 1446 | 49aa | Nonsense mediated decay | - | A0A1L1SQ62 | - | TSL:1 |
| Vps11-202 | ENSMUST00000213249.1 | 640 | 120aa | Nonsense mediated decay | - | A0A1L1STI8 | - | CDS 5' incomplete TSL:2 |
| Vps11-206 | ENSMUST00000216089.1 | 2977 | No protein | Retained intron | - | - | - | TSL:1 |

The strategy is based on the design of *Vps11*-206 transcript,The transcription is shown below

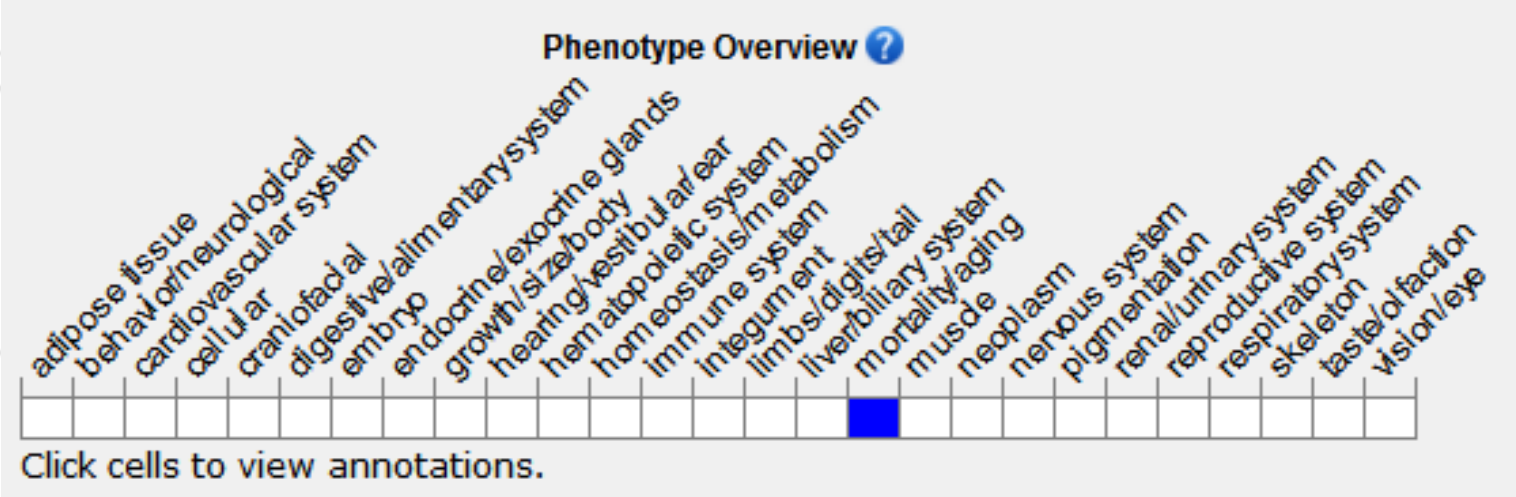


# Genomic location distribution



# Protein domain

# Mouse phenotype description(MGI )




*Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/) .*

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

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