# *Zdhhc16* Cas9-KO Strategy

Designer: Ruirui Zhang

# Project Overview

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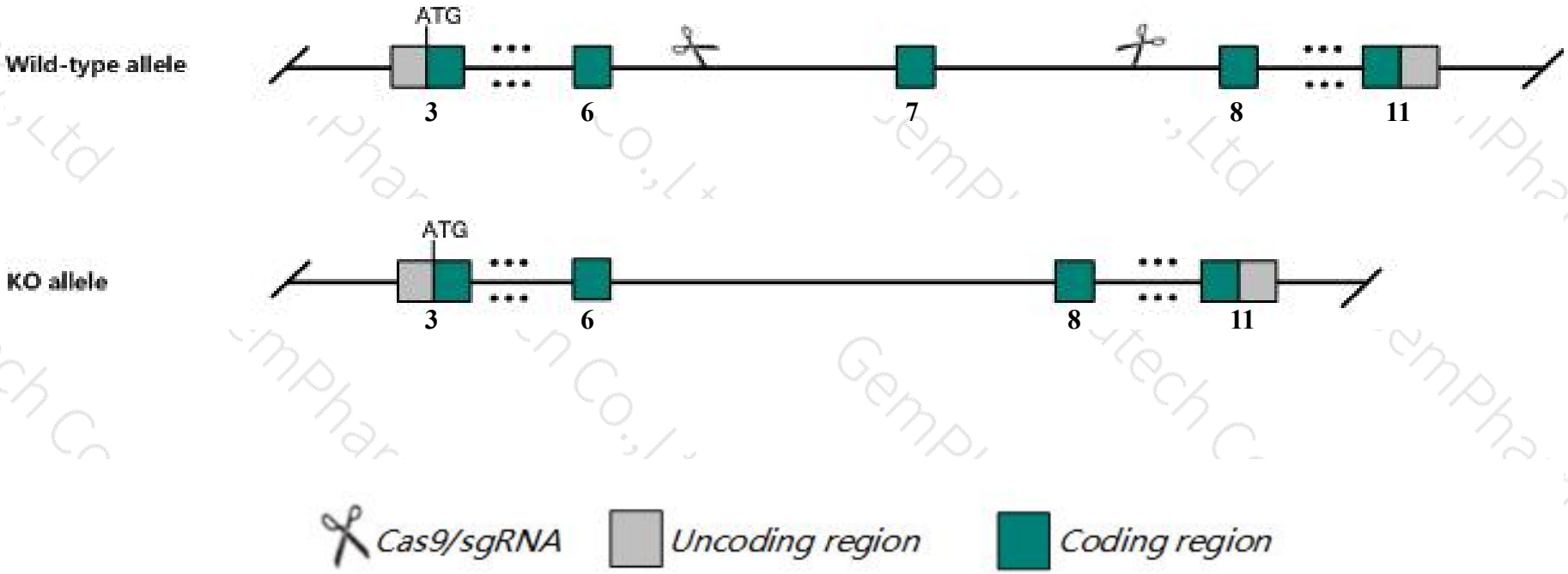
|---|---|
| **Project Name** | ***Zdhhc16*** |
| **Project type** | **Cas9-KO** |
| **Strain background** | **C57BL/6J** |

# Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Zdhhc16* gene. The schematic diagram is as follows:



# Technical routes

- The *Zdhhc16* gene has 11 transcripts. According to the structure of *Zdhhc16* gene, exon7 of *Zdhhc16-201* (ENSMUST00000026154.8) transcript is recommended as the knockout region.The region contains 134bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Zdhhc16* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6J 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/6J mice.

# Notice

- According to the existing MGI data,mice homozygous for a null mutation display prenatal and neonatal lethality with bradycardia, abnormal heart morphology and eye defects.

- The distance between exon 7 of *Zdhhc16* and *Mms19* is about 1.4 kb, this may affect the regulation of the 3'end of *Mms19* gene.

- The *Zdhhc16* gene is located on the Chr19. 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）

集萃药康 GemPharmatech

## Zdhhc16 zinc finger, DHHC domain containing 16 [Mus musculus (house mouse)]

Gene ID: 74168, updated on 31-Jan-2019

### Summary

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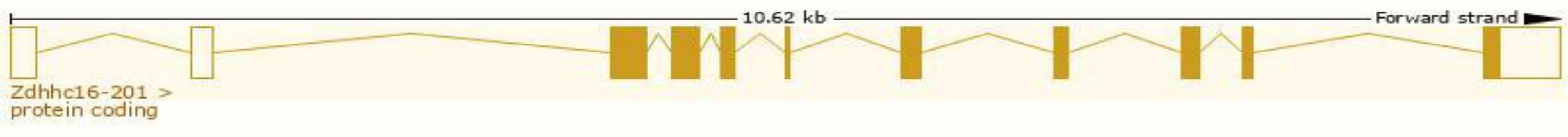
|---|---|
| **Official Symbol** | Zdhhc16 provided by MGI |
| **Official Full Name** | zinc finger, DHHC domain containing 16 provided by MGI |
| **Primary source** | MGI:MGI:1921418 |
| **See related** | Ensembl:ENSMUSG00000025157 |
| **Gene type** | protein coding |
| **RefSeq status** | VALIDATED |
| **Organism** | Mus musculus |
| **Lineage** | Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus |
| **Also known as** | 1500015N03Rik, Aph2 |
| **Expression** | Ubiquitous expression in limb E14.5 (RPKM 18.4), ovary adult (RPKM 16.7) and 28 other tissues See more |
| **Orthologs** | human all |

# Transcript information（Ensembl）

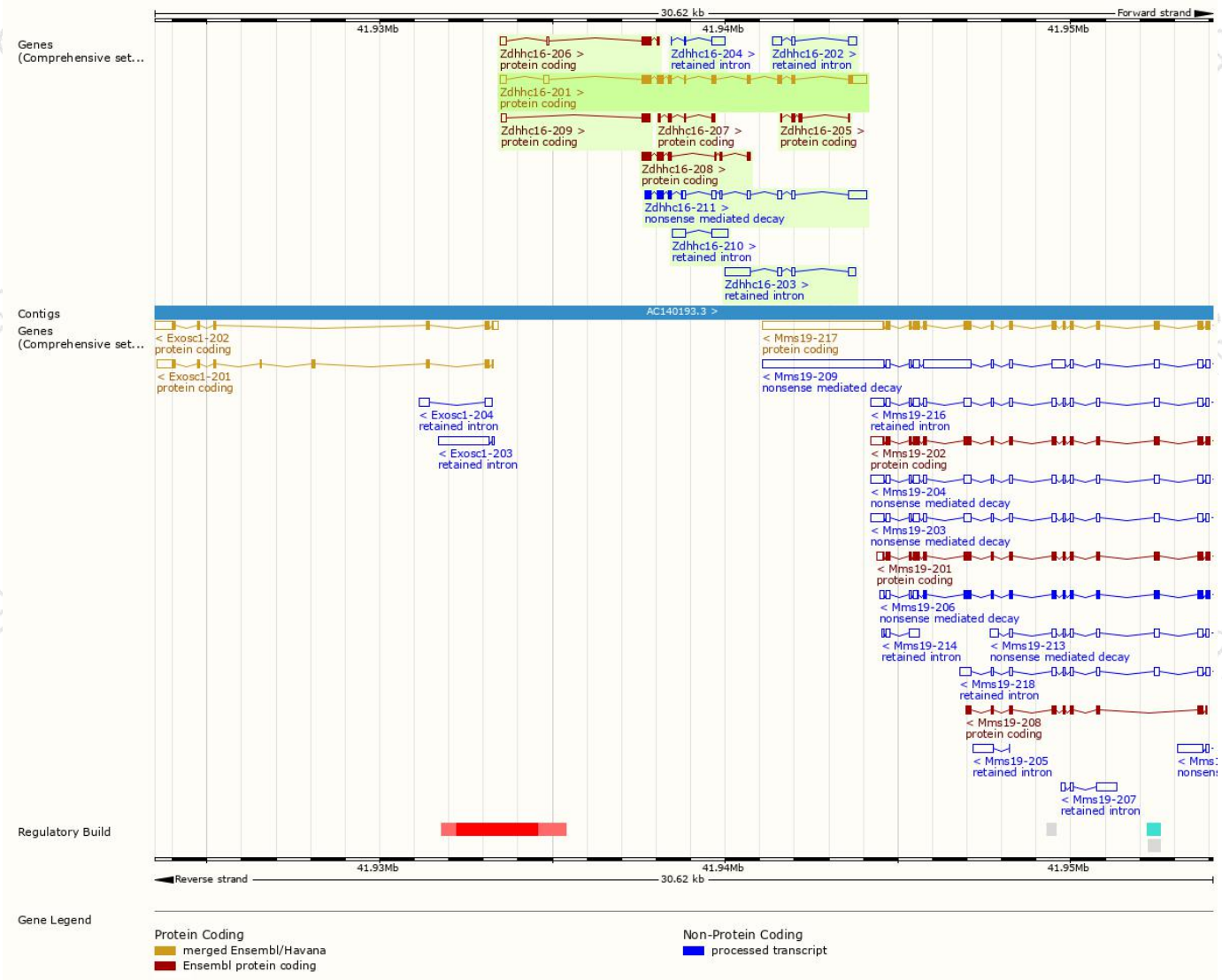
The gene has 11 transcripts,all transcripts are shown below:

| Name | Transcript ID | bp | Protein | Biotype | CCDS | UniProt | Flags |
|---|---|---|---|---|---|---|---|
| Zdhhc16-201 | ENSMUST00000026154.8 | 1821 | 361aa | Protein coding | CCDS29817 | Q9ESG8 | TSL:1 GENCODE basic APPRIS P1 |
| Zdhhc16-208 | ENSMUST00000224562.1 | 690 | 228aa | Protein coding | - | A0A286YDY5 | CDS 3' incomplete |
| Zdhhc16-206 | ENSMUST00000224258.1 | 539 | 101aa | Protein coding | - | A0A286YED0 | CDS 3' incomplete |
| Zdhhc16-209 | ENSMUST00000224896.1 | 381 | 77aa | Protein coding | - | A0A286YDX9 | CDS 3' incomplete |
| Zdhhc16-207 | ENSMUST00000224537.1 | 291 | 97aa | Protein coding | - | A0A286YCB6 | 5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete |
| Zdhhc16-205 | ENSMUST00000223802.1 | 202 | 57aa | Protein coding | - | A0A286YCB5 | CDS 5' incomplete |
| Zdhhc16-211 | ENSMUST00000225968.1 | 1561 | 167aa | Nonsense mediated decay | - | A0A286YDP1 | CDS 5' incomplete |
| Zdhhc16-203 | ENSMUST00000223768.1 | 1121 | No protein | Retained intron | - | - | |
| Zdhhc16-210 | ENSMUST00000225433.1 | 865 | No protein | Retained intron | - | - | |
| Zdhhc16-202 | ENSMUST00000223624.1 | 562 | No protein | Retained intron | - | - | |
| Zdhhc16-204 | ENSMUST00000223785.1 | 454 | No protein | Retained intron | - | - | |

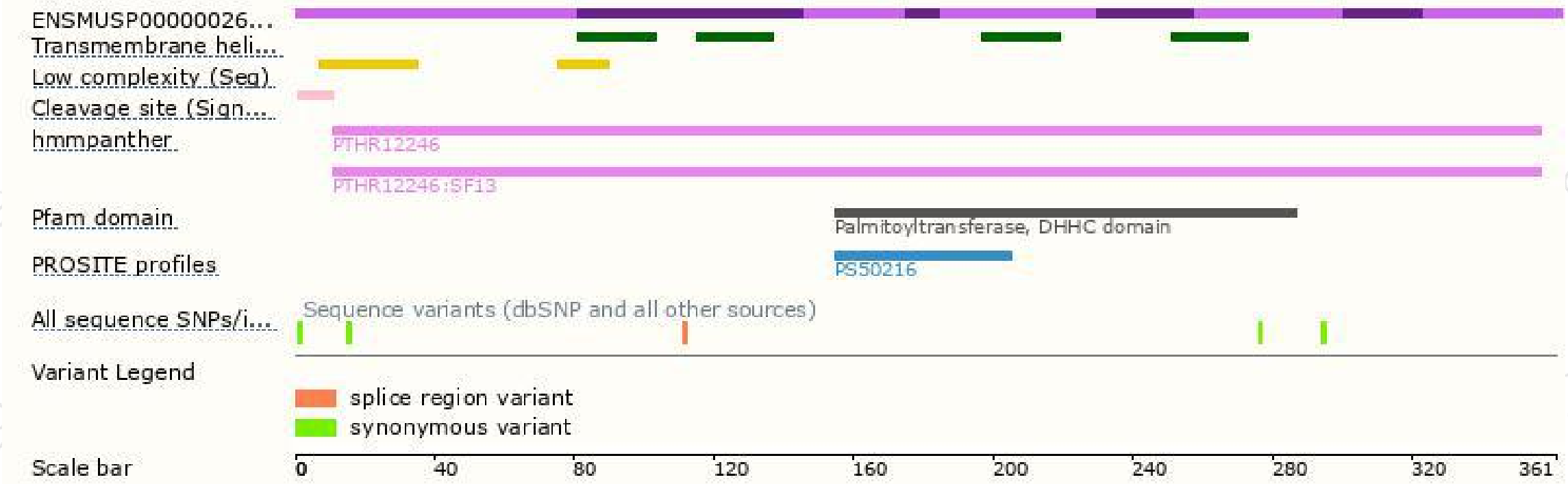
The strategy is based on the design of *Zdhhc16-201* transcript,The transcription is shown below



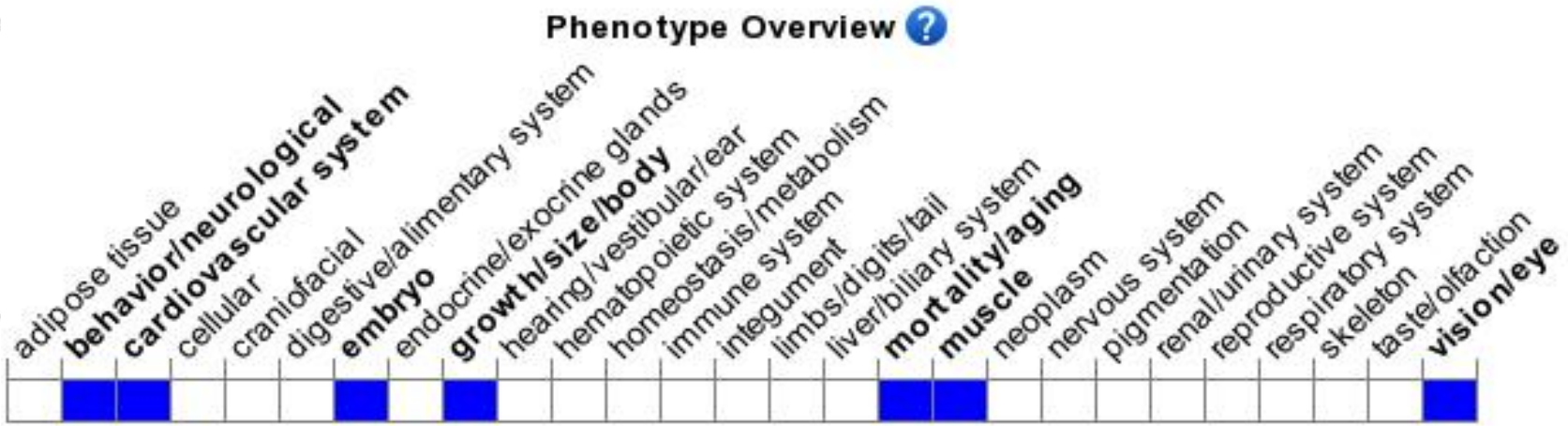
# Genomic location distribution



# 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/).*

According to the existing MGI data,Mice homozygous for a null mutation display prenatal and neonatal lethality with bradycardia, abnormal heart morphology and eye defects.

集萃药康
GemPharmatech

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

Tel: 025-5864 1534

集萃药康生物科技
GemPharmatech Co.,Ltd