

Pex14 Cas9-KO Strategy

Designer: Longyun Hu

Reviewer: Rui Xiong

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Project Overview

Project Name

Pex14

Project type

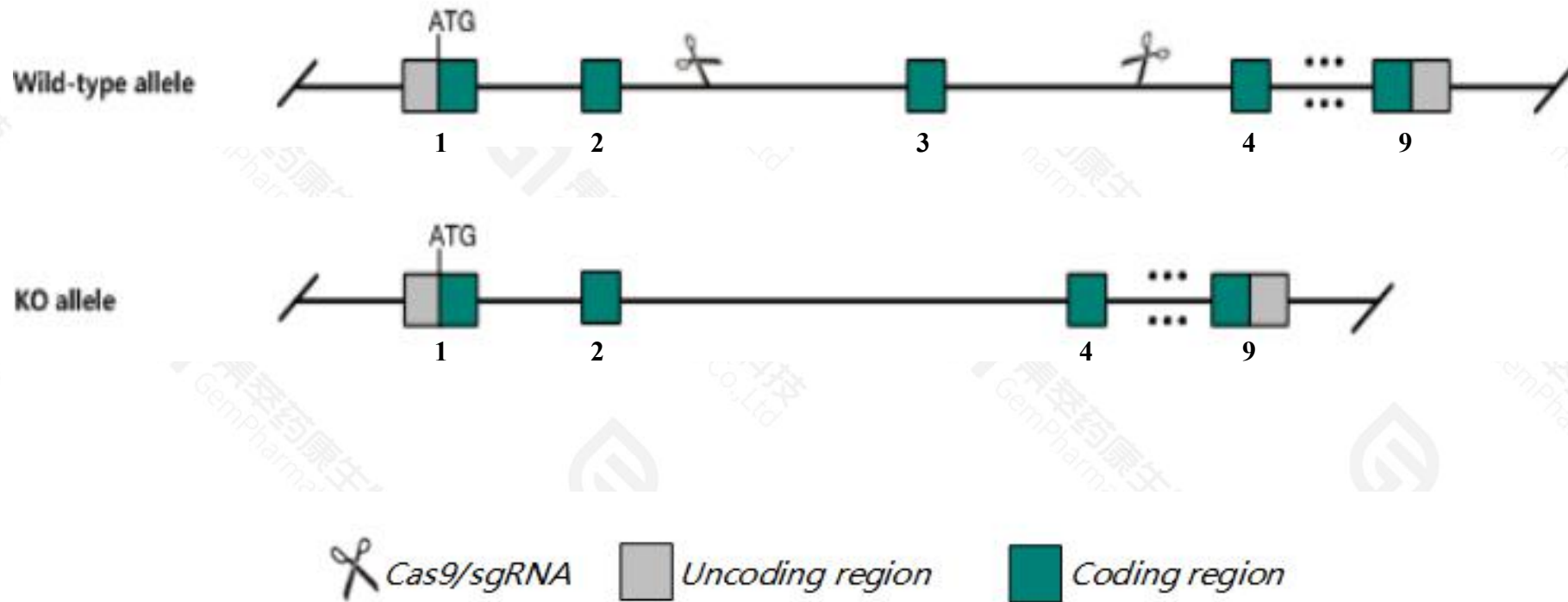
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pex14* gene. The schematic diagram is as follows:



- The *Pex14* gene has 5 transcripts. According to the structure of *Pex14* gene, exon3 of *Pex14-201*(ENSMUST00000103217.10) transcript is recommended as the knockout region. The region contains 85bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Pex14* gene. The brief process is as follows: sgRNA was transcribed in vitro. Cas9 and sgRNA 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.

- According to the existing MGI data, homozygous disruption of this locus results in embryonic lethality.
- The *Pex14* gene is located on the Chr4. 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.

Pex14 peroxisomal biogenesis factor 14 [Mus musculus (house mouse)]

Gene ID: 56273, updated on 13-Mar-2020

Summary



Official Symbol Pex14 provided by [MGI](#)

Official Full Name peroxisomal biogenesis factor 14 provided by [MGI](#)

Primary source [MGI:MGI:1927868](#)

See related [Ensembl:ENSMUSG00000028975](#)

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 Pex14p, R75137

Expression Ubiquitous expression in adrenal adult (RPKM 52.9), duodenum adult (RPKM 28.4) and 28 other tissues [See more](#)

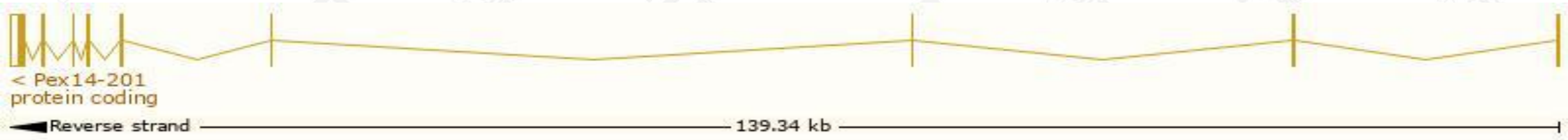
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

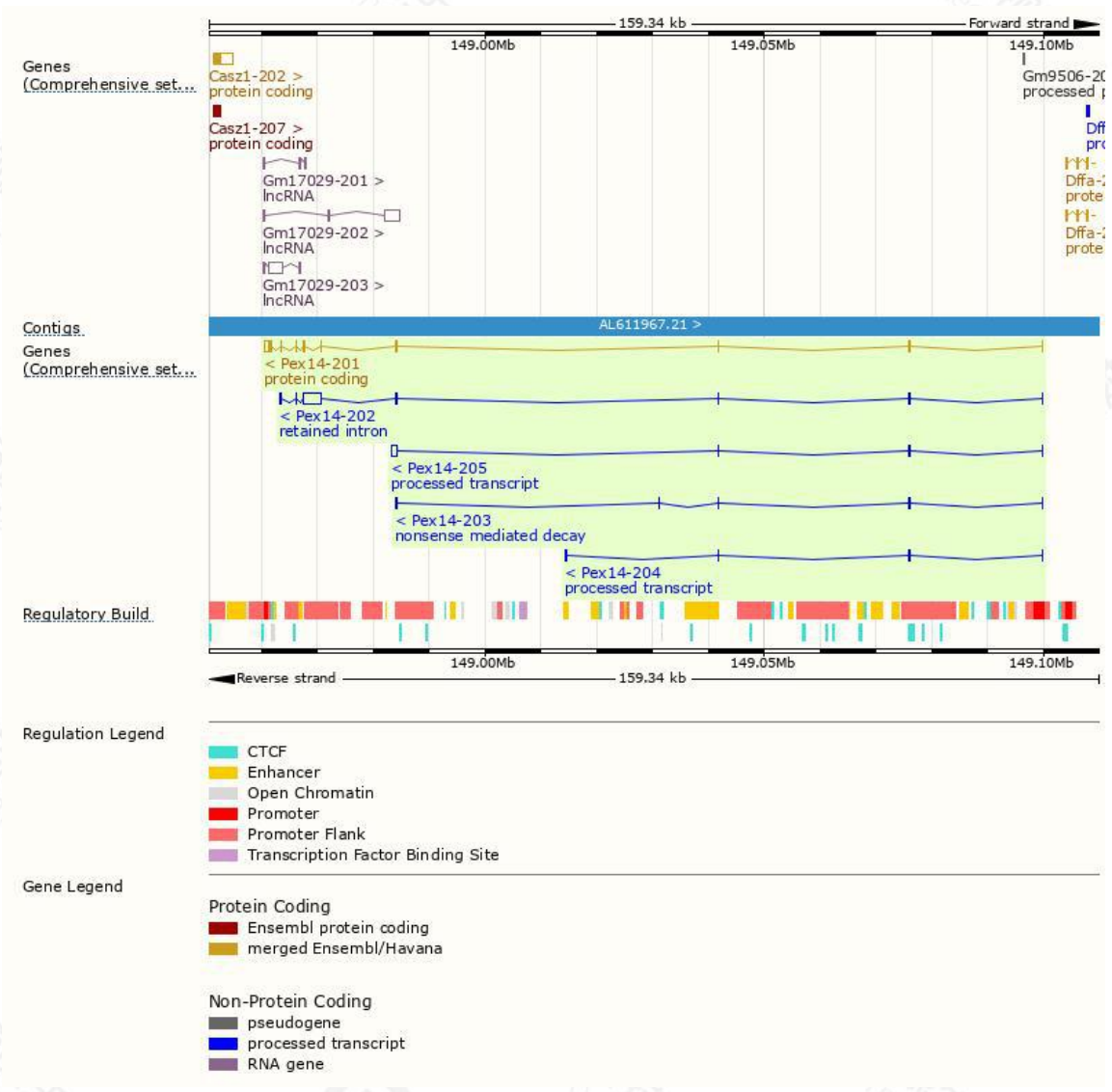
The gene has 5 transcripts,all transcripts are shown below:

| Name | Transcript ID | bp | Protein | Biotype | CCDS | UniProt | Flags |
|-----------|---------------------------------------|------|-----------------------|-------------------------|---------------------------|------------------------|-------------------------------|
| Pex14-201 | ENSMUST00000103217.10 | 2006 | 376aa | Protein coding | CCDS18950 | Q9R0A0 | TSL:1 GENCODE basic APPRIS P1 |
| Pex14-203 | ENSMUST00000134747.1 | 358 | 78aa | Nonsense mediated decay | - | D6RH82 | TSL:3 |
| Pex14-205 | ENSMUST00000154860.7 | 989 | No protein | Processed transcript | - | - | TSL:2 |
| Pex14-204 | ENSMUST00000148203.1 | 514 | No protein | Processed transcript | - | - | TSL:3 |
| Pex14-202 | ENSMUST00000128067.7 | 3819 | No protein | Retained intron | - | - | TSL:1 |

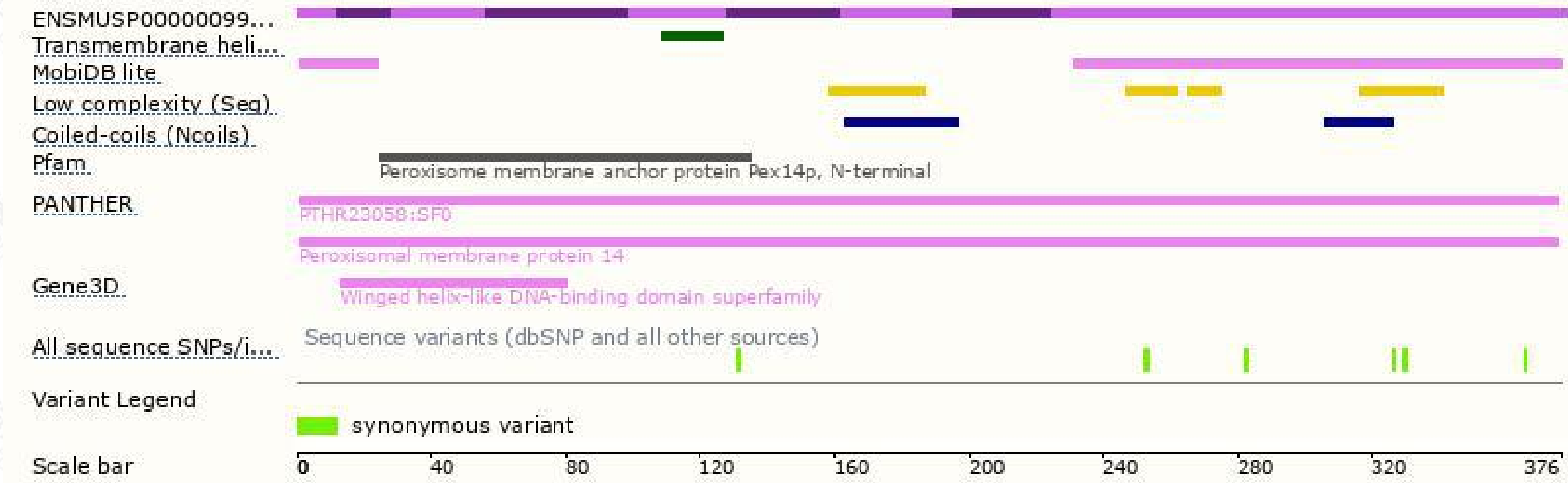
The strategy is based on the design of *Pex14-201* transcript,the transcription is shown below:



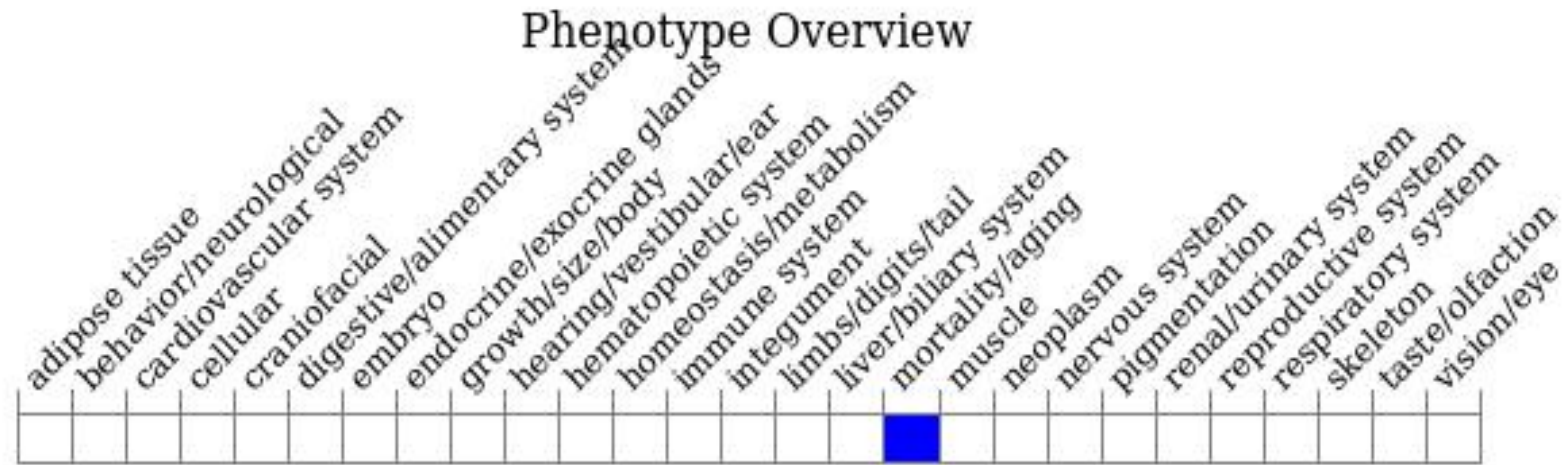
Genomic location distribution



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, homozygous disruption of this locus results in embryonic lethality.

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

Tel: 025-5864 1534

