Pex16 Cas9-KO Strategy

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Project Overview

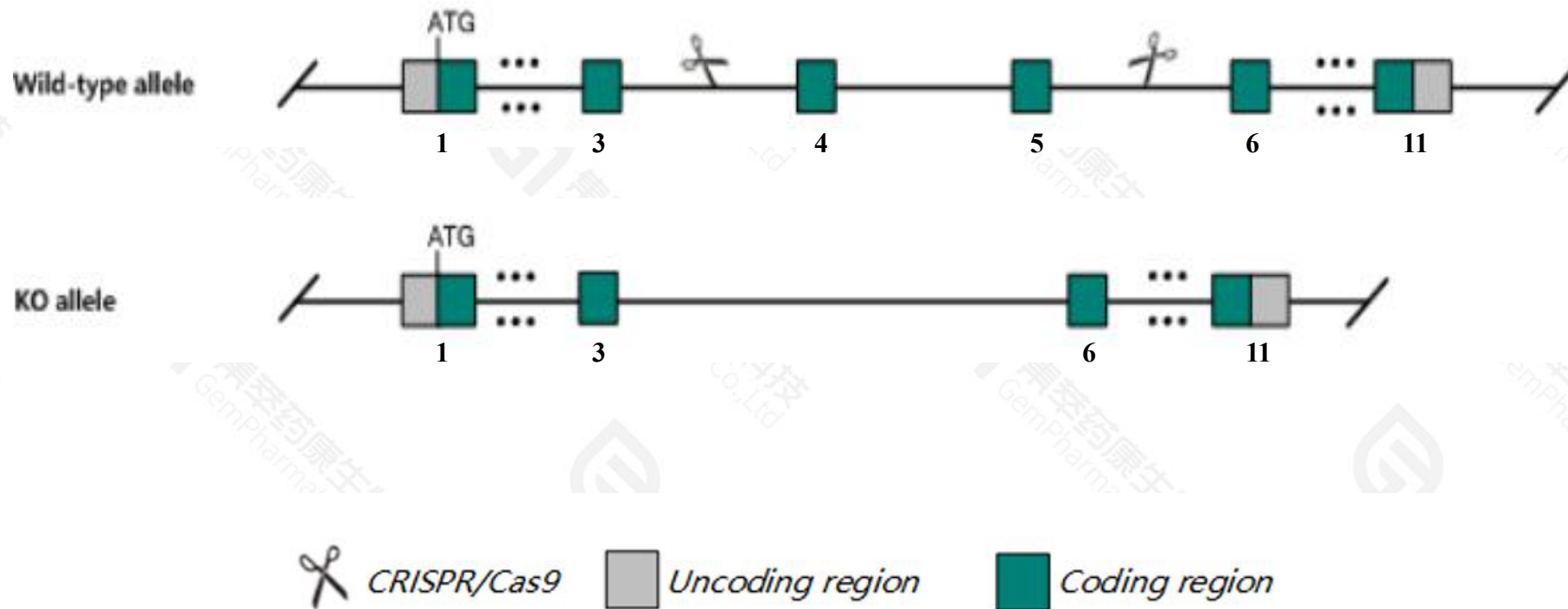|	
Project Name	***Pex16***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pex16* gene. The schematic diagram is as follows:

Technical routes

➤ The *Pex16* gene has 4 transcripts. According to the structure of *Pex16* gene, exon4-exon5 of *Pex16-201*(ENSMUST00000028650.8) transcript is recommended as the knockout region.The region contains 235bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Pex16* gene. The brief process is as follows: CRISPR/Cas9 system 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.

Notice

➢ The *Pex16* gene is located on the Chr2. 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.

➢ The floxed region is near to the N-terminal of *Large2* gene,this strategy may influence the regulatory function of the N-terminal of *Large2* gene.

➢ 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）

Pex16 peroxisomal biogenesis factor 16 [Mus musculus (house mouse)]

Gene ID: 18633, updated on 13-Mar-2020

▲ Summary

|	
Official Symbol	Pex16 provided by MGI
Official Full Name	peroxisomal biogenesis factor 16 provided byMGI
Primary source	MGI:MGI:1338829
See related	Ensembl:ENSMUSG00000027222
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
Expression	Ubiquitous expression in adrenal adult (RPKM 68.1), subcutaneous fat pad adult (RPKM 52.9) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

The gene has 4 transcripts,all transcripts are shown below:

| Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pex16-201	ENSMUST00000028650.8	1392	336aa	Protein coding	CCDS16444	Q91XC9	TSL:1 GENCODE basic APPRIS P1
Pex16-204	ENSMUST00000155891.7	1167	No protein	Processed transcript	-	-	TSL:1
Pex16-203	ENSMUST00000154669.7	852	No protein	Processed transcript	-	-	TSL:3
Pex16-202	ENSMUST00000148386.1	425	No protein	Processed transcript	-	-	TSL:3

The strategy is based on the design of *Pex16-201* transcript,the transcription is shown below:
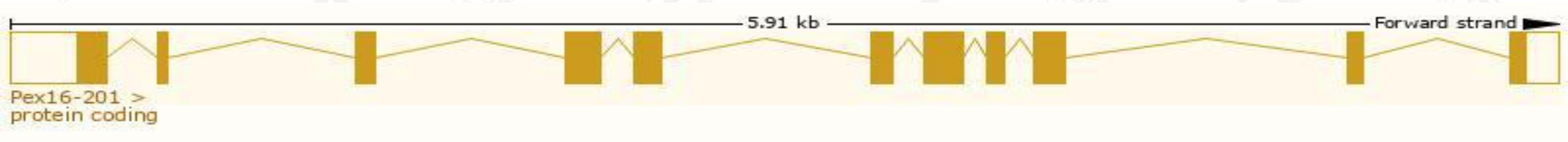
Genomic location distribution

Protein domain

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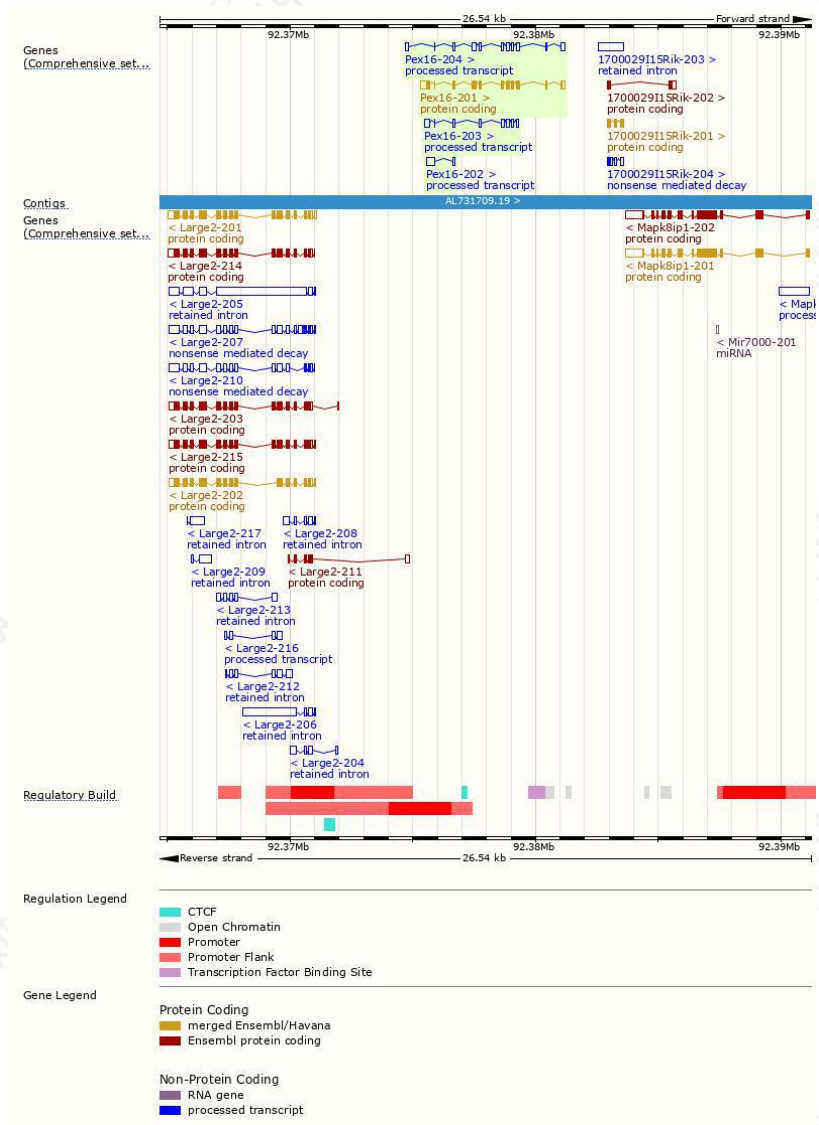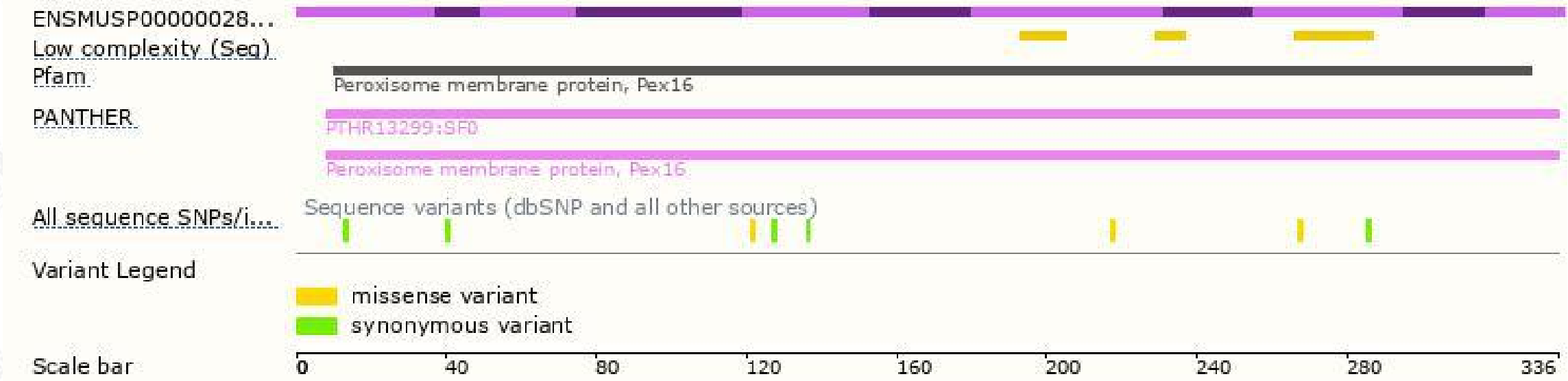
If you have any questions, you are welcome to inquire.
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