Pex13 Cas9-CKO Strategy

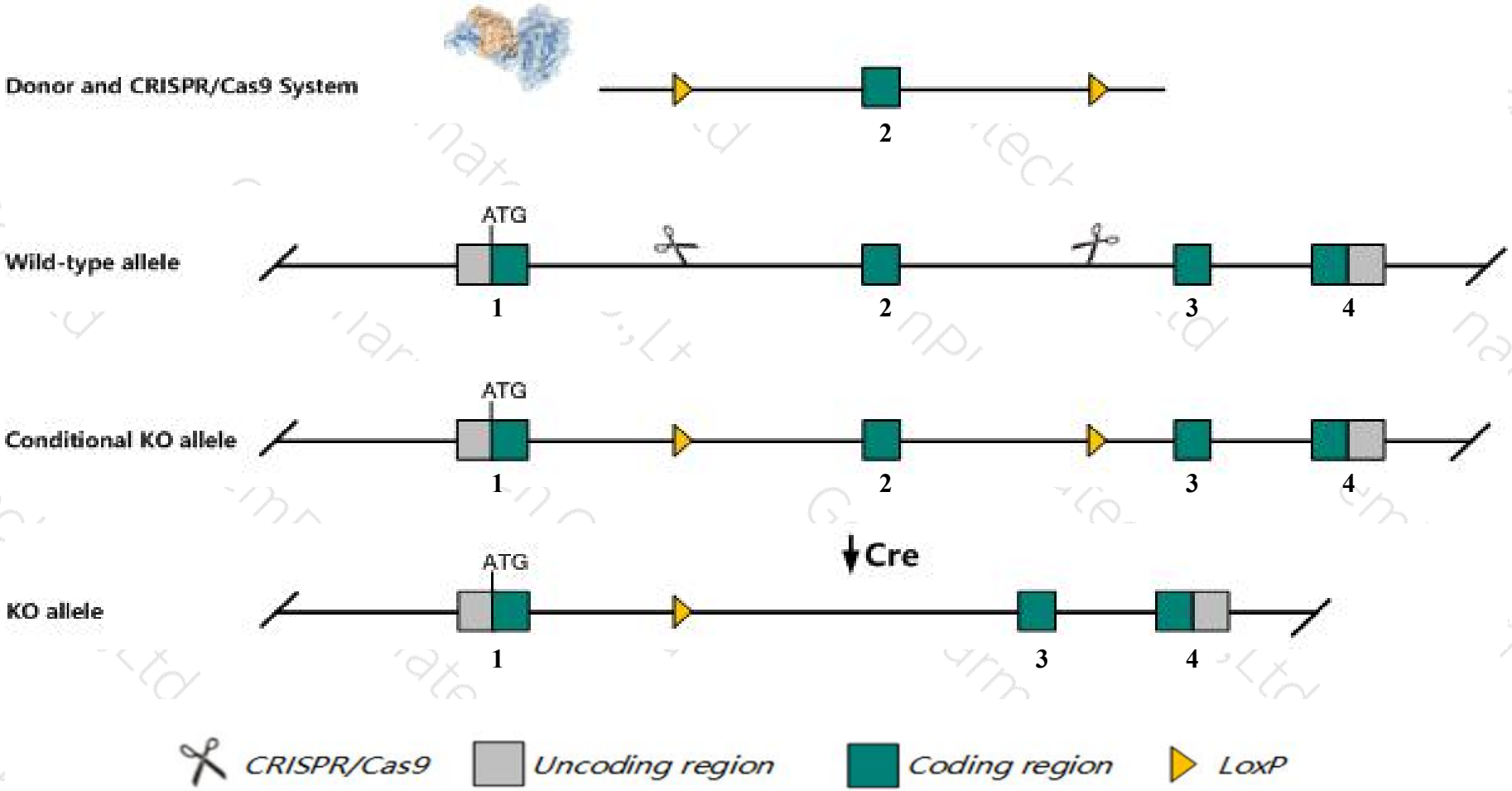
Designer: Huimin Su

Project Overview

Project Name	***Pex13***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pex13* gene. The schematic diagram is as follows:



Technical routes

集萃药康 GemPharmatech

- The *Pex13* gene has 4 transcripts. According to the structure of *Pex13* gene, exon2 of *Pex13-201* (ENSMUST00000020523.3) transcript is recommended as the knockout region.The region contains 695bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Pex13* gene. The brief process is as follows:CRISPR/Cas9 system 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 and cell types.

Notice

- According to the existing MGI data,Targeted disruption of this gene results in intrauterine growth retardation, hypotonia, aphagia, abnormal lamination of the cerebral cortex associated with a neuronal migration defect, liver steatosis, delayed differentiation of renal glomeruli, impairedperoxisome metabolism, and neonatal death.

- The *Pex13* gene is located on the Chr11. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

集萃药康 GemPharmatech

Pex13 peroxisomal biogenesis factor 13 [Mus musculus (house mouse)]

Gene ID: 72129, updated on 2-Feb-2019

Summary

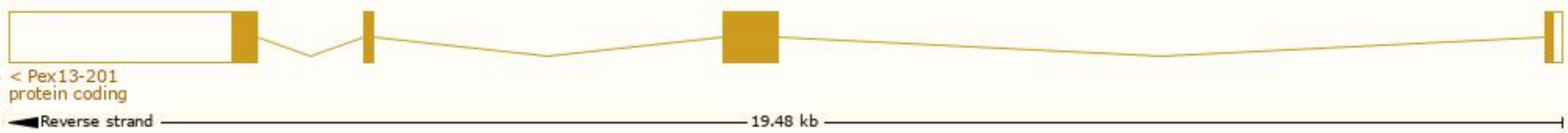
Official Symbol	Pex13 provided by MGI
Official Full Name	peroxisomal biogenesis factor 13 provided by MGI
Primary source	MGI:MGI:1919379
See related	Ensembl:ENSMUSG00000020283
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2610008O20Rik
Expression	Ubiquitous expression in testis adult (RPKM 13.1), adrenal adult (RPKM 11.3) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

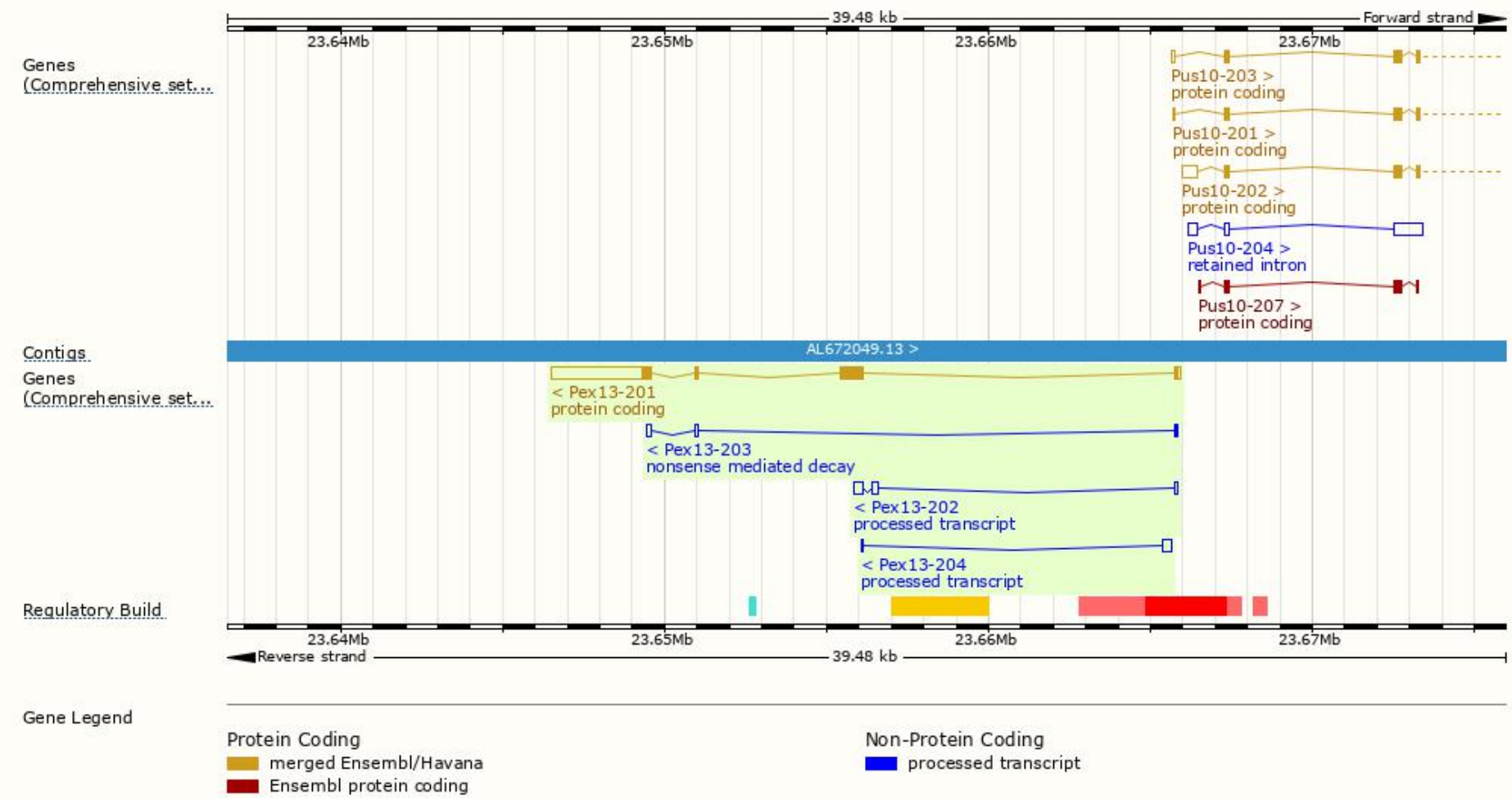
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pex13-201	ENSMUST00000020523.3	4146	405aa	Protein coding	CCDS24478	Q9D0K1	TSL:1 GENCODE basic APPRIS P1
Pex13-203	ENSMUST00000130811.1	367	40aa	Nonsense mediated decay	-	D6RH41	TSL:3
Pex13-202	ENSMUST00000124839.1	592	No protein	Processed transcript	-	-	TSL:3
Pex13-204	ENSMUST00000146533.1	345	No protein	Processed transcript	-	-	TSL:3

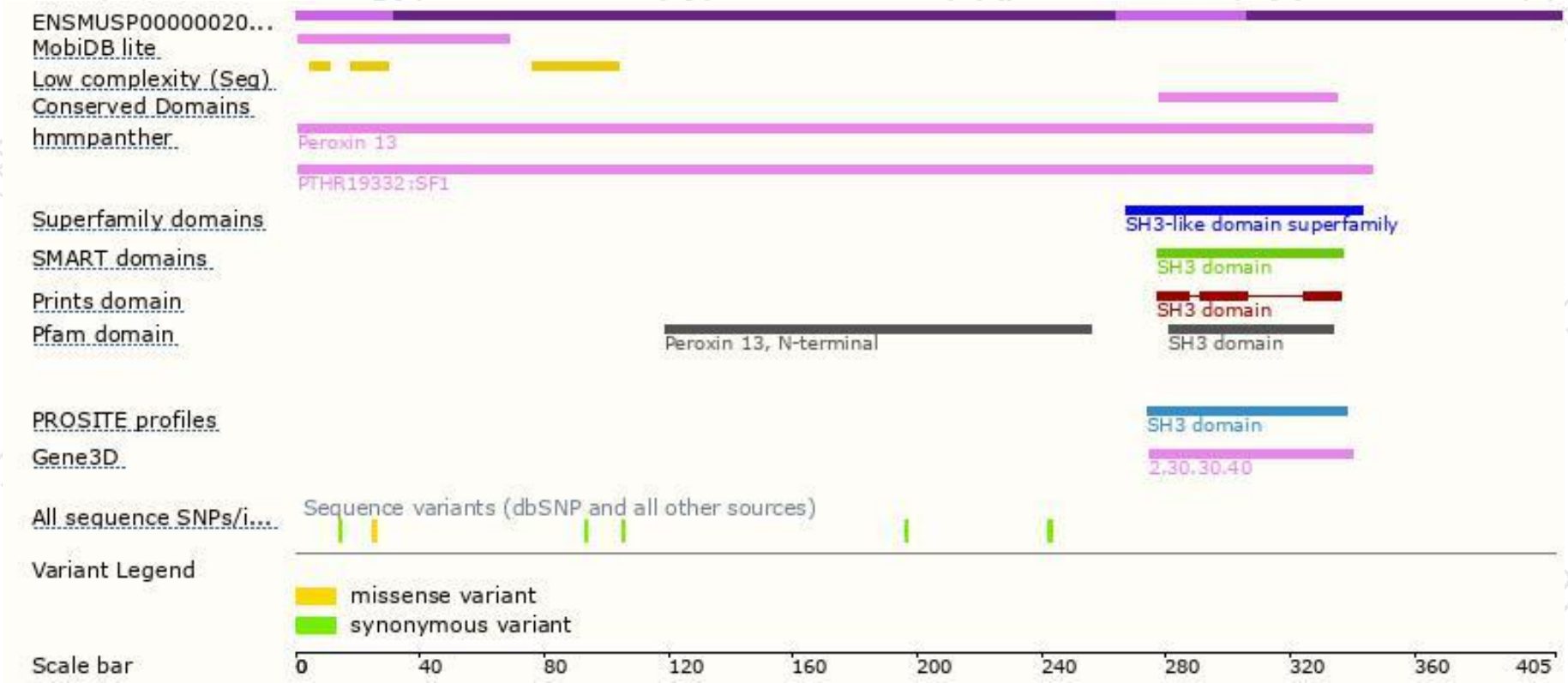
The strategy is based on the design of *Pex13-201* transcript,The transcription is shown below



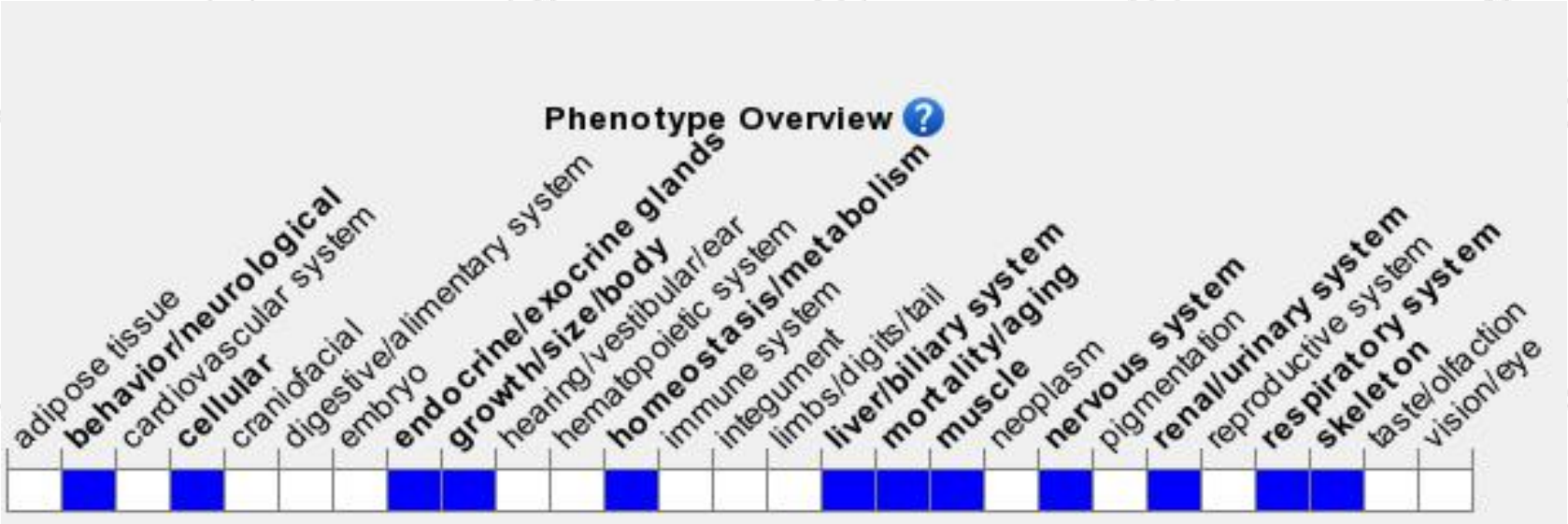
Genomic location distribution



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,Targeted disruption of this gene results in intrauterine growth retardation, hypotonia, aphagia, abnormal lamination of the cerebral cortex associated with a neuronal migration defect, liver steatosis, delayed differentiation of renal glomeruli, impairedperoxisome metabolism, and neonatal death.

集萃药康
GemPharmatech

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

Tel: 400-9660890

集萃药康生物科技
GemPharmatech Co.,Ltd