

Peg3 Cas9-KO Strategy

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Project Overview

Project Name

Peg3

Project type

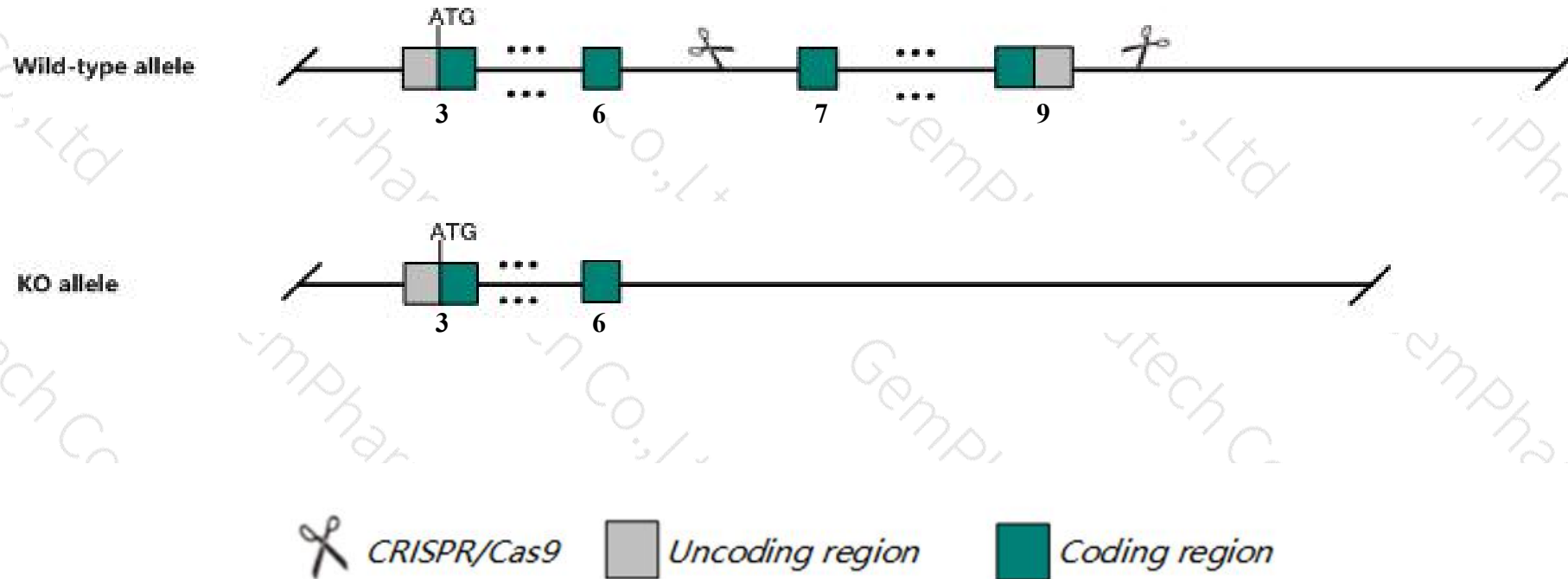
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Peg3* gene. The schematic diagram is as follows:



- The *Peg3* gene has 4 transcripts. According to the structure of *Peg3* gene, exon7-exon9 of *Peg3-201* (ENSMUST00000051209.10) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Peg3* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Heterozygous mutant females exhibit growth retardation, impaired maternal behavior and diminished milk ejection, and fewer oxytocin neurons.
- The *Peg3* gene is located on the Chr7. 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)

Peg3 paternally expressed 3 [Mus musculus (house mouse)]

Gene ID: 18616, updated on 30-Mar-2019

Summary



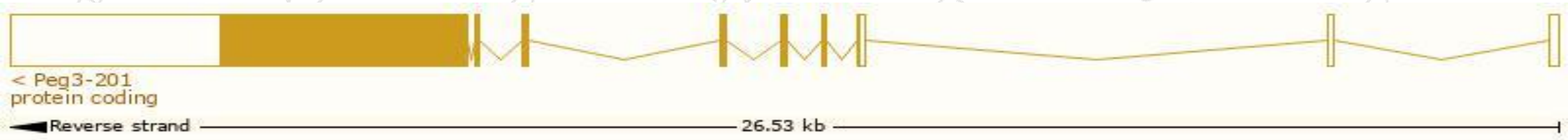
Official Symbol	Peg3 provided by MGI
Official Full Name	paternally expressed 3 provided by MGI
Primary source	MGI:MGI:104748
See related	Ensembl:ENSMUSG00000002265
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AL022617, ASF-1, End4, Gcap4, Pw1, Zfp102, mKIAA0287
Expression	Biased expression in placenta adult (RPKM 77.8), limb E14.5 (RPKM 49.2) and 12 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

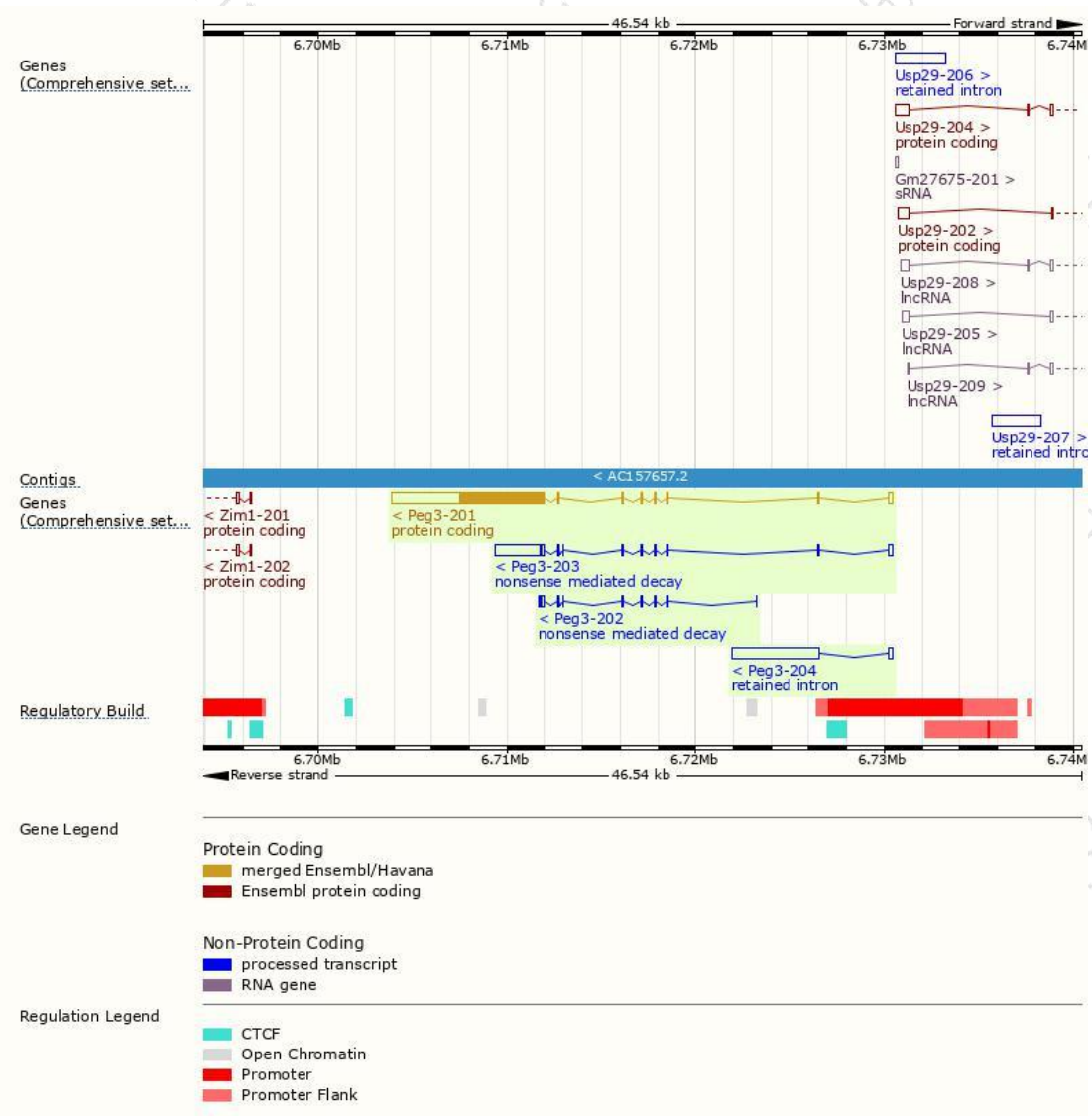
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Peg3-201	ENSMUST00000051209.10	8694	1571aa	Protein coding	CCDS20783	Q3URU2	TSL:1 GENCODE basic APPRIS P1
Peg3-203	ENSMUST00000150182.7	3252	116aa	Nonsense mediated decay	-	D6RGA4	TSL:1
Peg3-202	ENSMUST00000143703.1	733	116aa	Nonsense mediated decay	-	D6RGA4	TSL:5
Peg3-204	ENSMUST00000155910.2	4816	No protein	Retained intron	-	-	TSL:1

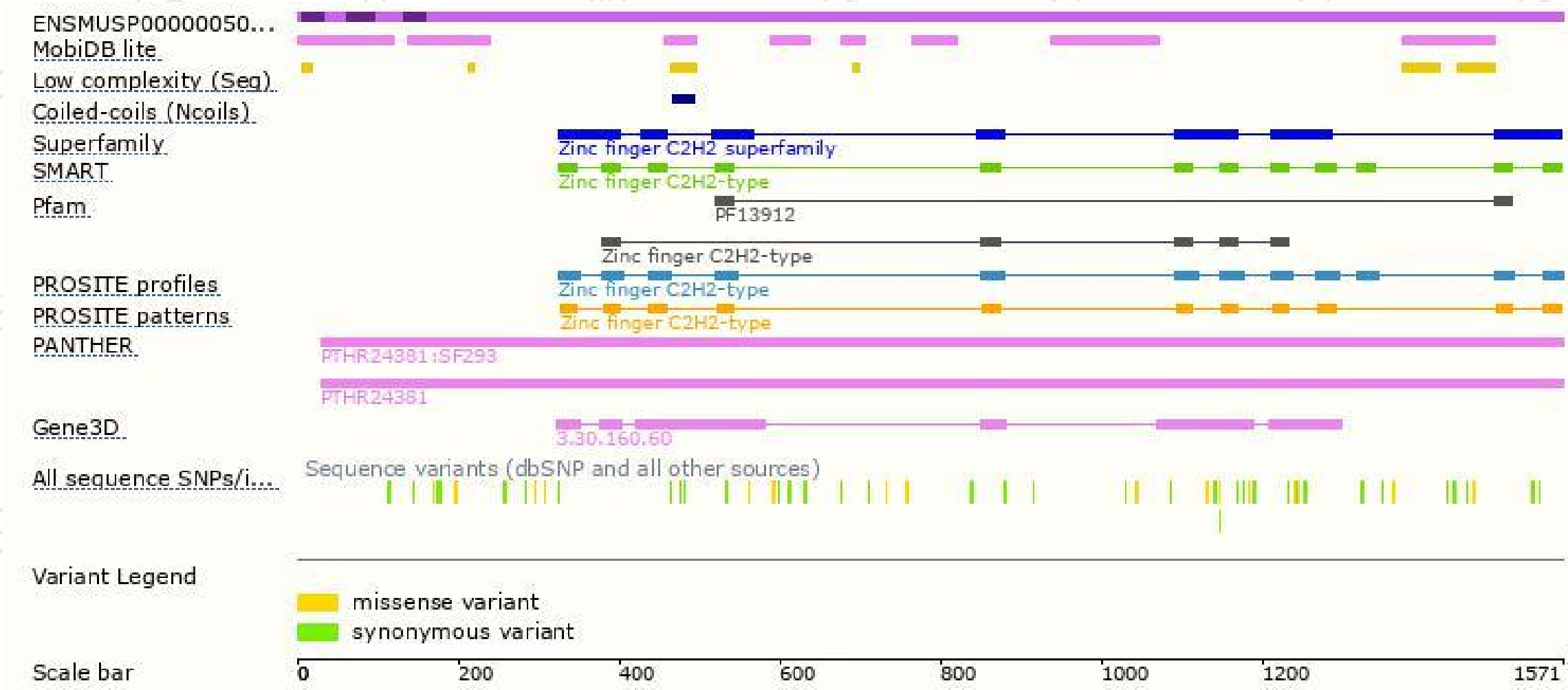
The strategy is based on the design of *Peg3-201* transcript,The transcription is shown below



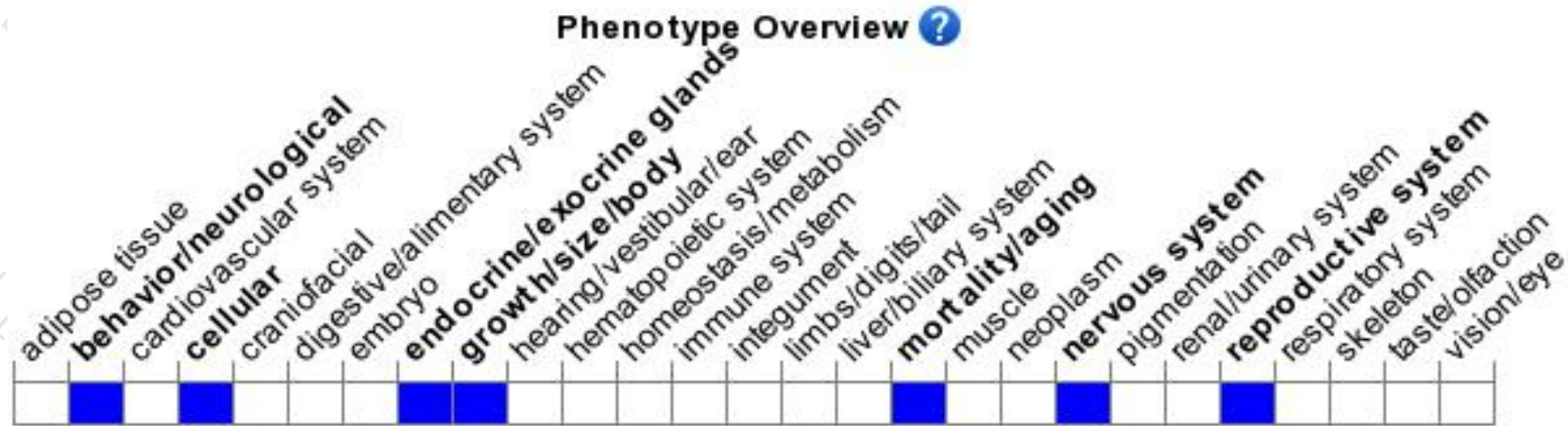
Genomic location distribution



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, Heterozygous mutant females exhibit growth retardation, impaired maternal behavior and diminished milk ejection, and fewer oxytocin neurons.

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

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