

Exo5 Cas9-CKO Strategy

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Project Overview

Project Name

Exo5

Project type

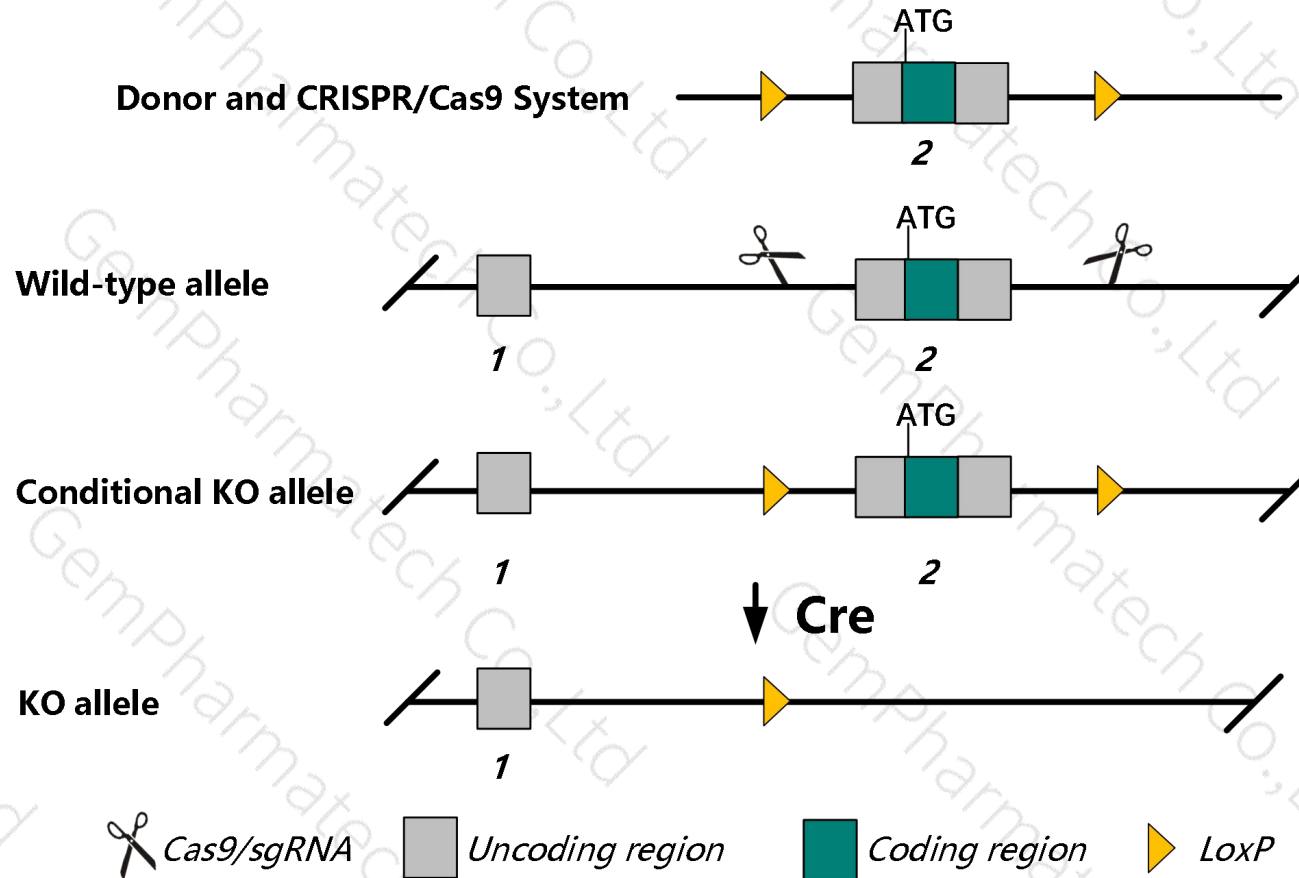
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Exo5* gene. The schematic diagram is as follows:



Technical routes

- The *Exo5* gene has 4 transcripts. According to the structure of *Exo5* gene, exon2 of *Exo5-201*(ENSMUST00000030375.8) transcript is recommended as the knockout region. The region contains all 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 *Exo5* 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

- The *Exo5* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Exo5 exonuclease 5 [Mus musculus (house mouse)]

Gene ID: 73172, updated on 13-Mar-2020

Summary



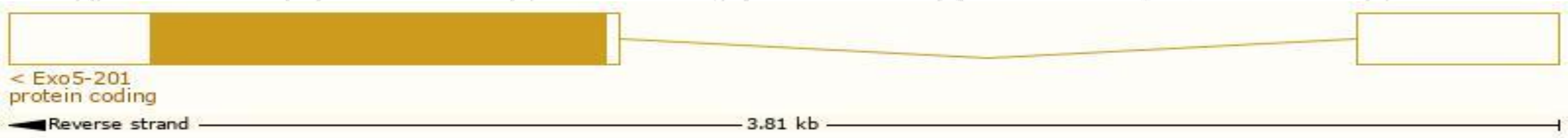
Official Symbol	Exo5 provided by MGI
Official Full Name	exonuclease 5 provided by MGI
Primary source	MGI:MGI:1920422
See related	Ensembl:ENSMUSG00000028629
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	3110037I16Rik, AV297100, Dem1, Exo V, mExo5
Expression	Broad expression in CNS E11.5 (RPKM 11.6), CNS E14 (RPKM 10.8) and 23 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

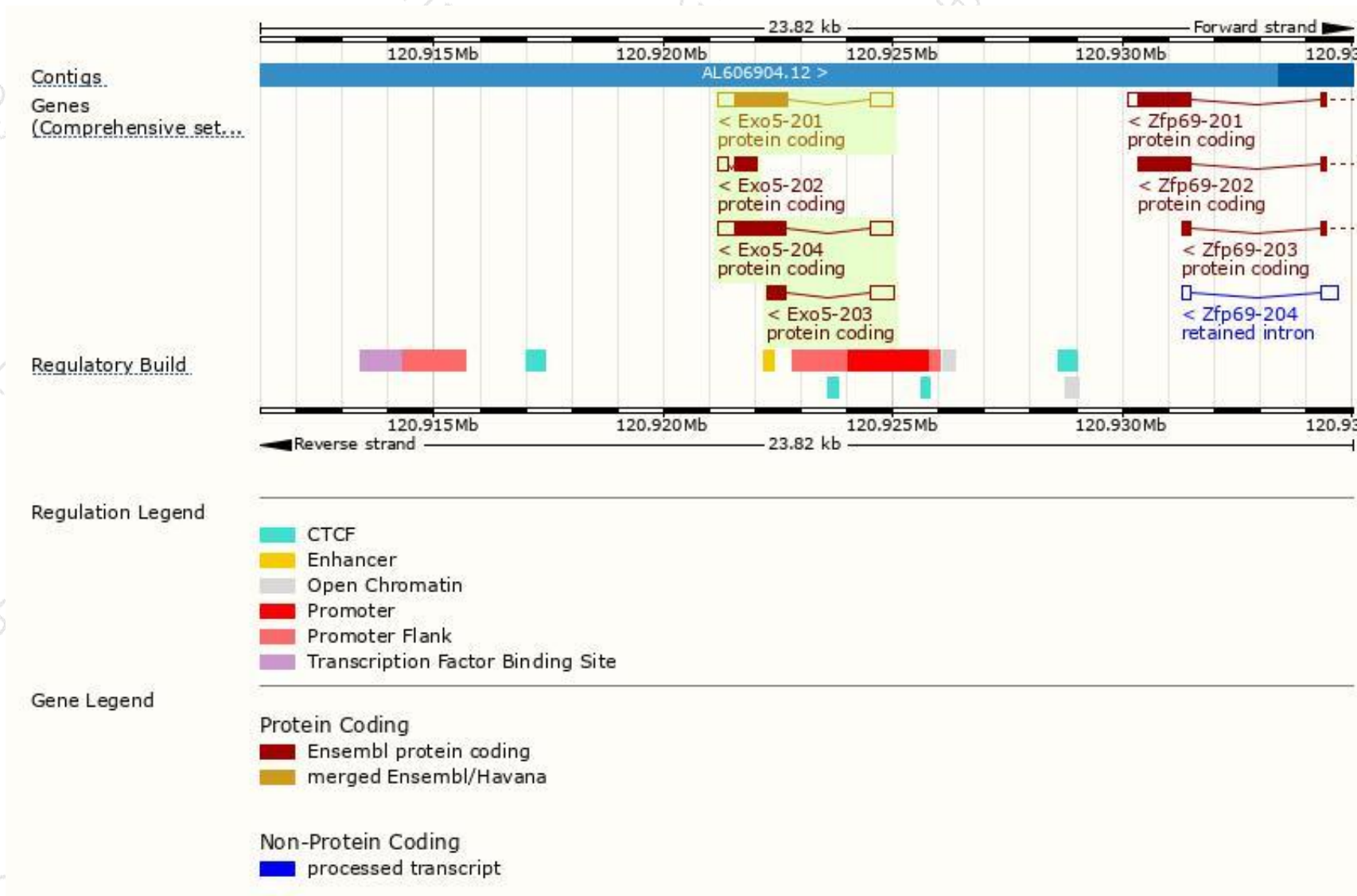
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Exo5-201	ENSMUST00000030375.8	1996	373aa	Protein coding	CCDS18596	Q9CXP9	TSL:1 GENCODE basic APPRIS P1
Exo5-204	ENSMUST00000177880.1	1969	373aa	Protein coding	CCDS18596	Q9CXP9	TSL:2 GENCODE basic APPRIS P1
Exo5-203	ENSMUST00000156836.1	914	132aa	Protein coding	-	A0A0A0MQI0	CDS 3' incomplete TSL:2
Exo5-202	ENSMUST00000144114.1	703	159aa	Protein coding	-	Z4YLZ9	CDS 5' incomplete TSL:2

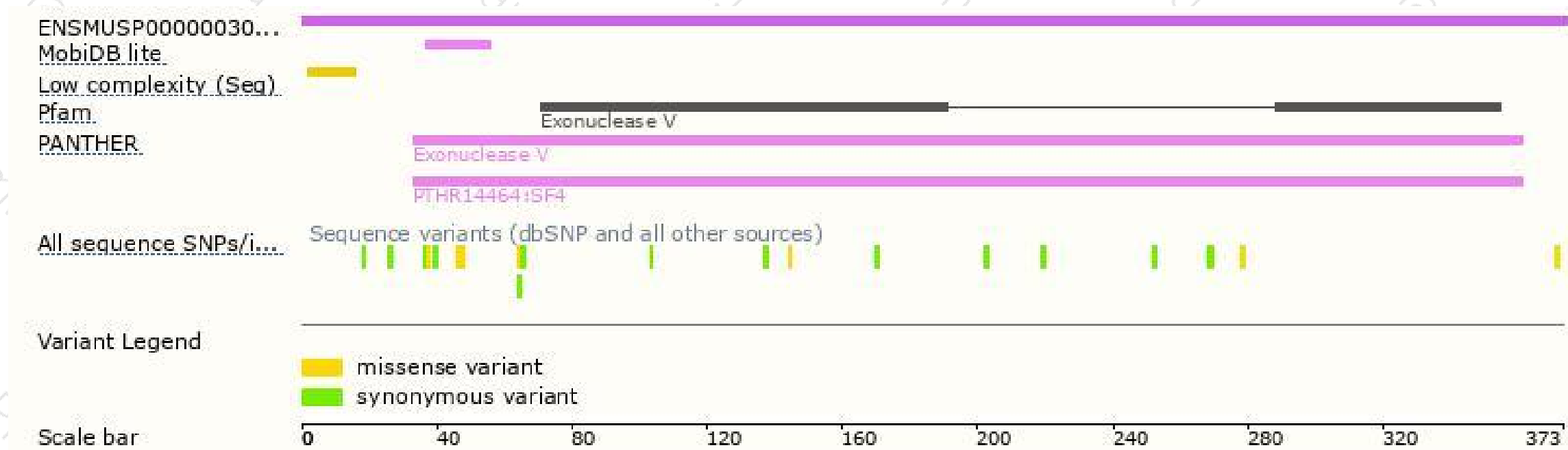
The strategy is based on the design of *Exo5-201* transcript,the transcription is shown below:



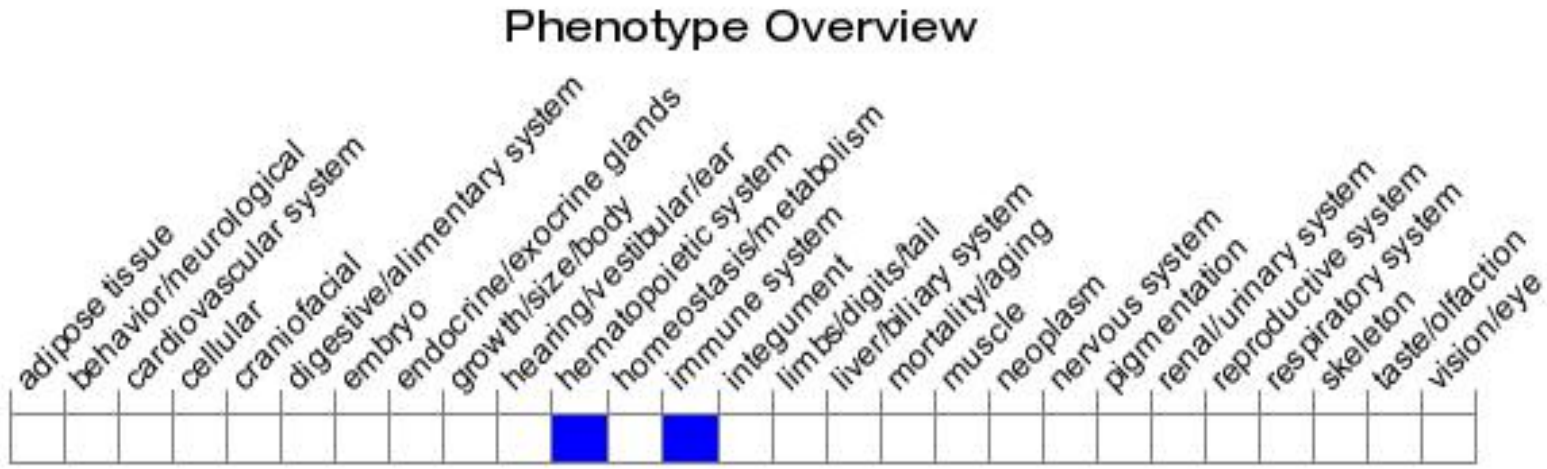
Genomic location distribution



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/>).

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

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