Cdc26 Cas9-CKO *Strategy*

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Project Overview

Project Name	***Cdc26***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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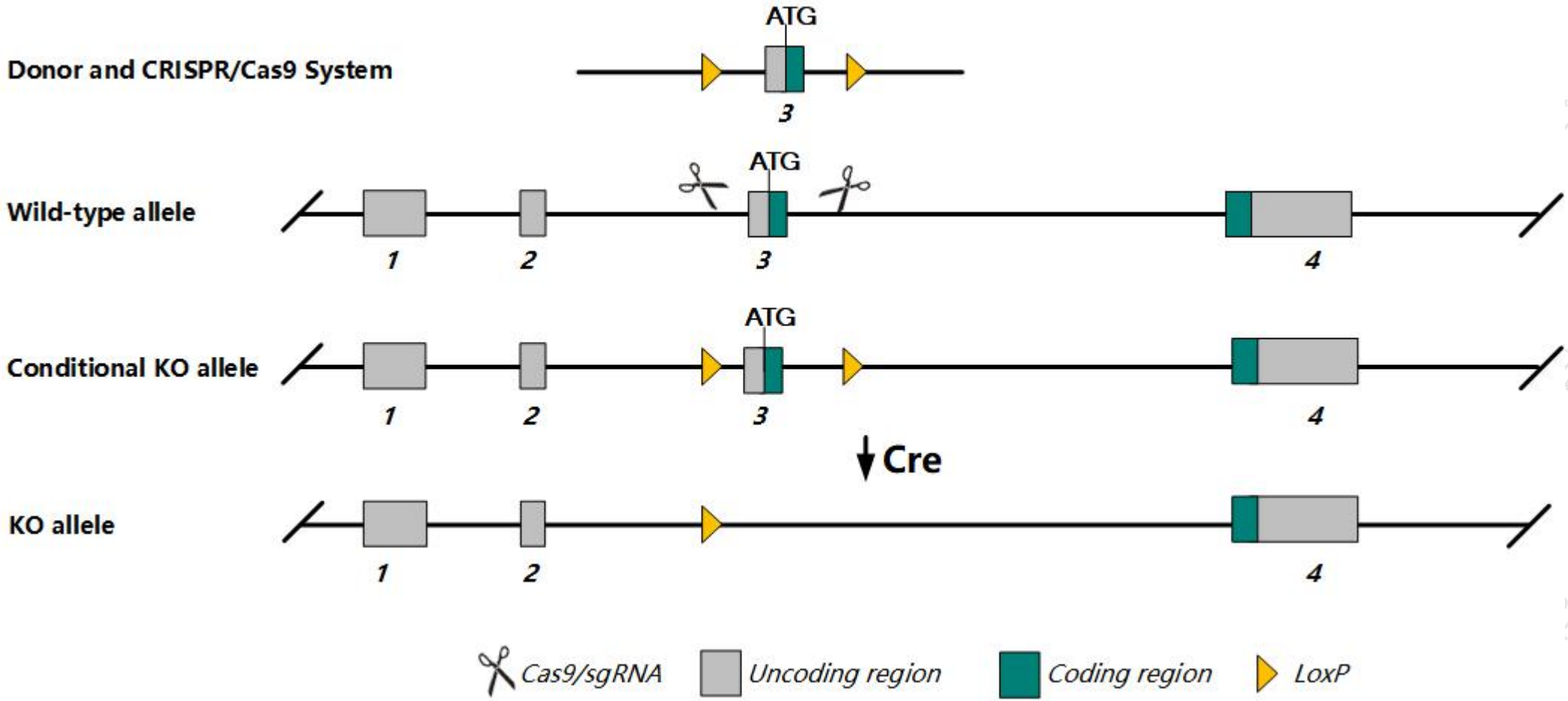
This model will use CRISPR/Cas9 technology to edit the *Cdc26* gene. The schematic diagram is as follows:



Technical routes

- The *Cdc26* gene has 4 transcript.According to the structure of *Cdc26* gene, exon3 of *Cdc26*-201 transcript is recommended as the knockout region.The region contains ATG coding sequence.Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Cdc26* gene. The brief process is as follows: gRNA was transcribed in vitro, donor was constructed.Cas9, gRNA 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 or cell types.

Notice

- The *Cdc26* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

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Cdc26 cell division cycle 26 [*Mus musculus* (house mouse)]

Gene ID: 66440, updated on 5-Aug-2018

Summary

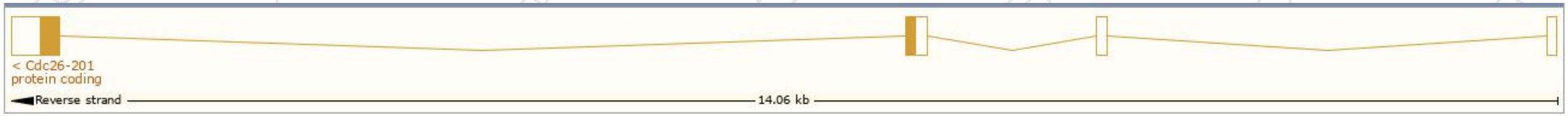
Official Symbol	Cdc26 provided by MGI
Official Full Name	cell division cycle 26 provided by MGI
Primary source	MGI:MGI:1913690
See related	Ensembl:ENSMUSG00000066149 Vega:OTTMUSG00000014381
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2010012C09Rik
Expression	Ubiquitous expression in CNS E11.5 (RPKM 20.0), limb E14.5 (RPKM 16.2) and 27 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

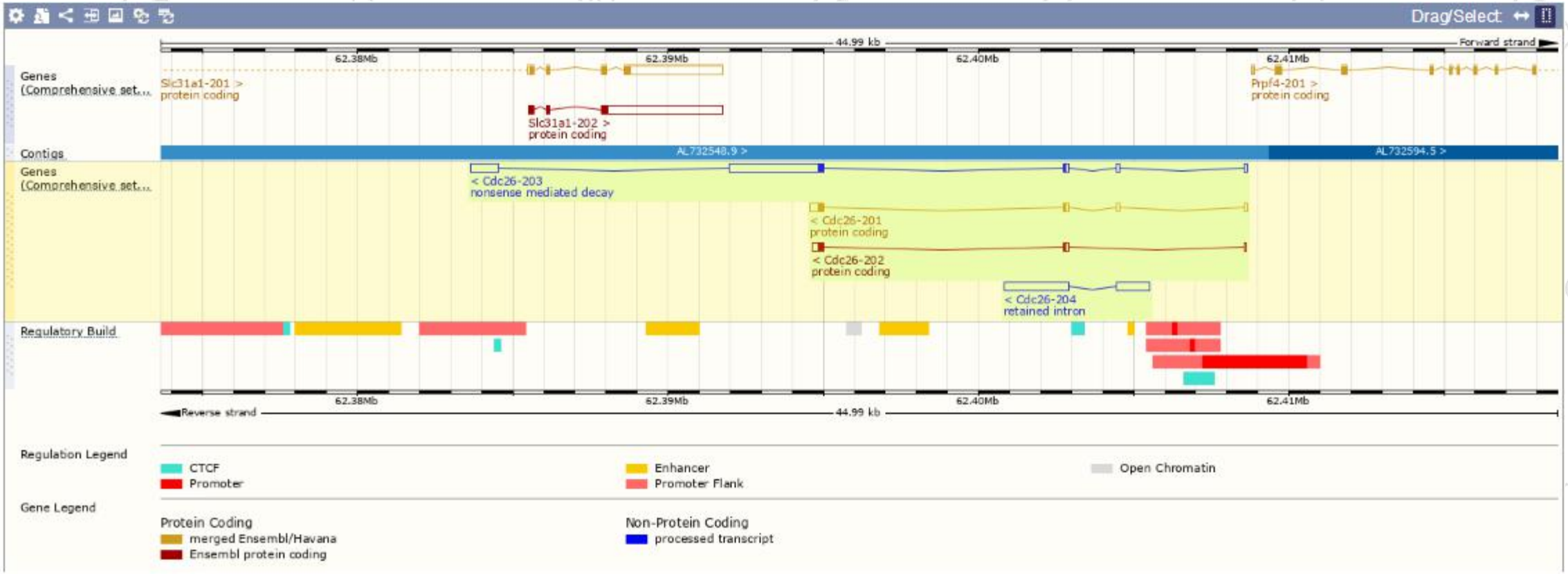
The gene has 4 transcripts, and all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags
Cdc26-201	ENSMUST00000084525.11	819	85aa	Protein coding	CCDS38774	Q99JP4	NM_139291 NP_647452	TSL:1 GENCODE basic APPRIS P1
Cdc26-202	ENSMUST00000107459.1	654	85aa	Protein coding	CCDS38774	Q99JP4	-	TSL:2 GENCODE basic APPRIS P1
Cdc26-203	ENSMUST00000134727.7	4326	85aa	Nonsense mediated decay	CCDS38774	Q99JP4	-	TSL:1
Cdc26-204	ENSMUST00000156854.1	3143	No protein	Retained intron	-	-	-	TSL:1

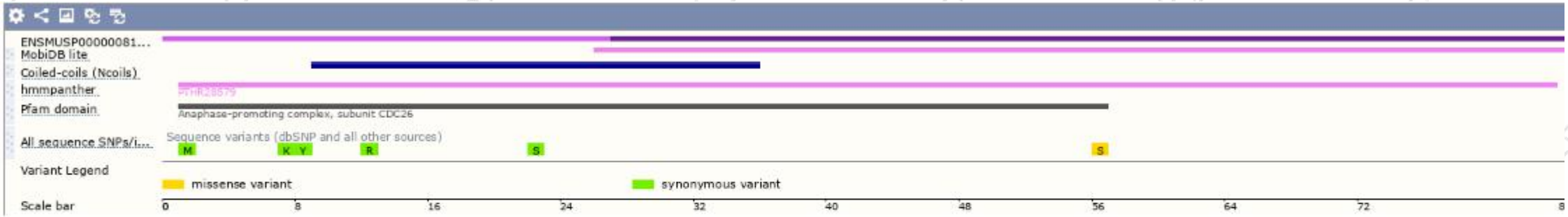
The strategy is based on the design of *Cdc26*-201 transcript,The transcription is shown below



Genomic location distribution



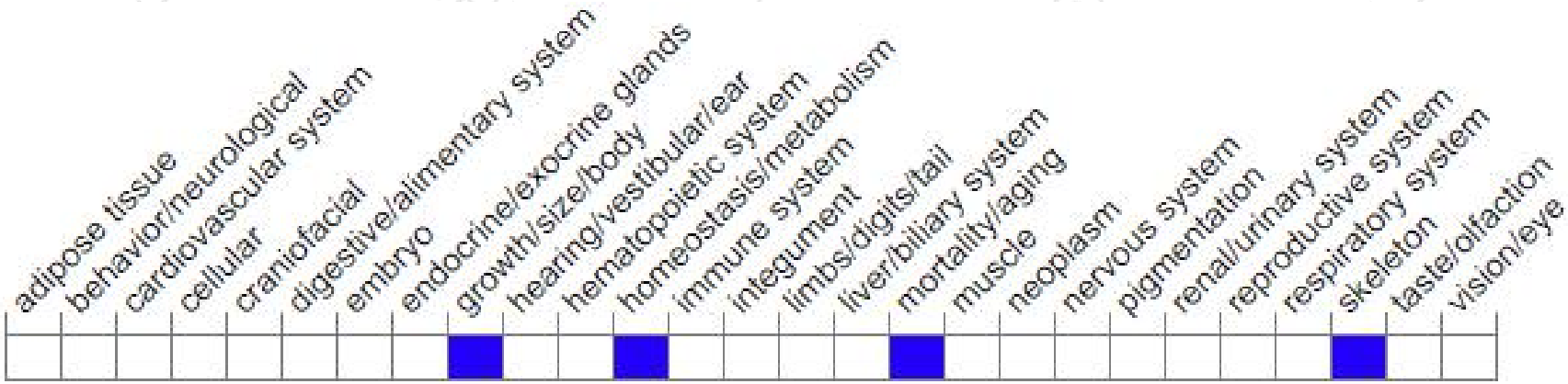
Protein region



Statistics

Ave. residue weight: 114.834 g/mol
Charge: 0.0
Isoelectric point: 6.3980
Molecular weight: 9,760.89 g/mol
Number of residues: 85 aa

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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