Cdk11b Cas9-KO Strategy

Designer: Yanhua Shen
Reviewer: Xueting Zhang

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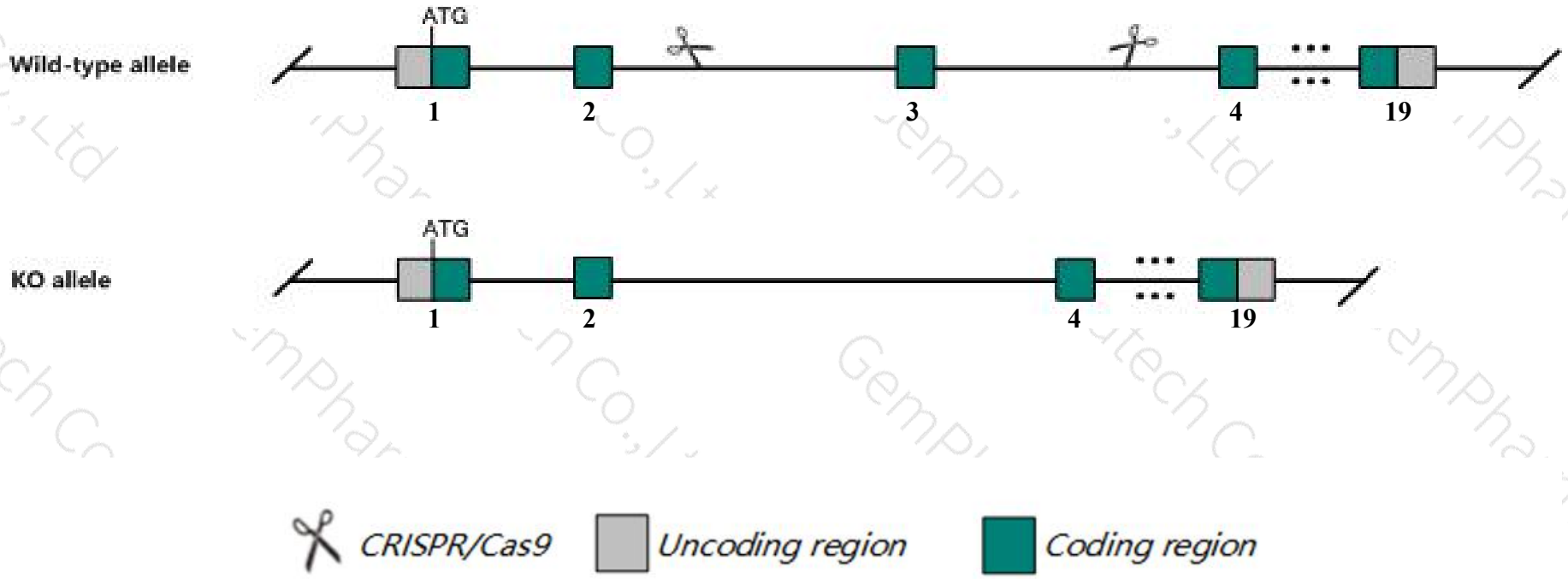
Project Overview

Project Name	***Cdk11b***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cdk11b* gene. The schematic diagram is as follows:



Technical routes

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- The *Cdk11b* gene has 8 transcripts. According to the structure of *Cdk11b* gene, exon3 of *Cdk11b-203* (ENSMUST00000105600.7) transcript is recommended as the knockout region.The region contains 128bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Cdk11b* gene. The brief process is as follows: CRISPR/Cas9 syster

Notice

- According to the existing MGI data,Homozygous null embryos display embryonic lethality from cell cycle arrest.

- The KO region overlaps with *Gm10563* gene and gene.Knockout the region may affect the function of *Gm10563* gene. Transcripts 205,206,207,208 may not be affected.

- The *Cdk11b* 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 gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information （NCBI）

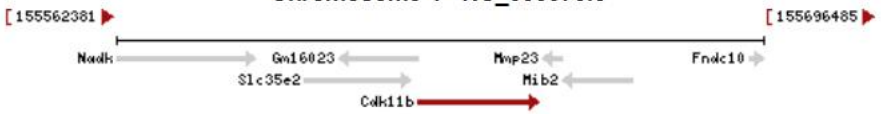
Cdk11b cyclin-dependent kinase 11B [*Mus musculus* (house mouse)]

Gene ID: 12537, updated on 24-Oct-2019

Summary

Official Symbol	Cdk11b provided by MGI
Official Full Name	cyclin-dependent kinase 11B provided by MGI
Primary source	MGI:MGI:88353
See related	Ensembl:ENSMUSG00000029062
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	p58; Cdk11; Cdc11b; Cdc2l1; Cdc2l2; AA989746; CDK11-p46; CDK11-p58; CDK11-p110
Expression	Ubiquitous expression in CNS E11.5 (RPKM 24.0), large intestine adult (RPKM 15.5) and 28 other tissues See more
Orthologs	human all

Chromosome 4 - NC_000070.6



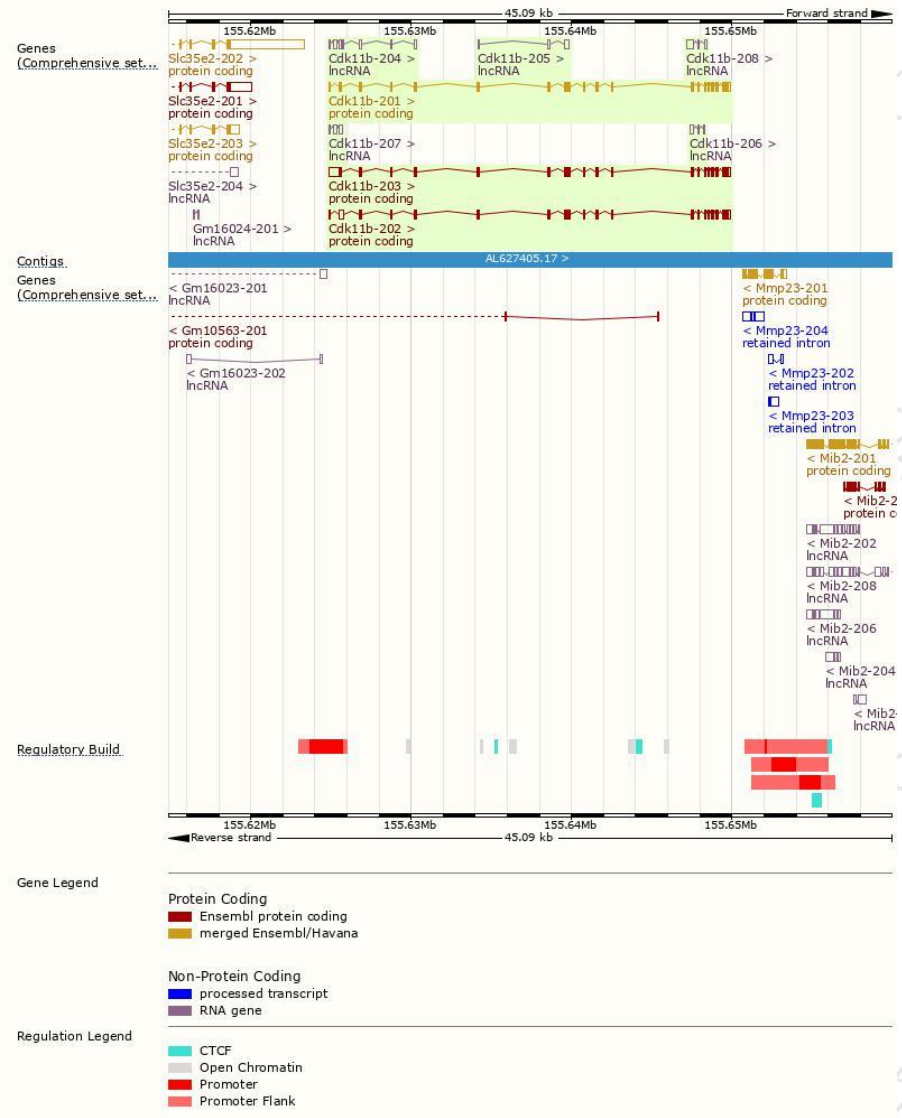
Transcript information（Ensembl）

The gene has 8 transcripts,all transcripts are shown below:

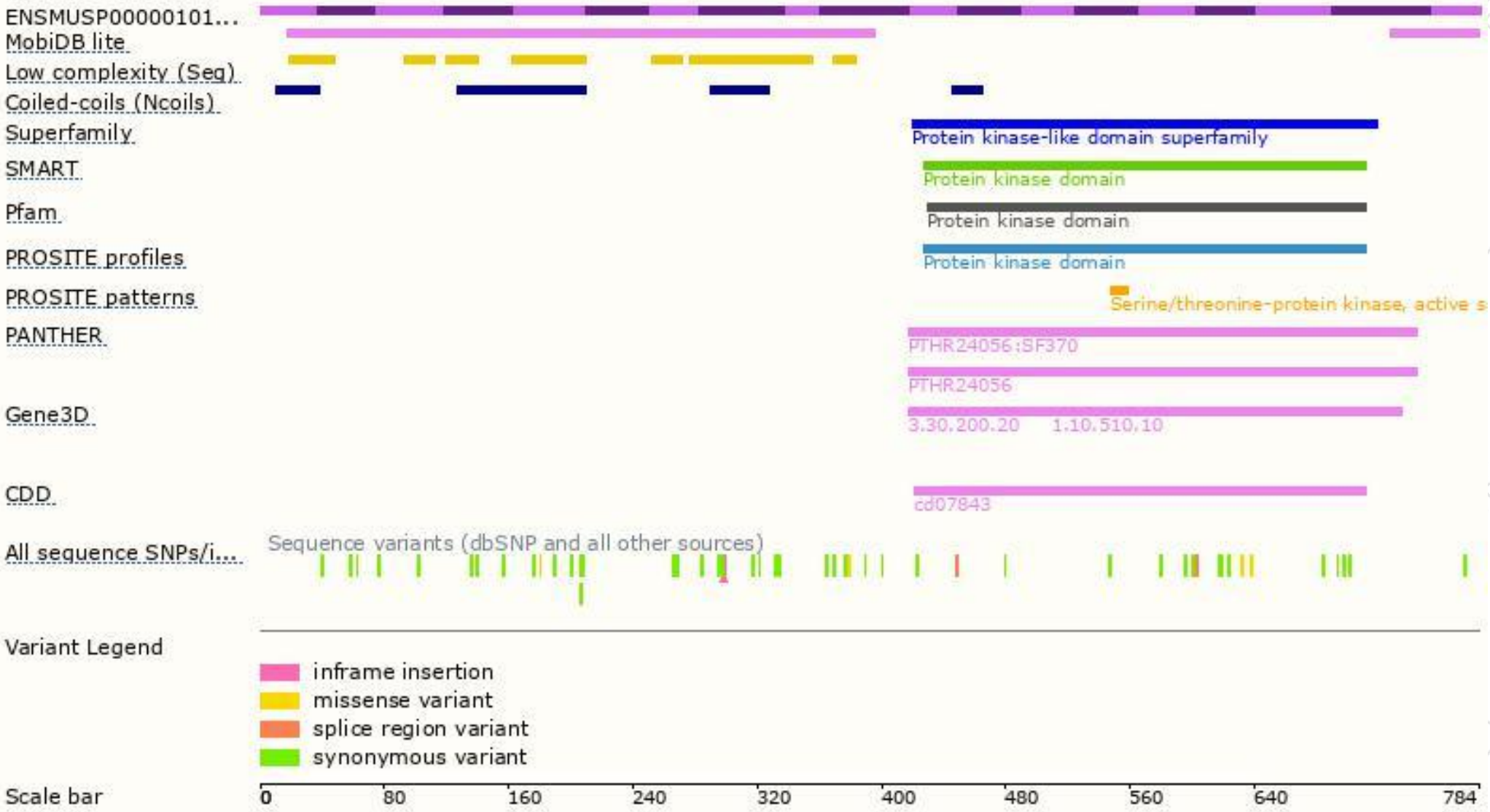
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cdk11b-203	ENSMUST00000105600.7	3170	784aa	Protein coding	CCDS19033	P24788	TSL:5 GENCODE basic APPRIS P3
Cdk11b-202	ENSMUST00000105598.1	2673	750aa	Protein coding	CCDS84837	A2A9P6	TSL:1 GENCODE basic APPRIS ALT2
Cdk11b-201	ENSMUST00000067081.9	2595	784aa	Protein coding	CCDS19033	P24788	TSL:1 GENCODE basic APPRIS P3
Cdk11b-204	ENSMUST00000135550.7	805	No protein	lncRNA	-	-	TSL:5
Cdk11b-208	ENSMUST00000155100.7	631	No protein	lncRNA	-	-	TSL:5
Cdk11b-205	ENSMUST00000142513.1	411	No protein	lncRNA	-	-	TSL:2
Cdk11b-206	ENSMUST00000143196.1	411	No protein	lncRNA	-	-	TSL:5
Cdk11b-207	ENSMUST00000149498.1	383	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *Cdk11b-203* transcript,The transcription is shown below

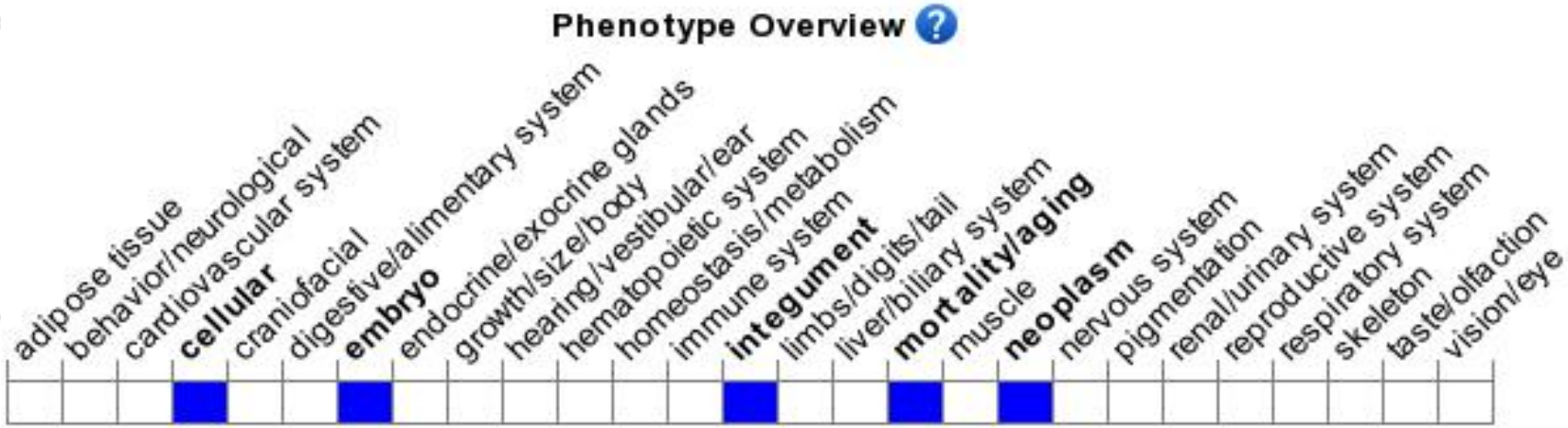
Genomic location distribution



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,Homozygous null embryos display embryonic lethality from cell cycle arrest.

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If you have any questions, you are welcome to inquire.
Tel: 400-9660890

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GemPharmatech Co.,Ltd