

Cdk8 Cas9-KO Strategy

Designer:

Huan Wang

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Project Overview



Project Name

Cdk8

Project type

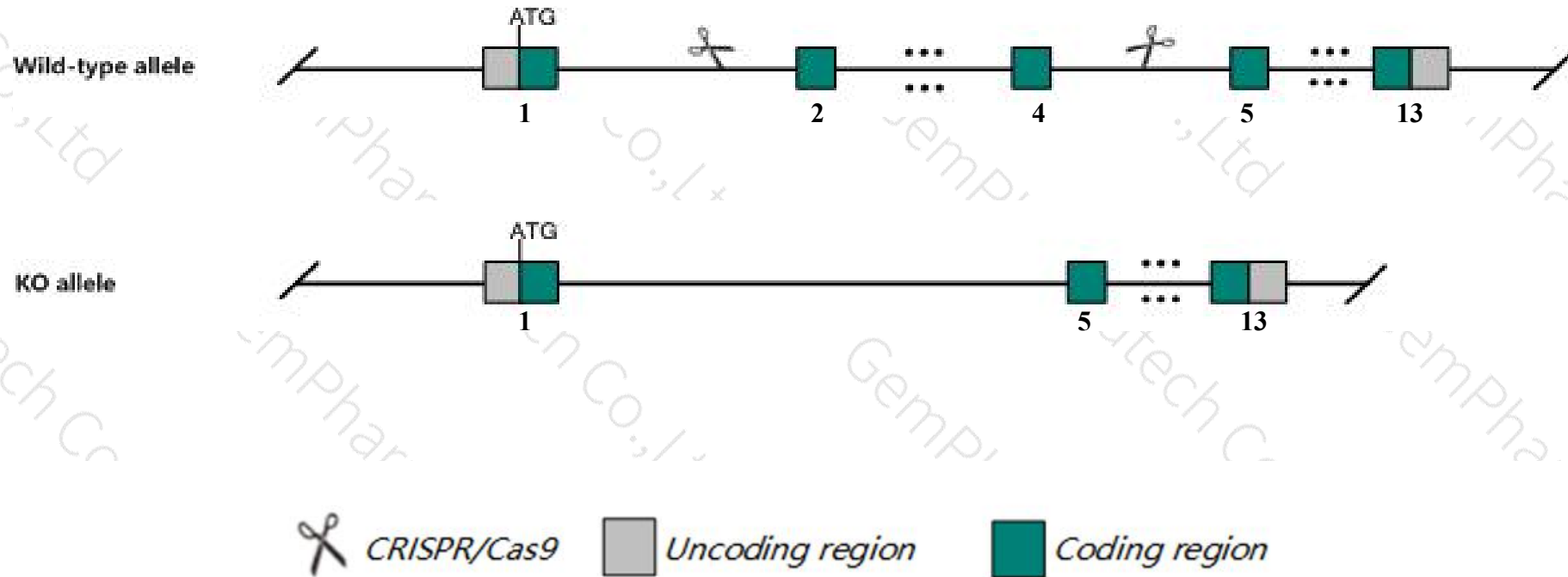
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Cdk8* gene. The schematic diagram is as follows:



- The *Cdk8* gene has 9 transcripts. According to the structure of *Cdk8* gene, exon2-exon4 of *Cdk8-201* (ENSMUST00000031640.14) transcript is recommended as the knockout region. The region contains 328bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Cdk8* gene. The brief process is as follows: CRISPR/Cas9 system v

- According to the existing MGI data, Mice homozygous for a gene-trapped allele die prior to implantation exhibiting fragmented blastomeres and failure to undergo compaction.
- The *Cdk8* gene is located on the Chr5. 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)

Cdk8 cyclin-dependent kinase 8 [Mus musculus (house mouse)]

Gene ID: 264064, updated on 5-Mar-2019

Summary

Official Symbol	Cdk8 provided by MGI
Official Full Name	cyclin-dependent kinase 8 provided by MGI
Primary source	MGI:MGI:1196224
See related	Ensembl:ENSMUSG00000029635
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
Expression	Ubiquitous expression in adrenal adult (RPKM 21.2), ovary adult (RPKM 18.4) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

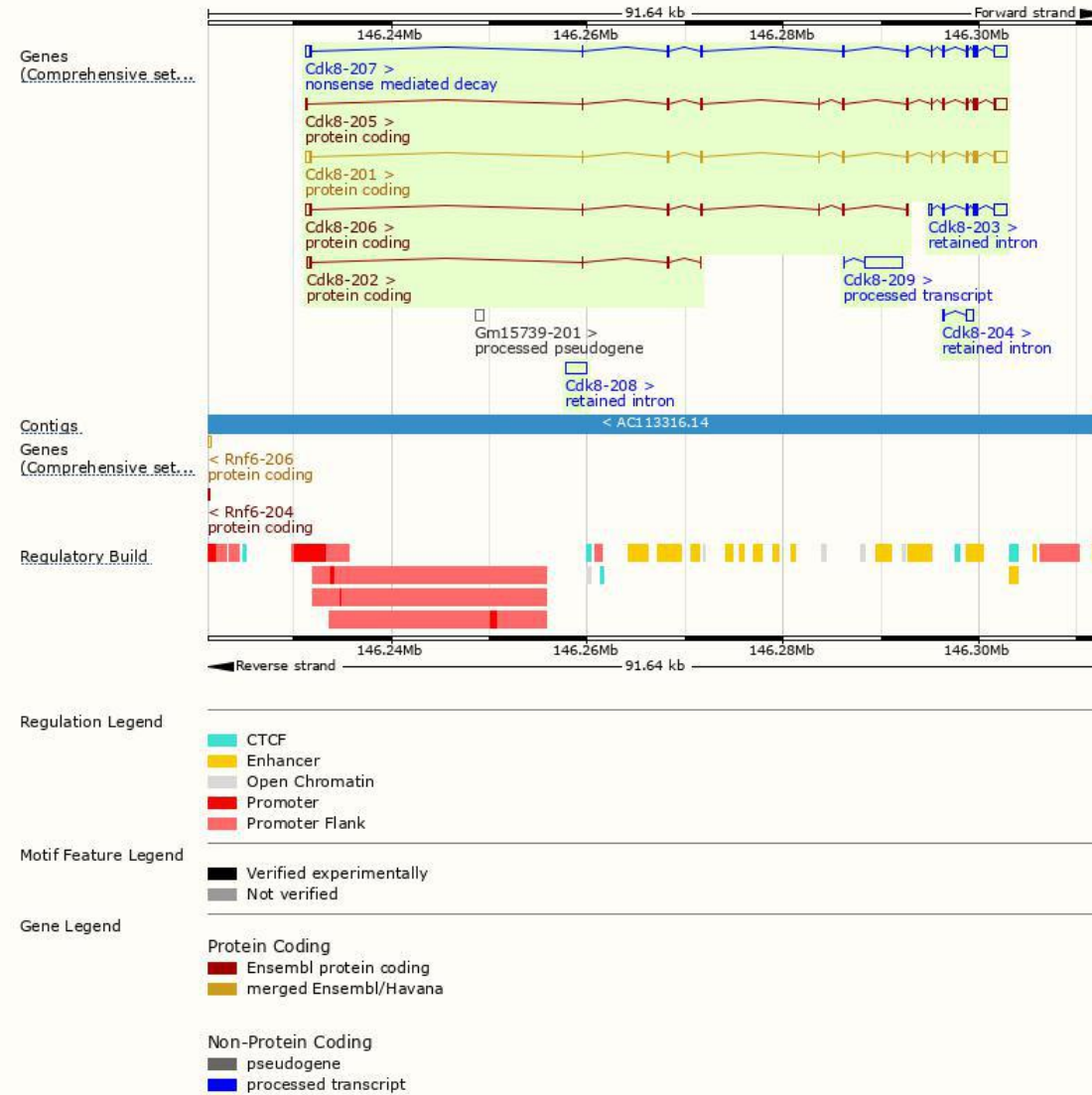
The gene has 9 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Cdk8-201	ENSMUST00000031640.14	2973	464aa	Protein coding	CCDS19869	Q8R3L8	TSL:2 GENCODE basic APPRIS P1
Cdk8-205	ENSMUST00000161181.7	2467	399aa	Protein coding	-	E9Q6E2	TSL:1 GENCODE basic
Cdk8-206	ENSMUST00000161652.7	1142	245aa	Protein coding	-	E0CYC4	CDS 3' incomplete TSL:5
Cdk8-202	ENSMUST00000159467.1	654	115aa	Protein coding	-	E0CY29	CDS 3' incomplete TSL:3
Cdk8-207	ENSMUST00000162494.7	2973	164aa	Nonsense mediated decay	-	E0CZC3	TSL:5
Cdk8-209	ENSMUST00000198861.1	3896	No protein	Processed transcript	-	-	TSL:5
Cdk8-208	ENSMUST00000195944.1	2195	No protein	Retained intron	-	-	TSL:NA
Cdk8-203	ENSMUST00000159615.1	1976	No protein	Retained intron	-	-	TSL:1
Cdk8-204	ENSMUST00000160924.1	777	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Cdk8-201* transcript, The transcription is shown below



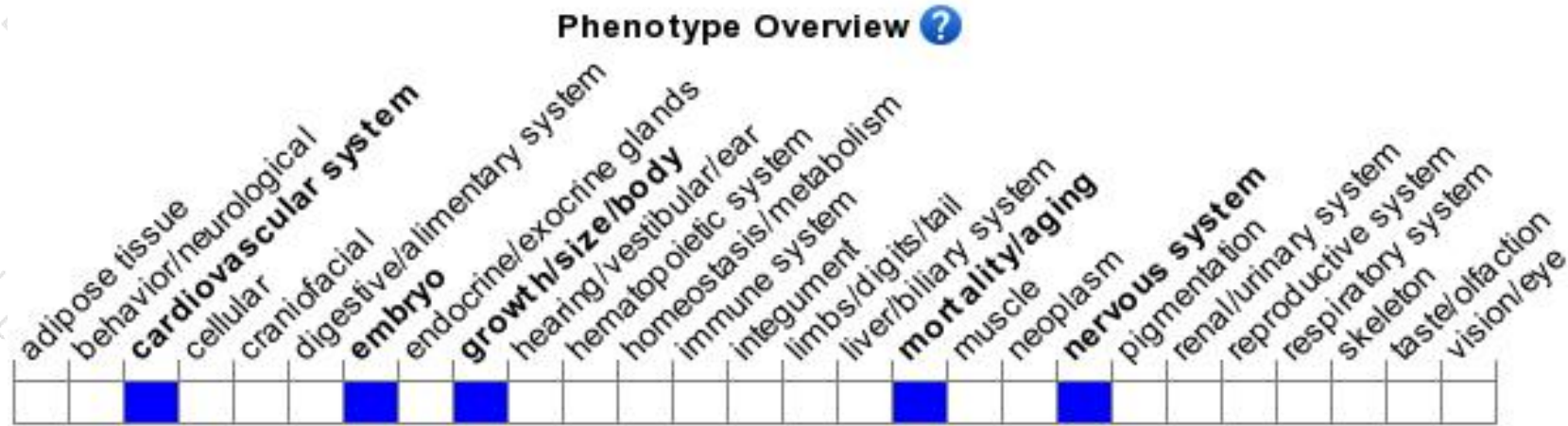
Genomic location distribution



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, Mice homozygous for a gene-trapped allele die prior to implantation exhibiting fragmented blastomeres and failure to undergo compaction.

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

Tel: 400-9660890

