Kdm5a Cas9-KO Strategy

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Project Overview

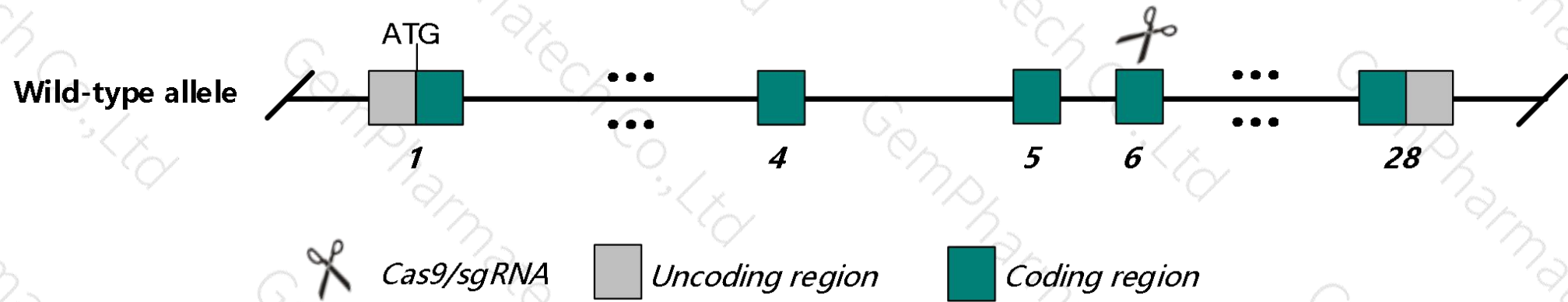|	
Project Name	***Kdm5a***
Project type	**Cas9-KO**
Strain background	**C57BL/6N**

This model will use CRISPR/Cas9 technology to edit the *Kdm5a* gene. The schematic diagram is as follows:

Technical routes

➢ In this project we use CRISPR/Cas9 technology to modify *Kdm5a* gene. The brief process is as follows: sgRNA was transcribed in vitro.Cas9 and sgRNA were microinjected into the fertilized eggs of C57BL/6N 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/6N mice.

Notice

➢ According to the existing MGI data, Mice homozygous for a knock-out allele exhibit reduced body size, abnormal involuntary movement and quantitative changes in the hematopoietic stem cell and myeloid progenitor compartments, consistent with enhanced survival and increased cycling. Neonatalsurvival is sensitive to genetic background.

➢ The *Kdm5a* gene is located on the Chr6. 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.

Kdm5a lysine (K)-specific demethylase 5A [*Mus musculus* (house mouse)]

Gene ID: 214899, updated on 12-Aug-2019

▲ Summary

Official Symbol	Kdm5a provided by MGI
Official Full Name	lysine (K)-specific demethylase 5A provided by MGI
Primary source	MGI:MGI:2136980
See related	Ensembl:ENSMUSG00000030180
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	RBP2; Rbbp2; C76986; Jarid1a; AA409370
Expression	Ubiquitous expression in CNS E11.5 (RPKM 4.9), placenta adult (RPKM 3.8) and 26 other tissues See more
Orthologs	human all

▲ Genomic context

Location: 6 F1; 6 56.95 cM

See Kdm5a in Genome Data Viewer

Exon count: 29

| Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	6	NC_000072.6 (120364099..120444574)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	6	NC_000072.5 (120314117..120394592)

Transcript information（Ensembl）

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

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Kdm5a-201	ENSMUST00000005108.9	10944	1690aa	Protein coding	CCDS51889	Q3UXZ9	TSL:5 GENCODE basic APPRIS P1
Kdm5a-209	ENSMUST00000203373.1	460	153aa	Protein coding	-	A0A0N4SUK6	CDS 5' and 3' incomplete TSL:3
Kdm5a-206	ENSMUST00000135802.7	3665	814aa	Nonsense mediated decay	-	A0A0N4SVA7	TSL:1
Kdm5a-204	ENSMUST00000132009.3	3329	621aa	Nonsense mediated decay	-	Q921T5	TSL:1
Kdm5a-203	ENSMUST00000124847.1	2716	No protein	Retained intron	-	-	TSL:1
Kdm5a-208	ENSMUST00000152293.5	1402	No protein	Retained intron	-	-	TSL:1
Kdm5a-202	ENSMUST00000124525.1	999	No protein	Retained intron	-	-	TSL:5
Kdm5a-205	ENSMUST00000132599.1	689	No protein	Retained intron	-	-	TSL:2
Kdm5a-207	ENSMUST00000142791.1	1295	No protein	lncRNA	-	-	TSL:3

Genomic location distribution
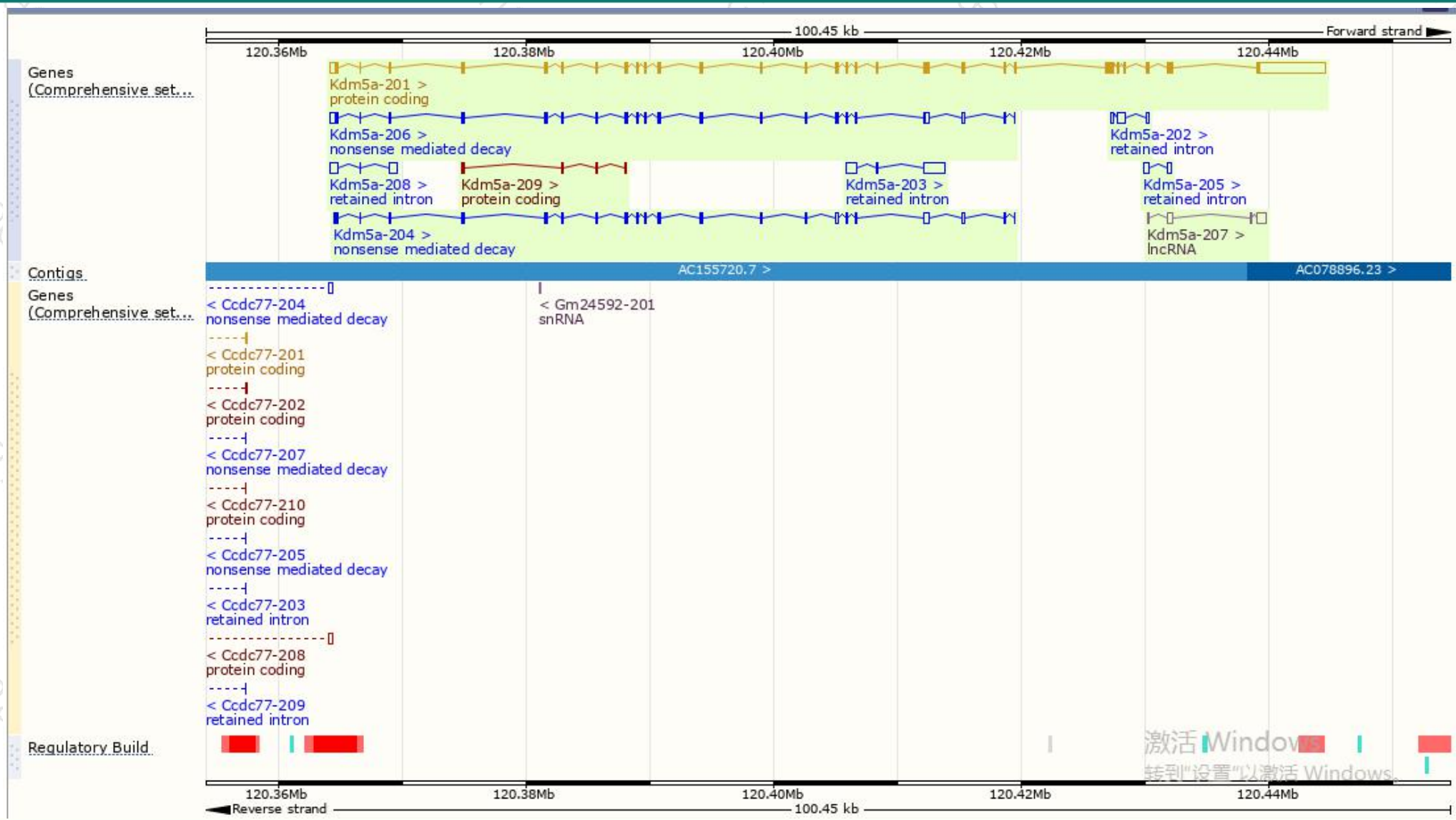
Mouse phenotype description(MGI)

Phenotype Overview

Click cells to view annotations.
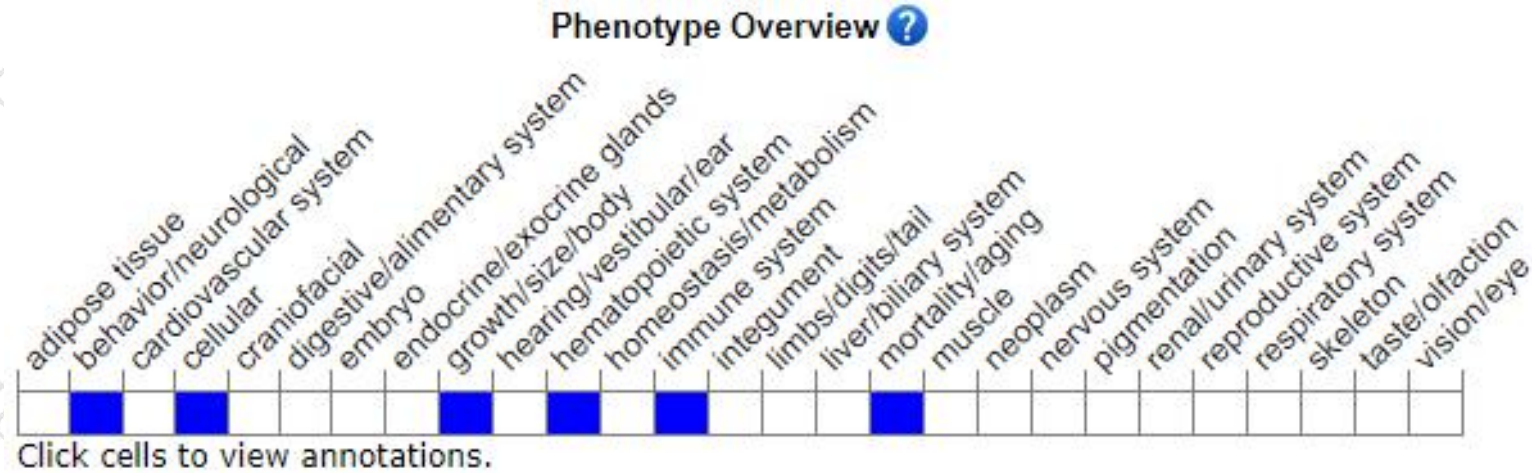
Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/).

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