Setd1a Cas9-CKO Strategy

Designer: **Daohua Xu**

Reviewer：   **Huimin Su**

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Project Overview

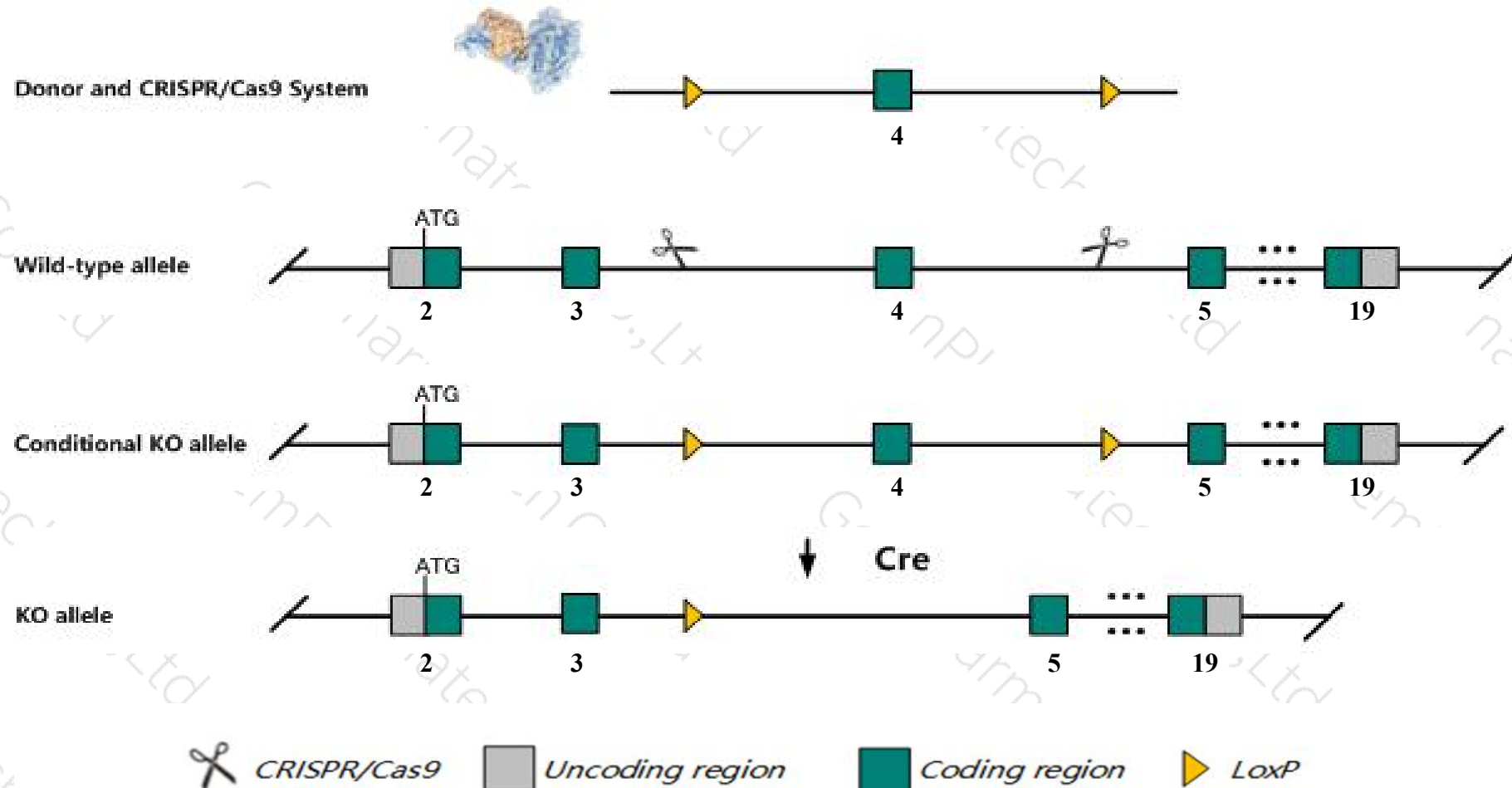|	
Project Name	*Setd1a*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Setd1a* gene. The schematic diagram is as follows:

Technical routes

➤ The *Setd1a* gene has 6 transcripts. According to the structure of *Setd1a* gene, exon4 of *Setd1a-201* (ENSMUST00000047075.13) transcript is recommended as the knockout region.The region contains 271bp coding sequence. Knock out the region will result in disruption of protein function.

➤ In this project we use CRISPR/Cas9 technology to modify *Setd1a* 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

➤ According to the existing MGI data,Animals homozygous for this allele were dead by E7.5

➤ The *Setd1a* gene is located on the Chr7. 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）

Setd1a SET domain containing 1A [Mus musculus (house mouse)]

Gene ID: 233904, updated on 25-Mar-2019

▲Summary

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Official Symbol	Setd1a provided by MGI
Official Full Name	SET domain containing 1A provided by MGI
Primary source	MGI:MGI:2446244
See related	Ensembl:ENSMUSG00000042308
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	BC010250, KMT2F, Nsccn1, mKIAA0339, mNSC1
Expression	Ubiquitous expression in limb E14.5 (RPKM 7.1), thymus adult (RPKM 7.0) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Setd1a-201	ENSMUST00000047075.13	6487	1716aa	Protein coding	CCDS40144	E9PYH6	TSL:5 GENCODE basic APPRIS P1
Setd1a-202	ENSMUST00000047157.12	5927	1716aa	Protein coding	CCDS40144	E9PYH6	TSL:5 GENCODE basic APPRIS P1
Setd1a-206	ENSMUST00000144406.7	916	247aa	Protein coding	-	D3YUD4	CDS 3' incomplete TSL:5
Setd1a-203	ENSMUST00000126761.7	730	196aa	Protein coding	-	D3YX07	CDS 3' incomplete TSL:3
Setd1a-205	ENSMUST00000143951.1	315	70aa	Protein coding	-	D3YXL2	CDS 3' incomplete TSL:5
Setd1a-204	ENSMUST00000141439.1	389	No protein	lncRNA	-	-	TSL:5

The strategy is based on the design of *Setd1a-201* transcript,The transcription is shown below
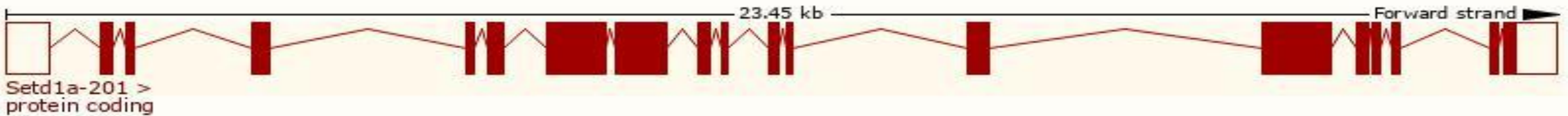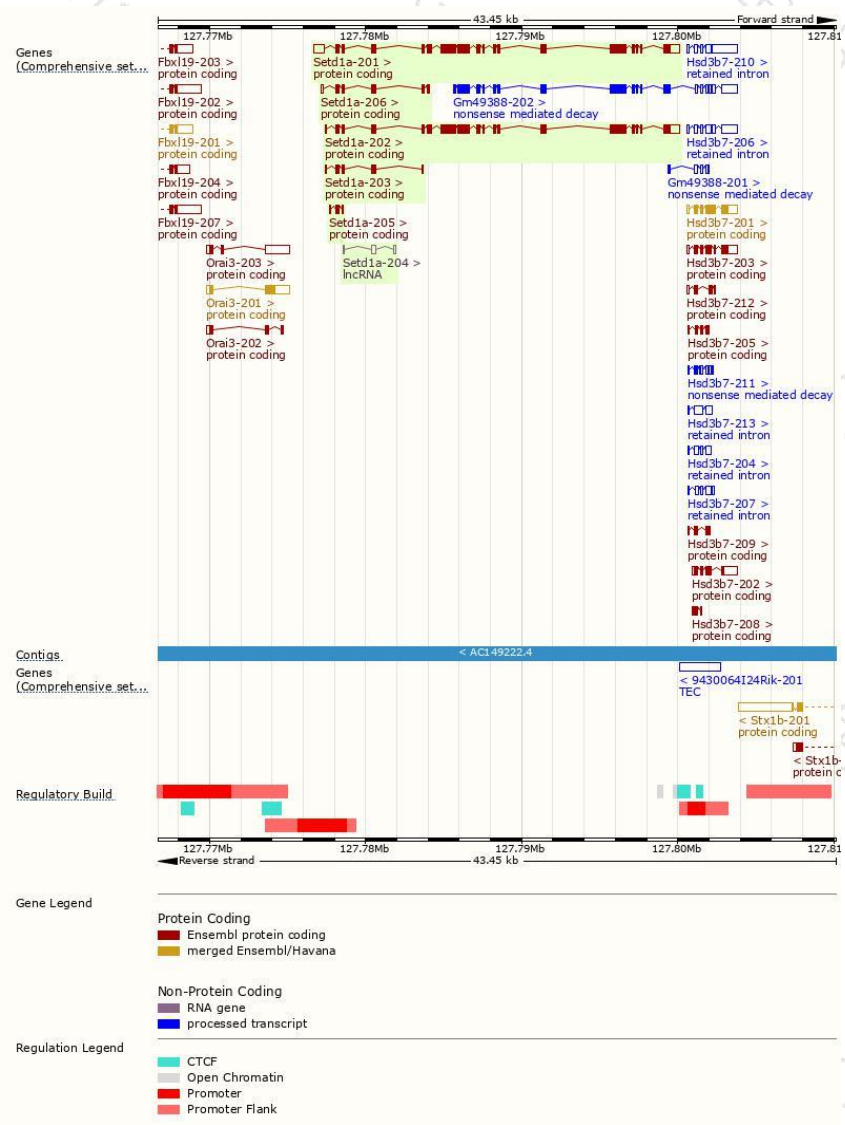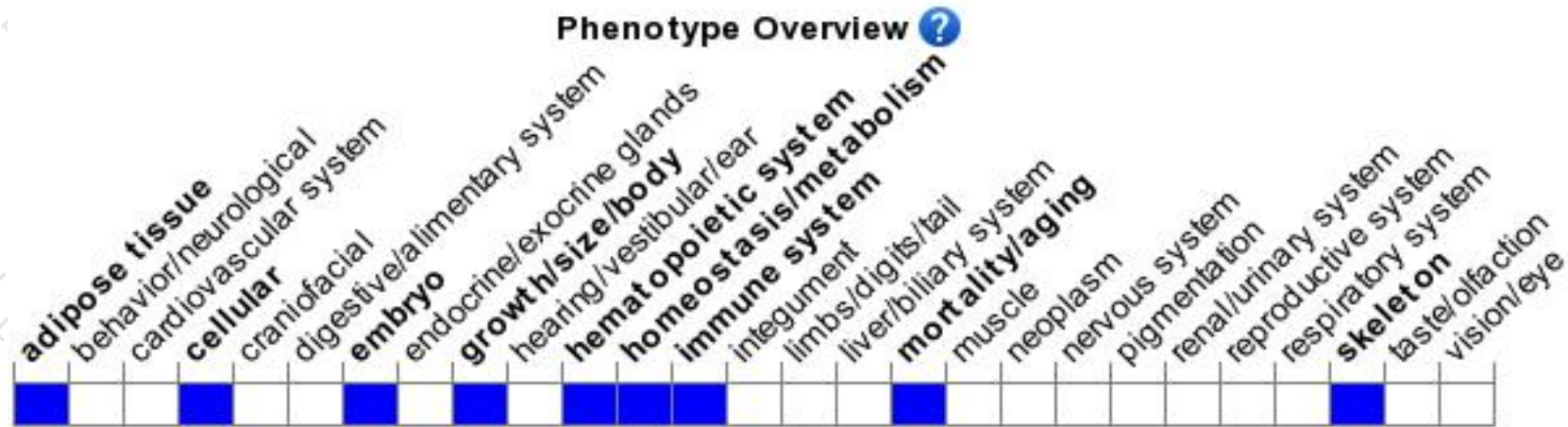
Protein domain

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,Animals homozygous for this allele were dead by E7.5

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

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