Smyd3 Cas9-KO Strategy

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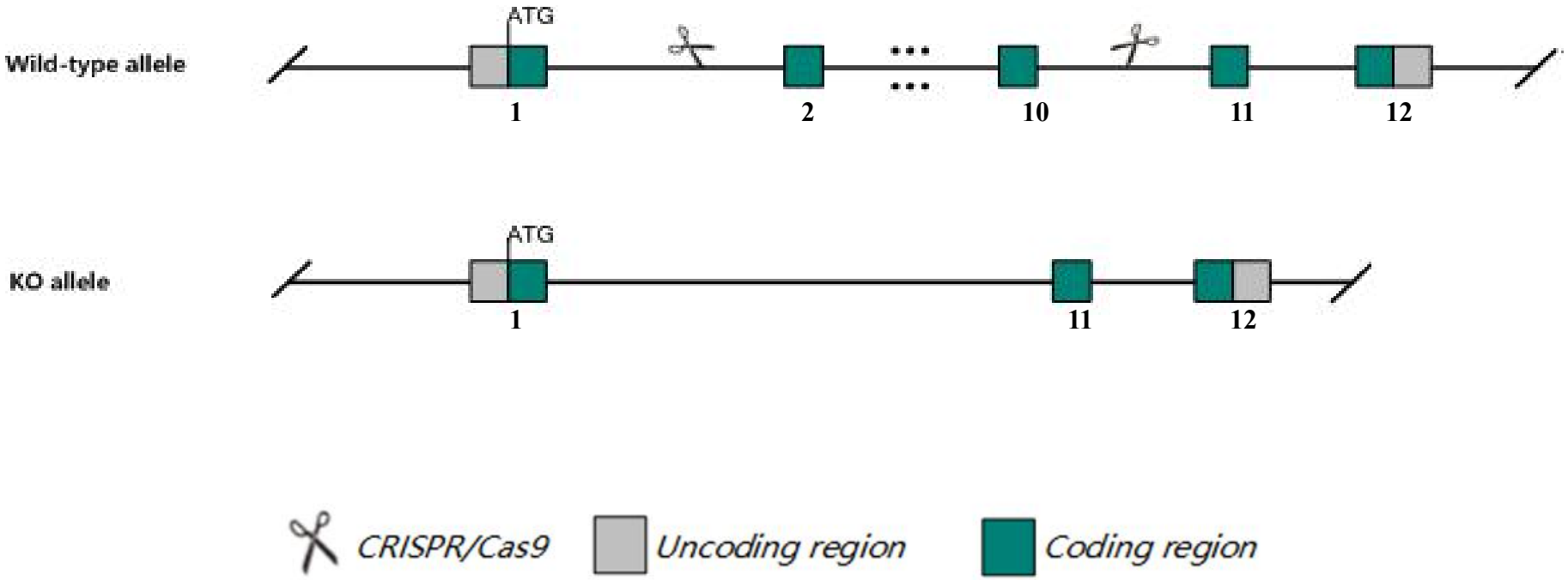
Project Overview

Project Name	***Smyd3***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Smyd3* gene. The schematic diagram is as follows:



Technical routes

The *Smyd3* gene has 7 transcripts. According to the structure of *Smyd3* gene, exon2-exon10 of *Smyd3-204* (ENSMUST00000128302.7) transcript is recommended as the knockout region.The region contains most of the coding sequence.Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Smyd3* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

According to the existing MGI data,No abnormal phenotype was observed in a high-throughput screen, nor in a pathology assessment.

The *Smyd3* gene is located on the Chr1. 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

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Smyd3 SET and MYND domain containing 3 [Mus musculus (house mouse)]

Gene ID: 69726, updated on 31-Jan-2019

Summary

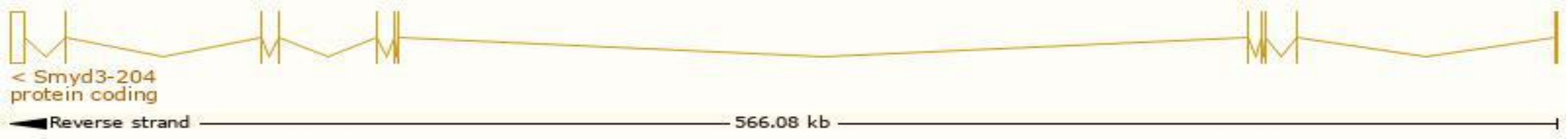
Official Symbol	Smyd3 provided by MGI
Official Full Name	SET and MYND domain containing 3 provided by MGI
Primary source	MGI:MGI:1916976
See related	Ensembl:ENSMUSG00000055067
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2410008A19Rik, Zmynd1
Expression	Ubiquitous expression in CNS E18 (RPKM 2.4), cerebellum adult (RPKM 2.2) and 28 other tissues See more
Orthologs	human all

Transcript information Ensembl

The gene has 7 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Smyd3-204	ENSMUST00000128302.7	6871	428aa	Protein coding	CCDS15560	Q9CWR2	TSL:1 GENCODE basic APPRIS P1
Smyd3-202	ENSMUST00000111134.1	1229	182aa	Protein coding	-	D3YZ17	TSL:2 GENCODE basic
Smyd3-207	ENSMUST00000194237.1	1047	72aa	Protein coding	-	A0A0A6YWP2	TSL:2 GENCODE basic
Smyd3-201	ENSMUST00000068437.12	3360	No protein	Processed transcript	-	-	TSL:1
Smyd3-206	ENSMUST00000131684.7	3210	No protein	Processed transcript	-	-	TSL:1
Smyd3-205	ENSMUST00000129393.1	693	No protein	Processed transcript	-	-	TSL:3
Smyd3-203	ENSMUST00000125756.1	402	No protein	Processed transcript	-	-	TSL:3

The strategy is based on the design of *Smyd3-204* transcript,The transcription is shown below



Genomic location distribution

Protein domain

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