Brd9 Cas9-KO Strategy

Designer: Jinling Wang

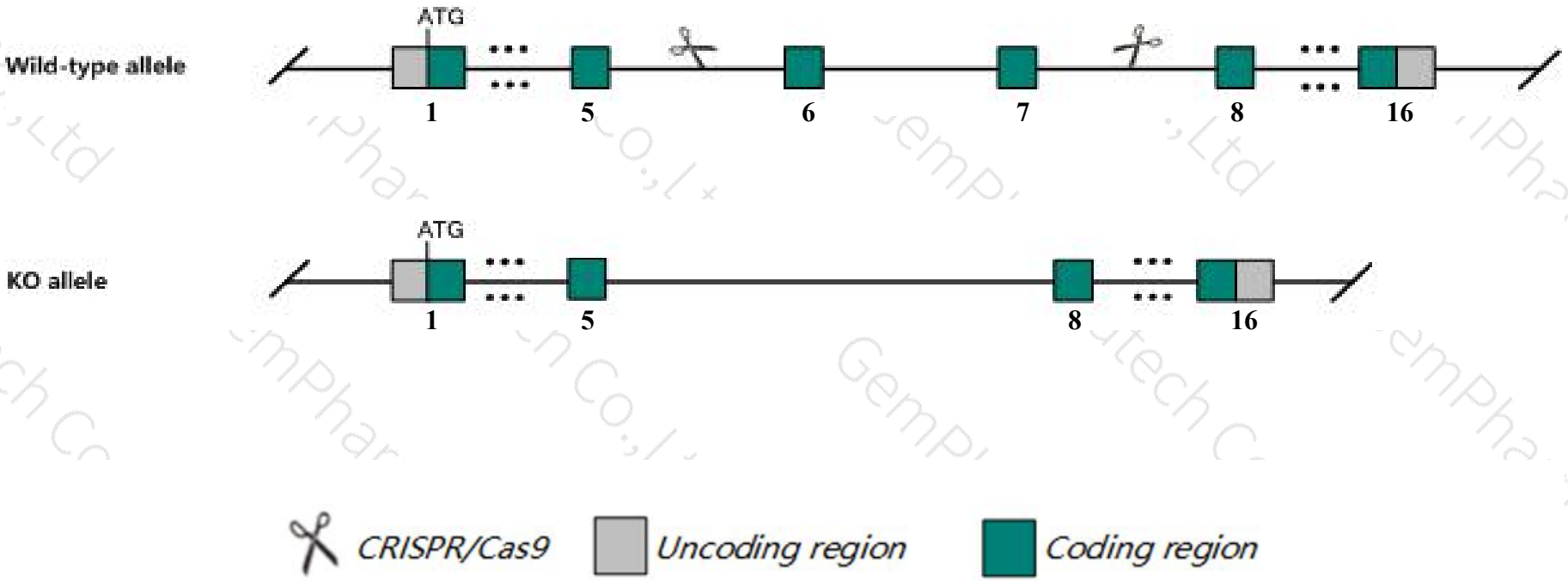
Design Date: 2019-9-30

Project Overview

Project Name	***Brd9***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Brd9* gene. The schematic diagram is as follows:



Technical routes

➢ The *Brd9* gene has 12 transcripts. According to the structure of *Brd9* gene, exon6-exon7 of *Brd9-201* (ENSMUST00000099384.3) transcript is recommended as the knockout region.The region contains 227bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Brd9* gene. The brief process is as follows: CRISPR/Cas9 system v

Notice

➢ The *Brd9* gene is located on the Chr13. 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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Brd9 bromodomain containing 9 [Mus musculus (house mouse)]

Gene ID: 105246, updated on 31-Jan-2019

Summary

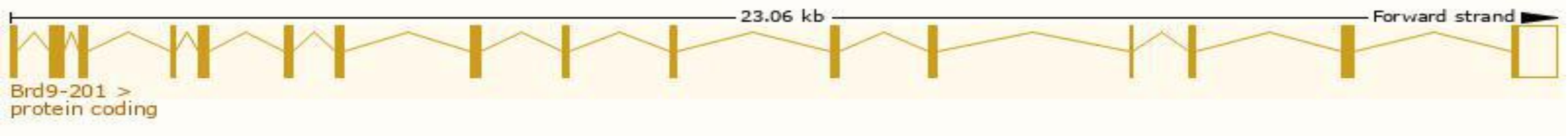
Official Symbol	Brd9 provided by MGI
Official Full Name	bromodomain containing 9 provided byMGI
Primary source	MGI:MGI:2145317
See related	Ensembl:ENSMUSG00000057649
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AL022779
Expression	Ubiquitous expression in CNS E14 (RPKM 20.2), CNS E18 (RPKM 19.3) and 28 other tissuesSee more
Orthologs	human all

Transcript information（Ensembl）

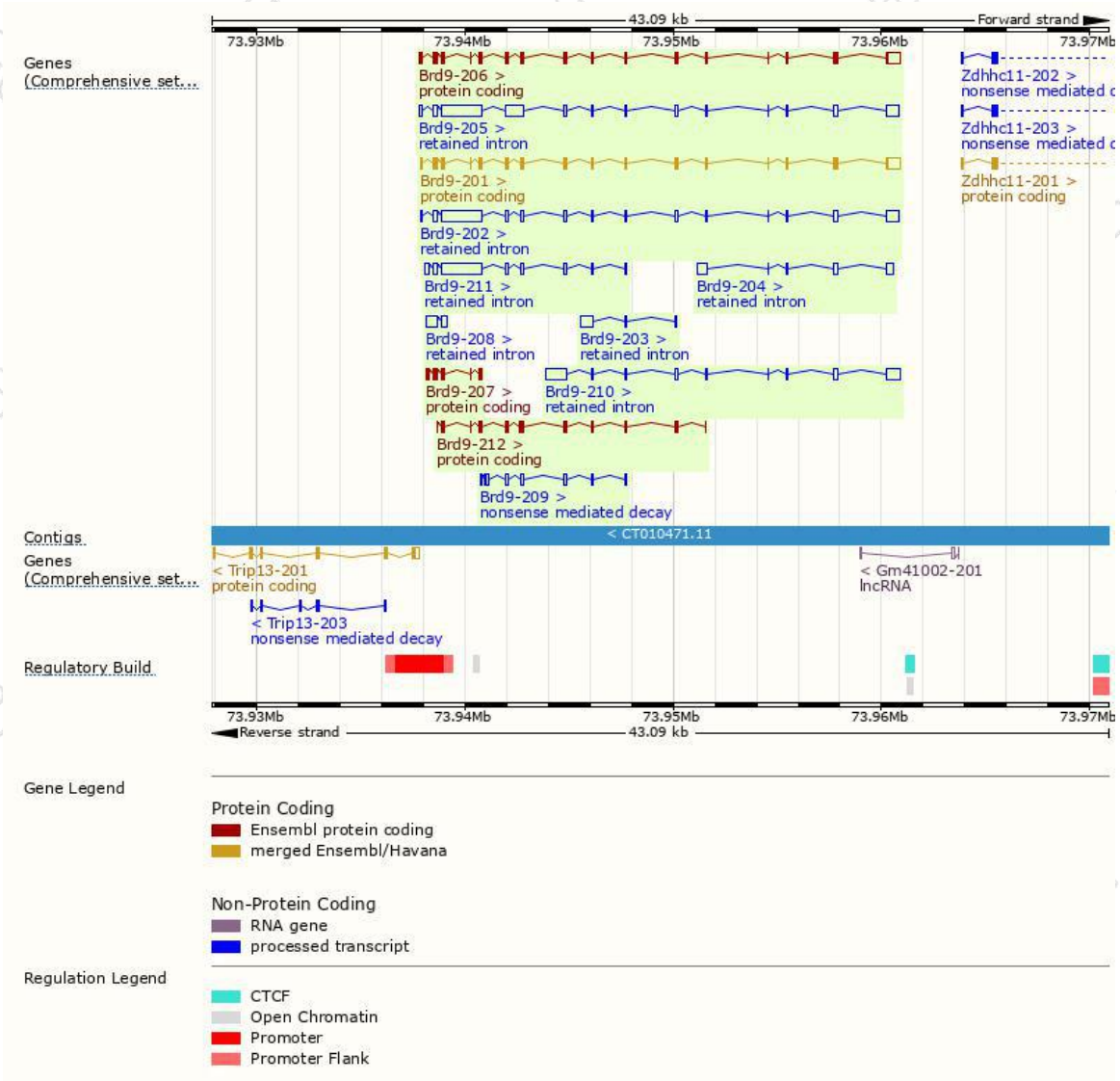
The gene has 12 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Brd9-201	ENSMUST00000099384.3	2407	597aa	Protein coding	CCDS36728	A0A0R4J175	TSL:1 GENCODE basic APPRIS P2
Brd9-206	ENSMUST00000222399.1	2430	596aa	Protein coding	-	Q3UQU0	TSL:1 GENCODE basic APPRIS ALT2
Brd9-212	ENSMUST00000223525.1	1111	370aa	Protein coding	-	A0A1Y7VJ63	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:5 APPRIS ALT2
Brd9-207	ENSMUST00000222749.1	635	210aa	Protein coding	-	A0A1Y7VN62	CDS 3' incomplete TSL:3
Brd9-209	ENSMUST00000223238.1	845	52aa	Nonsense mediated decay	-	A0A1Y7VNT5	CDS 5' incomplete TSL:3
Brd9-205	ENSMUST00000222191.1	4569	No protein	Retained intron	-	-	TSL:2
Brd9-202	ENSMUST00000220488.1	3893	No protein	Retained intron	-	-	TSL:2
Brd9-211	ENSMUST00000223455.1	2799	No protein	Retained intron	-	-	TSL:2
Brd9-210	ENSMUST00000223446.1	2342	No protein	Retained intron	-	-	TSL:2
Brd9-204	ENSMUST00000221324.1	1103	No protein	Retained intron	-	-	TSL:2
Brd9-208	ENSMUST00000223063.1	826	No protein	Retained intron	-	-	TSL:2
Brd9-203	ENSMUST00000220968.1	756	No protein	Retained intron	-	-	TSL:3

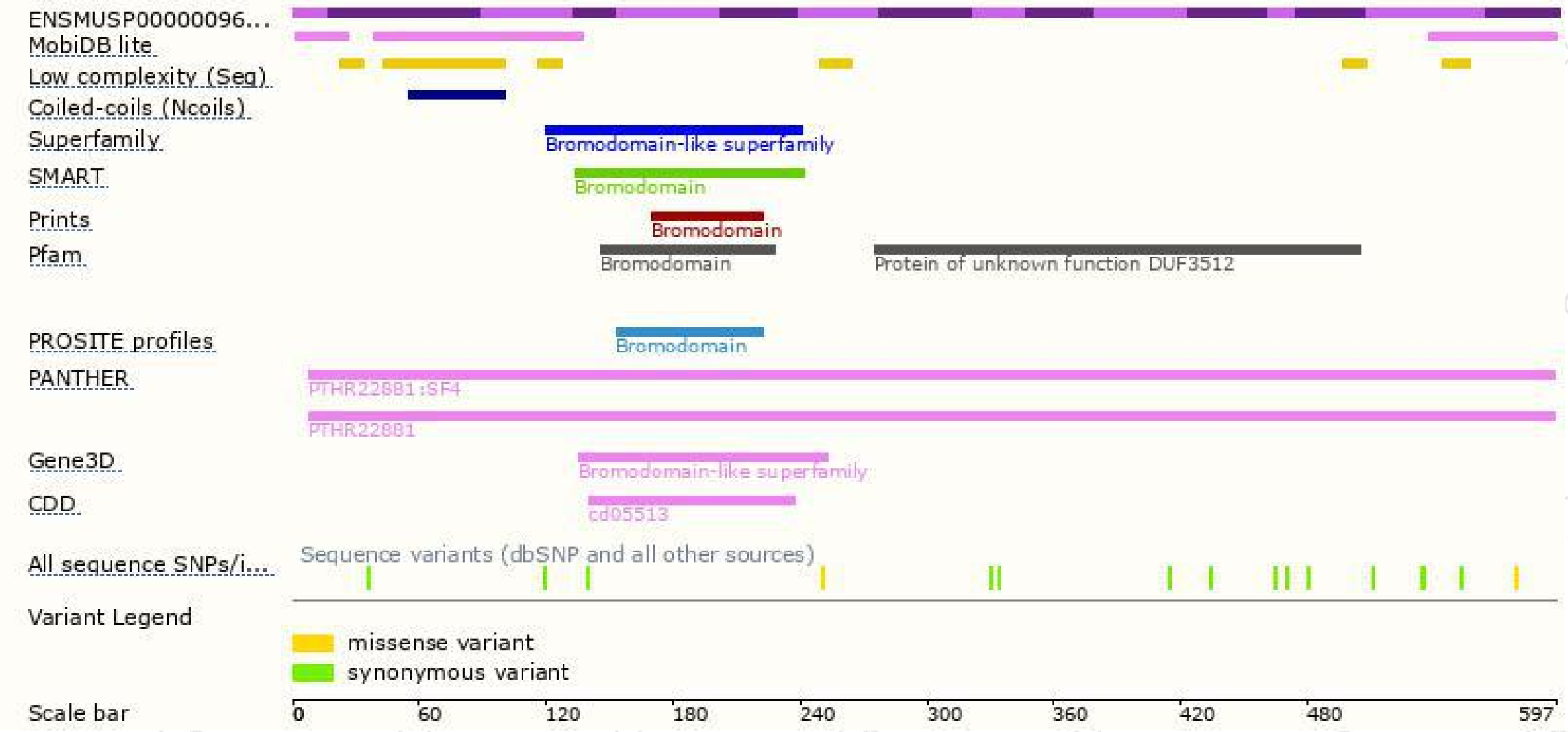
The strategy is based on the design of *Brd9-201* transcript,The transcription is shown below



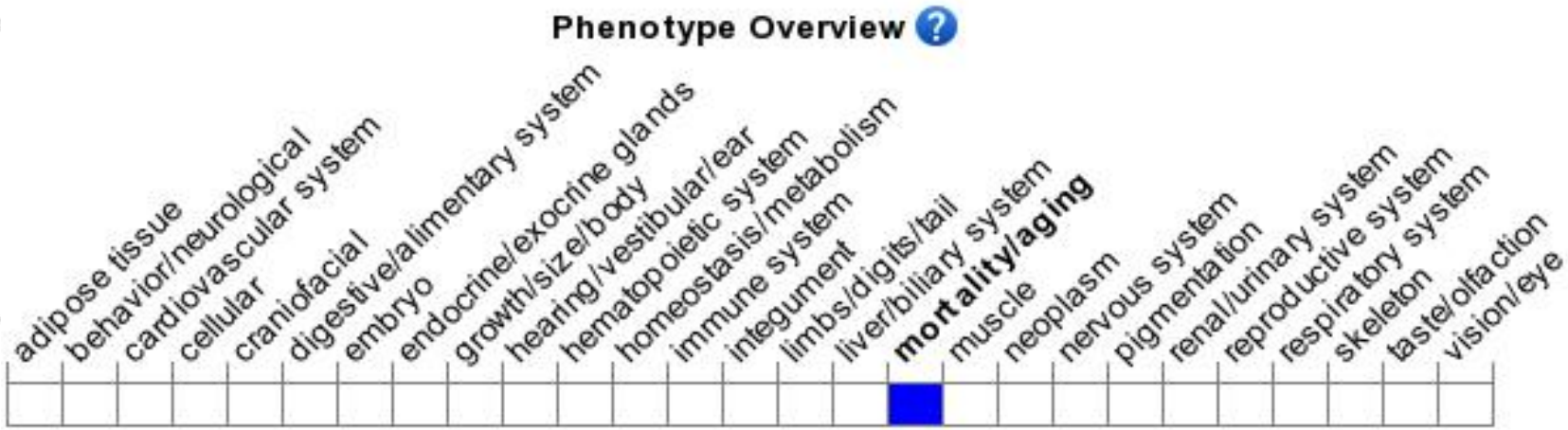
Genomic location distribution



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/).

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

Tel: 400-9660890

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