Katnb1 Cas9-KO Strategy

Designer: Huan Fan

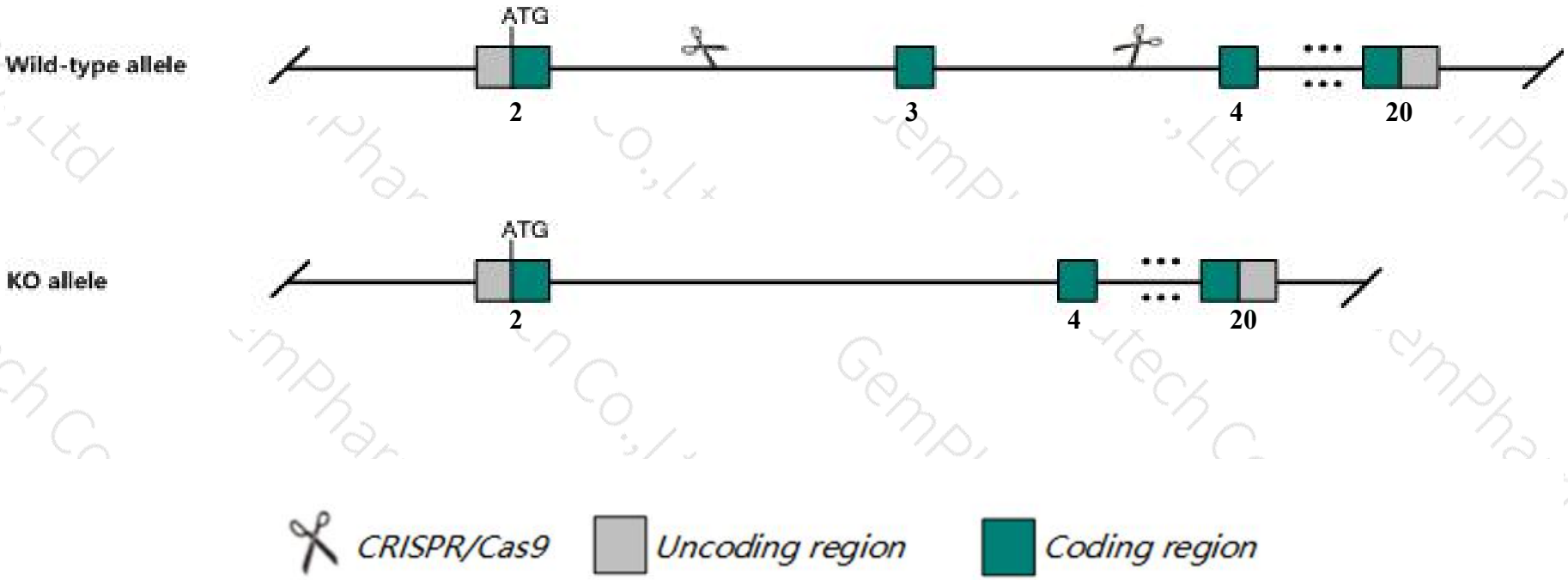
Design Date: 2019-7-25

Project Overview

Project Name	***Katnb1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Katnb1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Katnb1* gene has 5 transcripts. According to the structure of *Katnb1* gene, exon3 of *Katnb1-201* (ENSMUST00000034239.8) transcript is recommended as the knockout region.The region contains 131bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Katnb1* gene. The brief process is as follows: CRISPR/Cas9 syster

Notice

- According to the existing MGI data,Nullizygous mice exhibit embryonic lethality, small embryo, brain and limb bud size, variable eye defects, holoprosencephaly, and thin cerebral cortex with fewer cortical progenitors and post-mitotic neurons. Mutant MEFs form multiple centrioles, multipolar spindles, and supernumerary primary cilia.

- The *Katnb1* gene is located on the Chr8. 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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Katnb1 katanin p80 (WD40-containing) subunit B 1 [Mus musculus (house mouse)]

Gene ID: 74187, updated on 31-Jan-2019

Summary

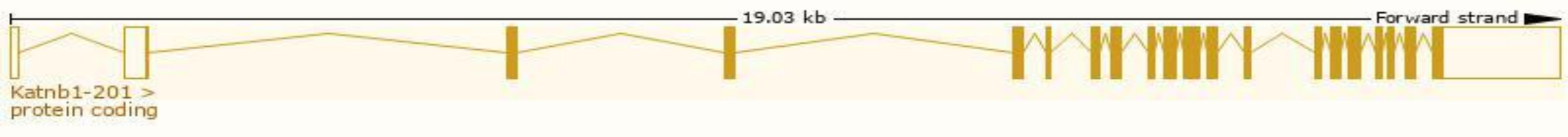
Official Symbol	Katnb1 provided by MGI
Official Full Name	katanin p80 (WD40-containing) subunit B 1 provided by MGI
Primary source	MGI:MGI:1921437
See related	Ensembl:ENSMUSG00000031787
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	2410003J24Rik, KAT
Expression	Broad expression in testis adult (RPKM 79.1), whole brain E14.5 (RPKM 14.9) and 25 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

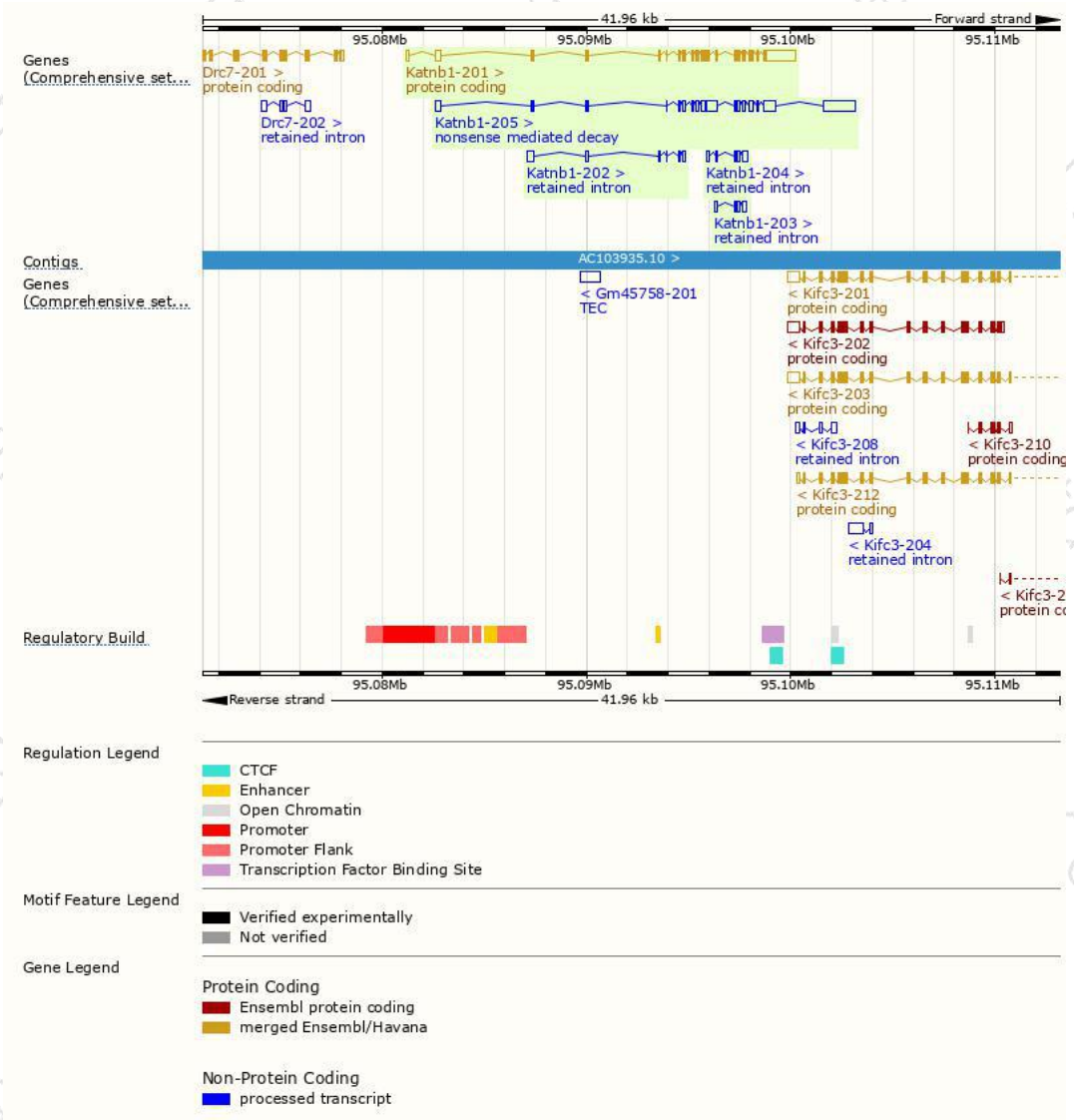
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Katnb1-201	ENSMUST00000034239.8	3777	658aa	Protein coding	CCDS22555	Q8BG40	TSL:1 GENCODE basic APPRIS P1
Katnb1-205	ENSMUST00000212968.1	4551	109aa	Nonsense mediated decay	-	A0A1D5RMH5	TSL:5
Katnb1-202	ENSMUST00000212528.1	799	No protein	Retained intron	-	-	TSL:3
Katnb1-204	ENSMUST00000212895.1	672	No protein	Retained intron	-	-	TSL:2
Katnb1-203	ENSMUST00000212565.1	600	No protein	Retained intron	-	-	TSL:3

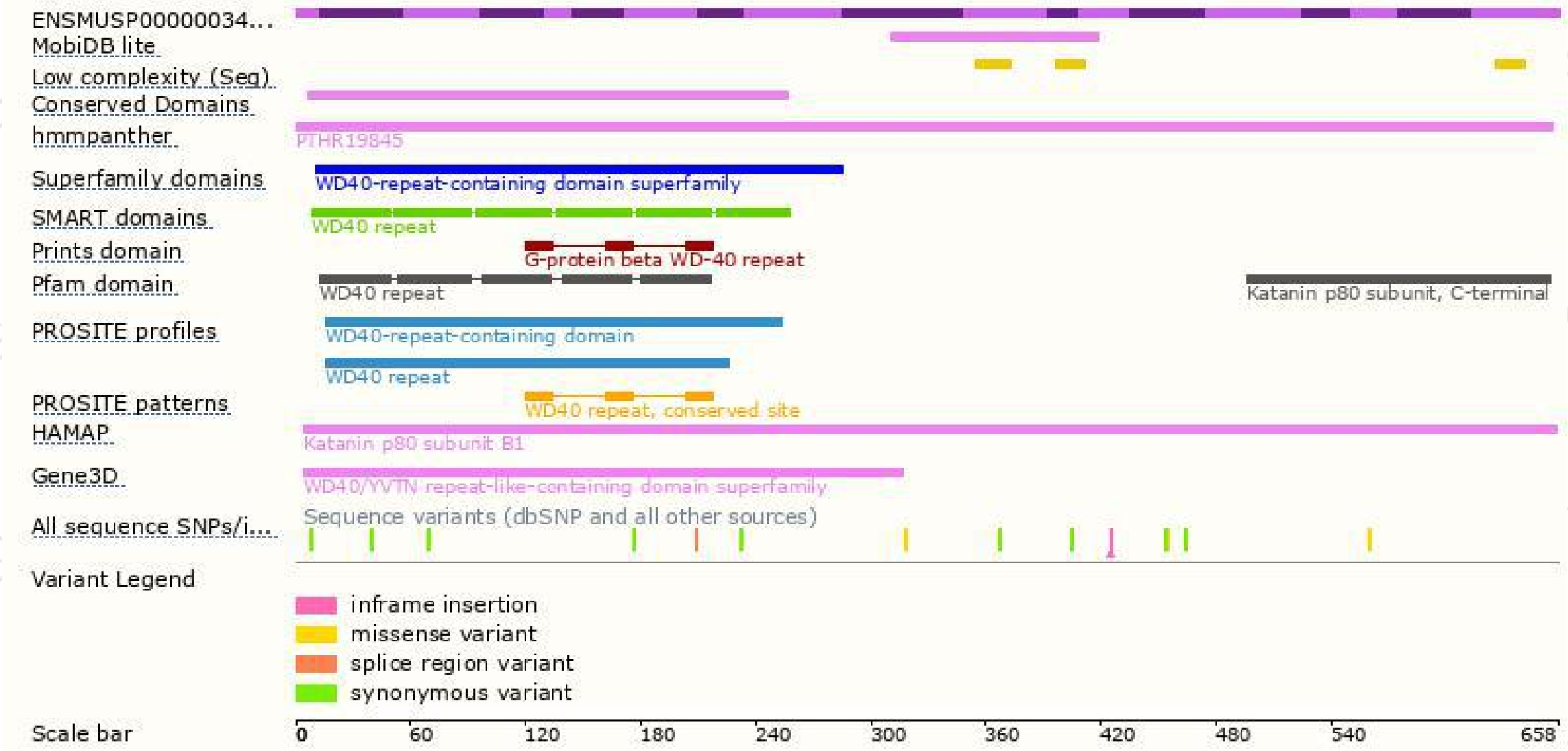
The strategy is based on the design of *Katnb1-201* transcript,The transcription is shown below



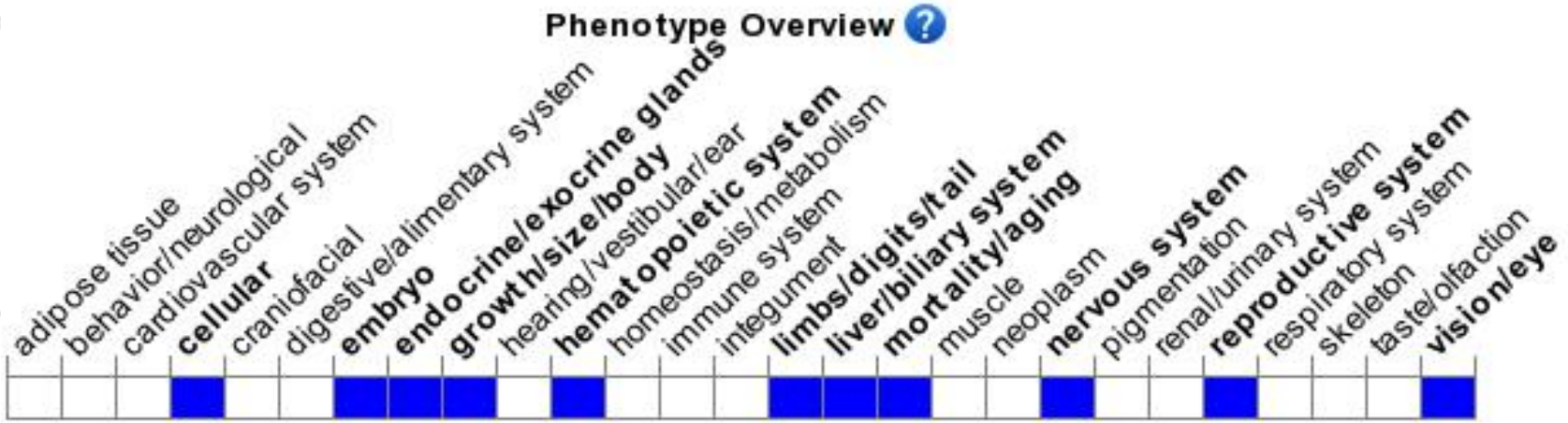
Genomic location distribution



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.

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