

Wnt7b Cas9-KO Strategy

Designer:

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Project Overview

Project Name

Wnt7b

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Wnt7b* gene. The schematic diagram is as follows:



- The *Wnt7b* gene has 6 transcripts. According to the structure of *Wnt7b* gene, exon2 of *Wnt7b-203* (ENSMUST00000167968.8) transcript is recommended as the knockout region. The region contains start codon ATG. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Wnt7b* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous null embryos die at midgestational stages due to placental abnormalities involving the fusion of the chorion and allantois. Mice homozygous for a truncated allele display neonatal lethality, respiratory failure, and lung hemorrhage.
- The *Wnt7b* gene is located on the Chr15. 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)

Wnt7b wingless-type MMTV integration site family, member 7B [Mus musculus (house mouse)]

Gene ID: 22422, updated on 10-Feb-2019

Summary



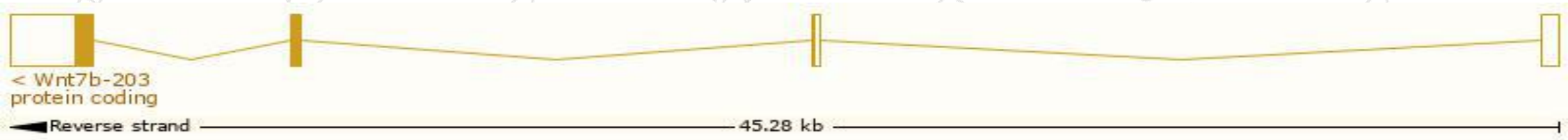
Official Symbol	Wnt7b provided by MGI
Official Full Name	wingless-type MMTV integration site family, member 7B provided by MGI
Primary source	MGI:MGI:98962
See related	Ensembl:ENSMUSG00000022382
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Wnt-7b
Expression	Broad expression in whole brain E14.5 (RPKM 14.2), CNS E14 (RPKM 11.4) and 16 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

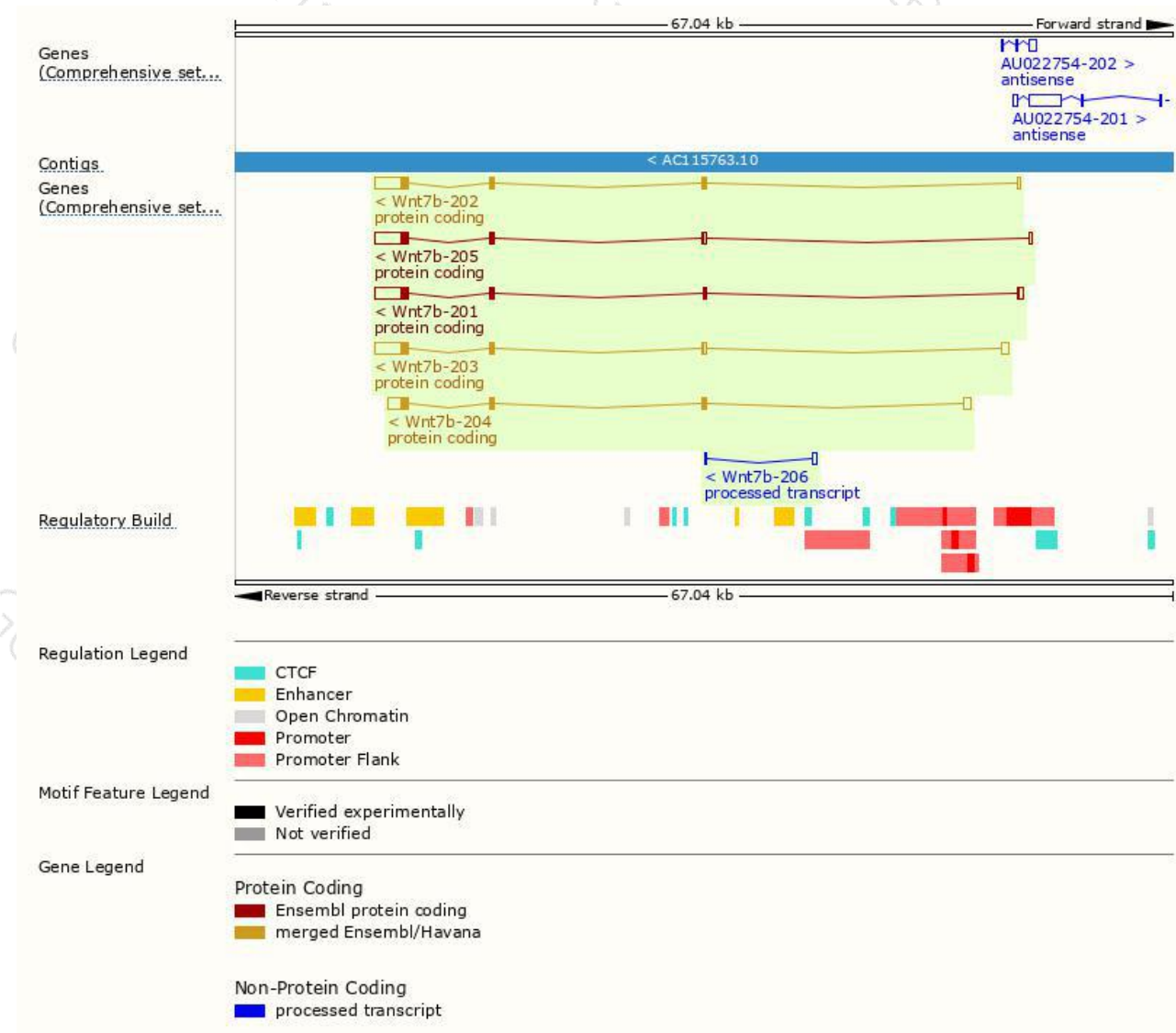
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Wnt7b-203	ENSMUST00000167968.8	3400	282aa	Protein coding	CCDS49691	E9Q5E3	TSL:1 GENCODE basic
Wnt7b-202	ENSMUST00000109424.3	3134	349aa	Protein coding	CCDS37171	P28047 Q6NZR1	TSL:1 GENCODE basic APPRIS P3
Wnt7b-205	ENSMUST00000229495.1	3125	282aa	Protein coding	CCDS49691	E9Q5E3	GENCODE basic
Wnt7b-204	ENSMUST00000229191.1	2521	353aa	Protein coding	CCDS49692	Q6NZR1	GENCODE basic APPRIS ALT 1
Wnt7b-201	ENSMUST00000023015.14	3365	356aa	Protein coding	-	A0A2U3TZ52	TSL:1 GENCODE basic
Wnt7b-206	ENSMUST00000230299.1	404	No protein	Processed transcript	-	-	

The strategy is based on the design of *Wnt7b-203* transcript,The transcription is shown below



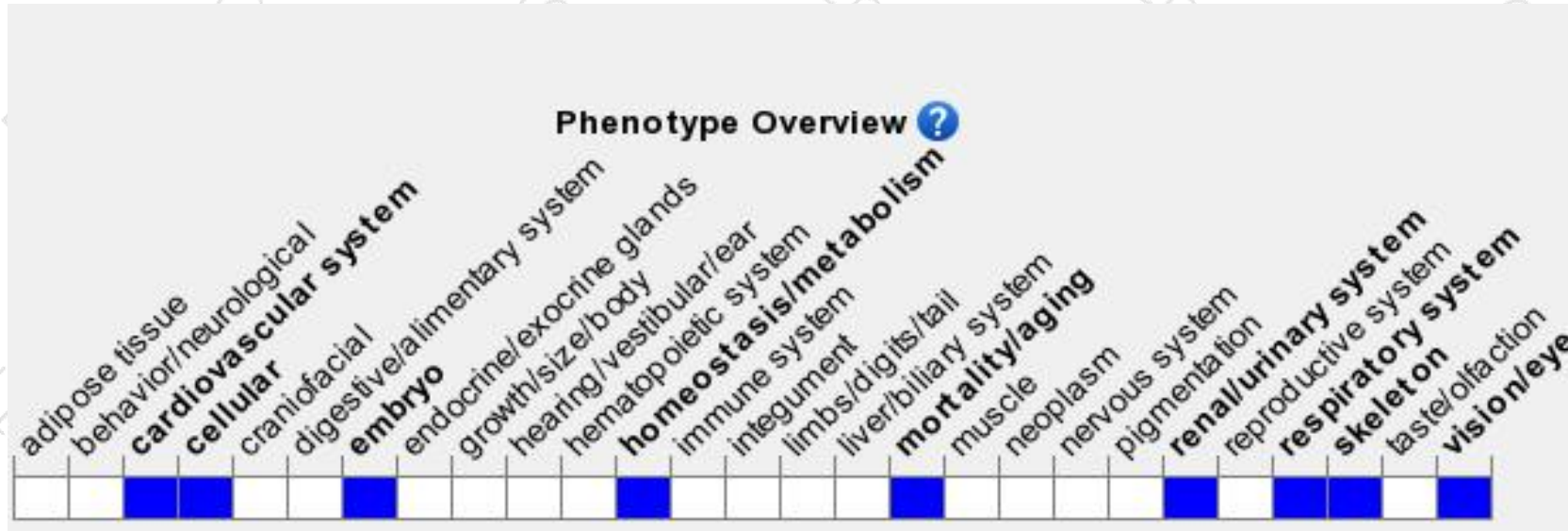
Genomic location distribution



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/>).

According to the existing MGI data, Homozygous null embryos die at midgestational stages due to placental abnormalities involving the fusion of the chorion and allantois. Mice homozygous for a truncated allele display neonatal lethal respiratory failure, and lung hemorrhage.

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

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