Grb7 Cas9-KO Strategy

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Project Overview

Project Name	***Grb7***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

This model will use CRISPR/Cas9 technology to edit the *Grb7* gene. The schematic diagram is as follows:

The *Grb7* gene has 6 transcripts. According to the structure of *Grb7* gene, exon2-exon15 of *Grb7-201* (ENSMUST00000019456.4) transcript is recommended as the knockout region.The region contains all 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 *Grb7* gene. The brief process is as follows: CRISPR/Cas9 system

Notice

The *Grb7* gene is located on the Chr11. 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

Grb7   growth factor receptor bound protein 7 [*Mus musculus* (house mouse)]

Gene ID: 14786, updated on 12-Aug-2019

▲ Summary

Official Symbol	Grb7 provided by MGI
Official Full Name	growth factor receptor bound protein 7 provided by MGI
Primary source	MGI:MGI:102683
See related	Ensembl:ENSMUSG00000019312
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	mKIAA4028
Expression	Broad expression in kidney adult (RPKM 50.8), liver adult (RPKM 48.1) and 17 other tissues See more
Orthologs	human all

▲ Genomic context

Location:	11 D; 11 61.75 cM
Exon count:	17

See Grb7 in Genome Data Viewer

Transcript information　Ensembl

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

| Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Grb7-201	ENSMUST00000019456.4	2397	535aa	Protein coding	CCDS25351	Q03160	TSL:1 GENCODE basic APPRIS P1
Grb7-204	ENSMUST00000132771.7	582	138aa	Protein coding	-	A2A555	CDS 3' incomplete TSL:3
Grb7-202	ENSMUST00000127914.7	2386	No protein	Retained intron	-	-	TSL:2
Grb7-206	ENSMUST00000156328.7	2288	No protein	Retained intron	-	-	TSL:2
Grb7-203	ENSMUST00000129034.1	991	No protein	Retained intron	-	-	TSL:3
Grb7-205	ENSMUST00000133419.1	667	No protein	Retained intron	-	-	TSL:3

The strategy is based on the design of *Grb7-201* transcript,The transcription is shown below
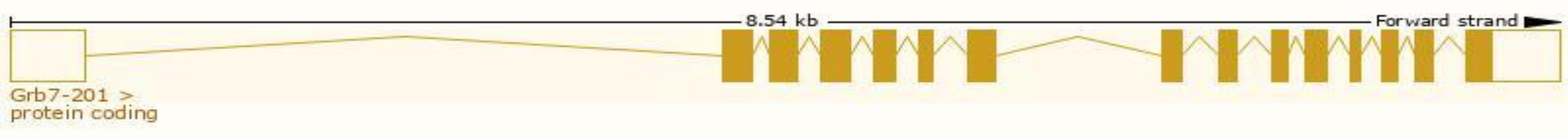
Genomic location distribution
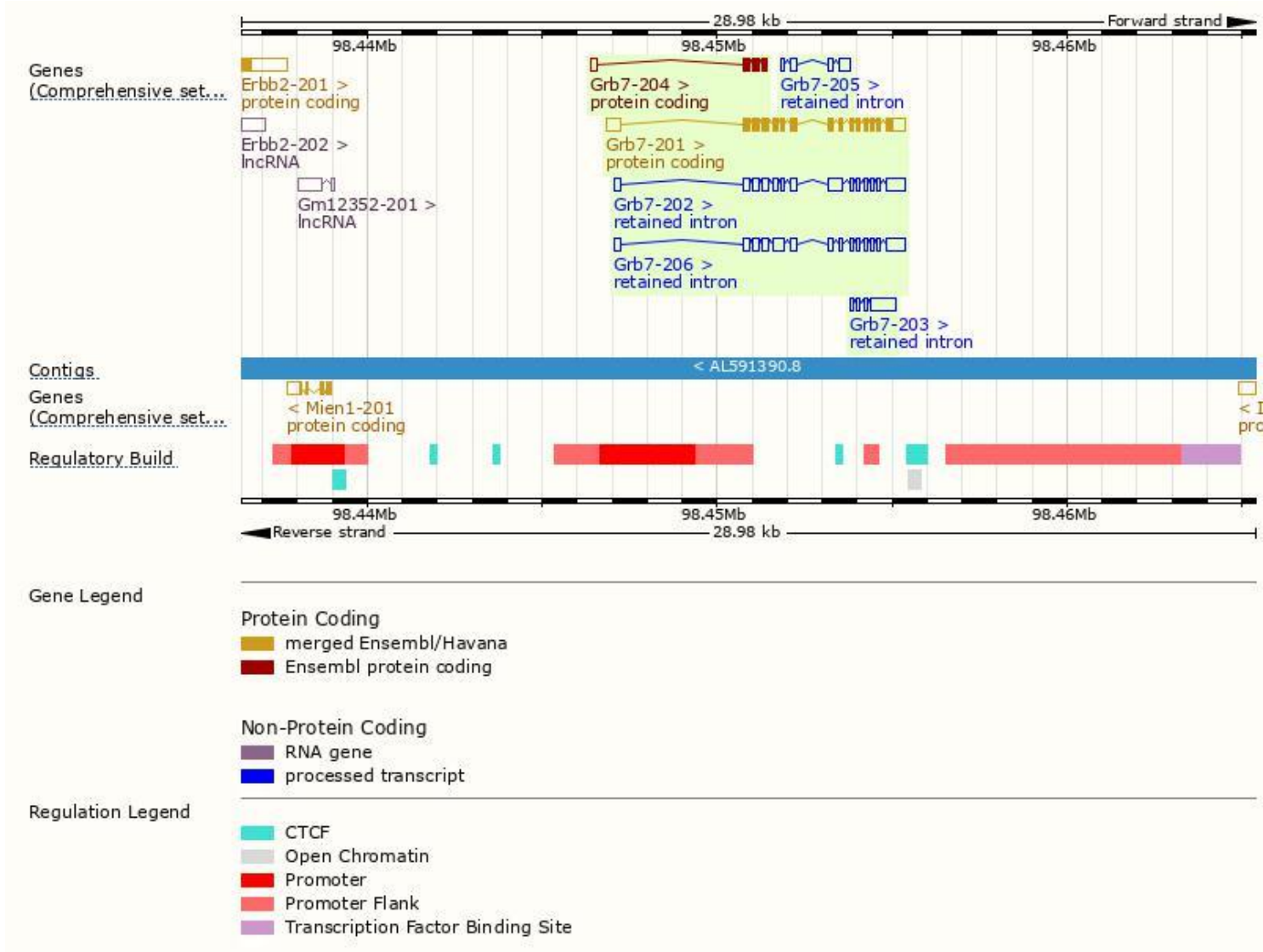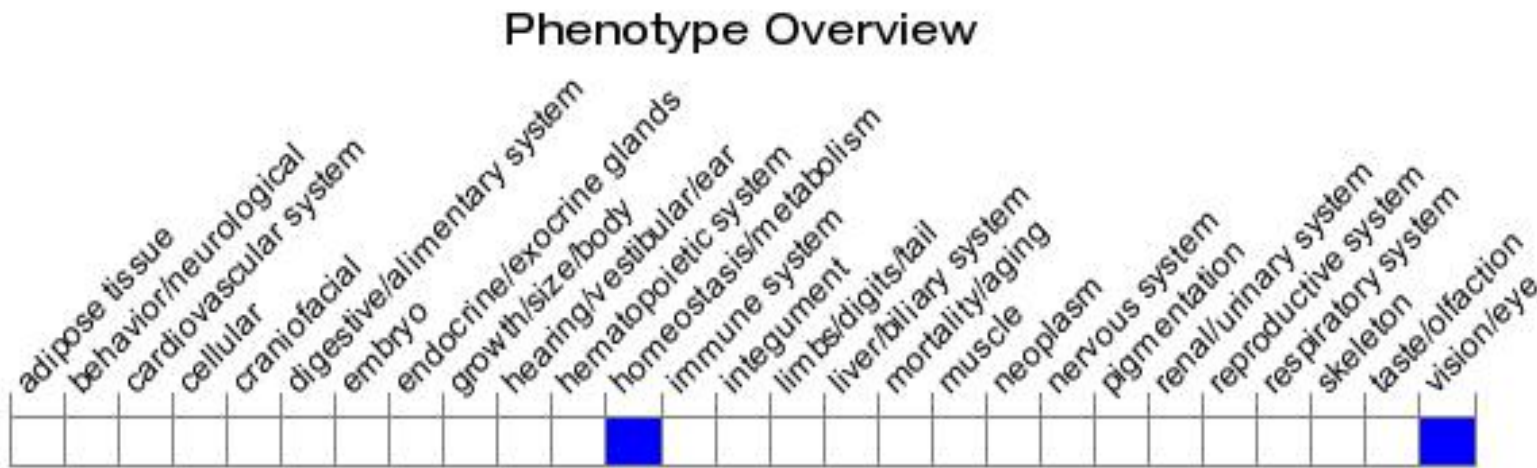
Protein domain

Mouse phenotype description(MGI)

Phenotypes affected by the gene are marked in blue.Data quoted from MGI database(http://www.informatics.jax.org/).

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