

G3bp1 Cas9-KO Strategy

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Project Overview

Project Name

G3bp1

Project type

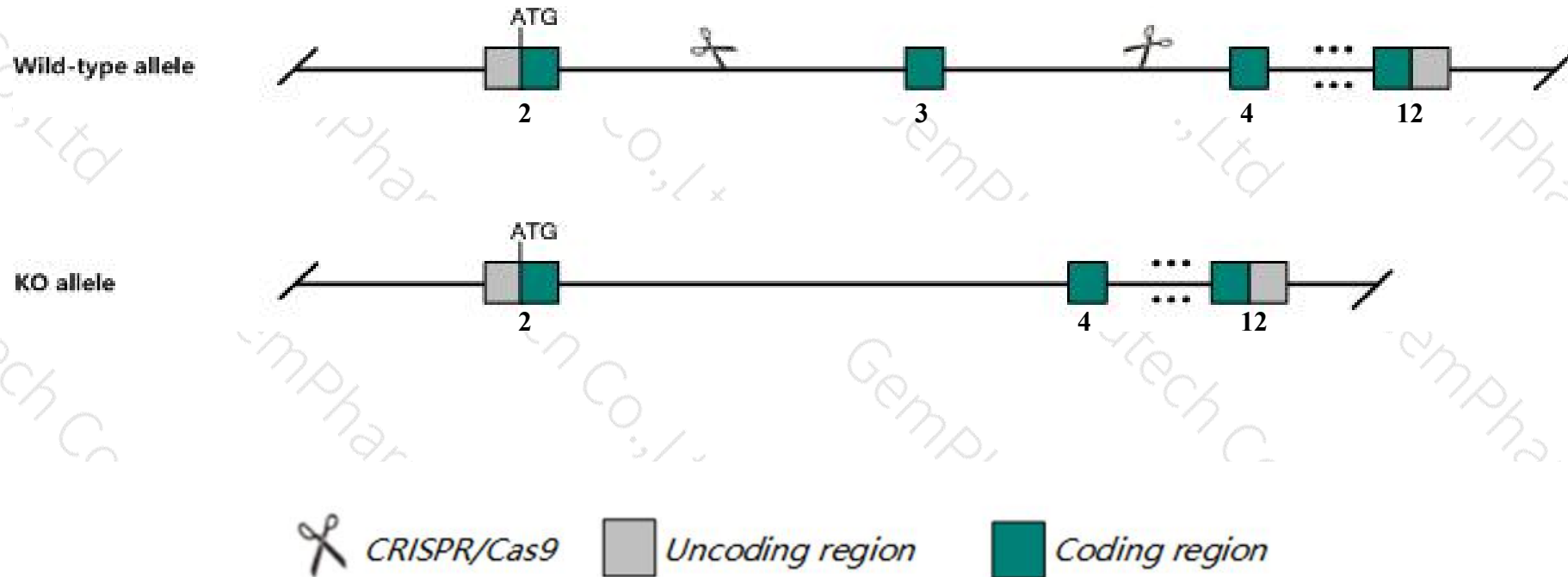
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *G3bp1* gene. The schematic diagram is as follows:



- The *G3bp1* gene has 2 transcripts. According to the structure of *G3bp1* gene, exon3 of *G3bp1-201* (ENSMUST00000018727.3) transcript is recommended as the knockout region. The region contains 82bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *G3bp1* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous null mice display perinatal lethality with severe cell death in the nervous system and decreased cell proliferation. Neonates from heterozygous null female mice display increased mortality.
- The *G3bp1* 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)

G3bp1 GTPase activating protein (SH3 domain) binding protein 1 [Mus musculus (house mouse)]

Gene ID: 27041, updated on 31-Jan-2019

Summary



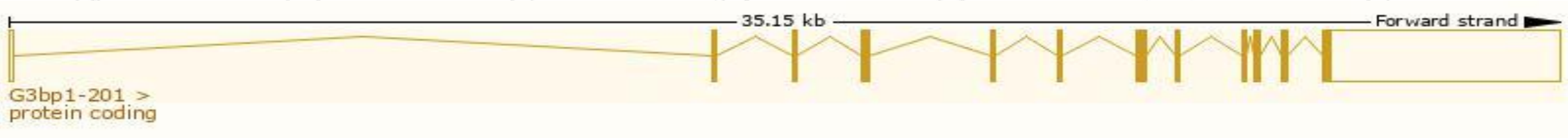
Official Symbol	G3bp1 provided by MGI
Official Full Name	GTPase activating protein (SH3 domain) binding protein 1 provided by MGI
Primary source	MGI:MGI:1351465
See related	Ensembl:ENSMUSG00000018583
Gene type	protein coding
RefSeq status	PROVISIONAL
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI849976, B430204O07, C87777, G3bp, mKIAA4115
Expression	Ubiquitous expression in CNS E11.5 (RPKM 53.7), limb E14.5 (RPKM 33.9) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

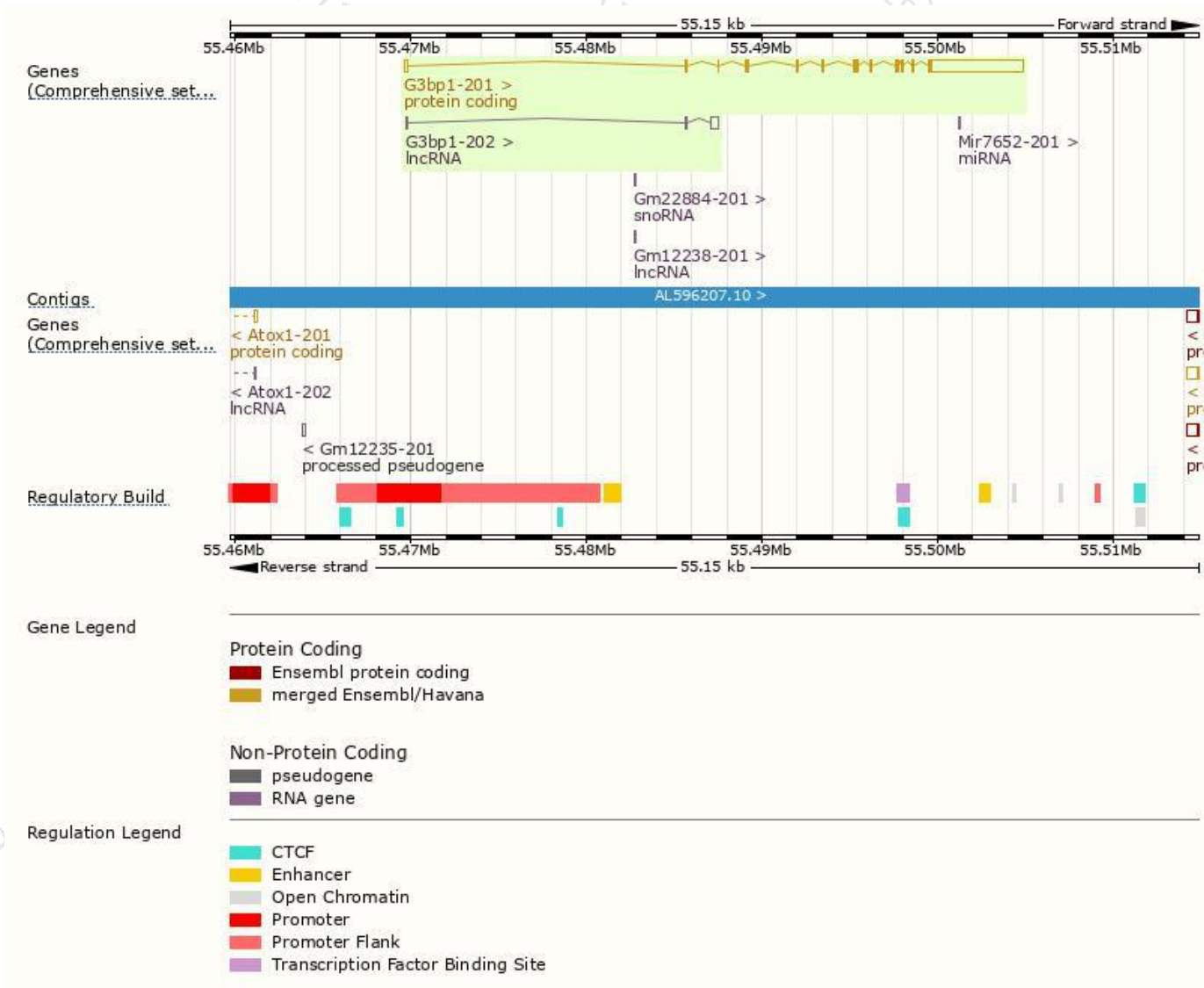
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
G3bp1-201	ENSMUST00000018727.3	6703	465aa	Protein coding	CCDS24714	P97855	TSL:1 GENCODE basic APPRIS P1
G3bp1-202	ENSMUST00000151790.1	592	No protein	lncRNA	-	-	TSL:3

The strategy is based on the design of *G3bp1-201* transcript,The transcription is shown below



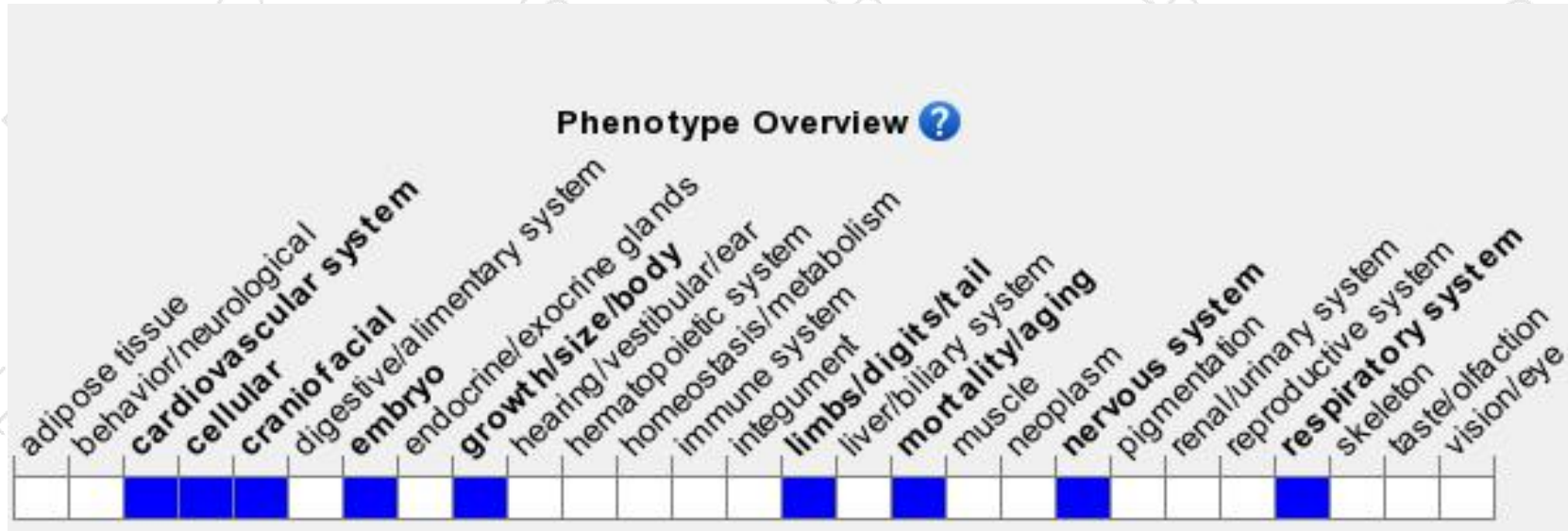
Genomic location distribution



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/>).

According to the existing MGI data, Homozygous null mice display perinatal lethality with severe cell death in the nervous system and decreased cell proliferation. Neonates from heterozygous null female mice display increased mortality.

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

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