

B3gat1 Cas9-CKO Strategy

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Project Overview

Project Name

B3gat1

Project type

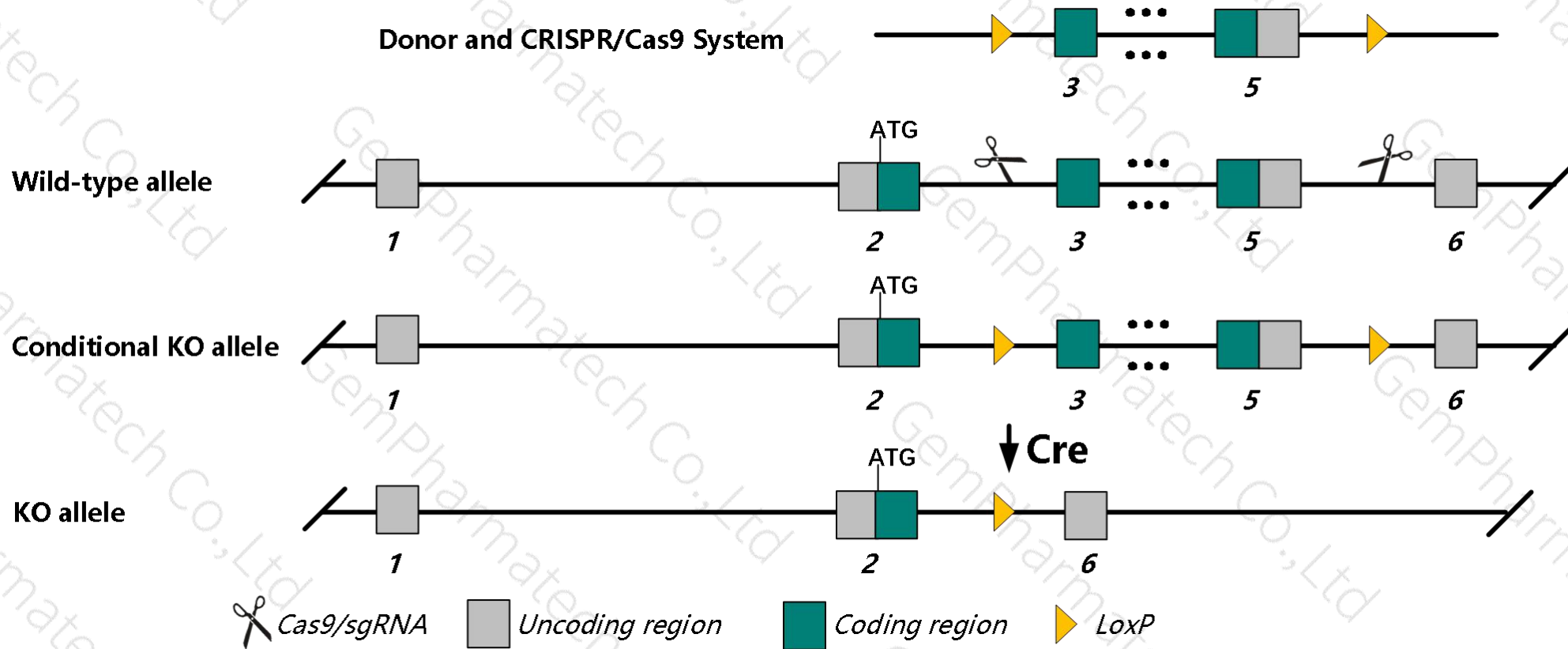
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *B3gat1* gene. The schematic diagram is as follows:



- The *B3gat1* gene has 6 transcripts. According to the structure of *B3gat1* gene, exon3-exon5 of *B3gat1*-206 (ENSMUST00000161431.2) transcript is recommended as the knockout region. The region contains most 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 *B3gat1* gene. The brief process is as follows: CRISPR/Cas9 system and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.
- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

- According to the existing MGI data, Mice homozygous for a null allele exhibit reduced long term potentiation and impaired spatial learning.
- The *B3gat1* gene is located on the Chr9. 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)



B3gat1 beta-1,3-glucuronyltransferase 1 (glucuronosyltransferase P) [*Mus musculus* (house mouse)]

Gene ID: 76898, updated on 12-Aug-2019

Summary

- Official Symbol

B3gat1 provided by MGI
- Official Full Name

beta-1,3-glucuronyltransferase 1 (glucuronosyltransferase P) provided by MGI
- Primary source

MGI:MGI:1924148
- See related

Ensembl:ENSMUSG00000045994
- 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

Hnk1; Glcatp; GlcAT-P; AI846286; 0710007K08Rik
- Expression

Biased expression in CNS E18 (RPKM 70.4), whole brain E14.5 (RPKM 54.3) and 5 other tissues [See more](#)
- Orthologs

[human](#) [all](#)

Genomic context

Location: 9; 9 A4

Exon count: 7

See B3gat1 in [Genome Data Viewer](#)

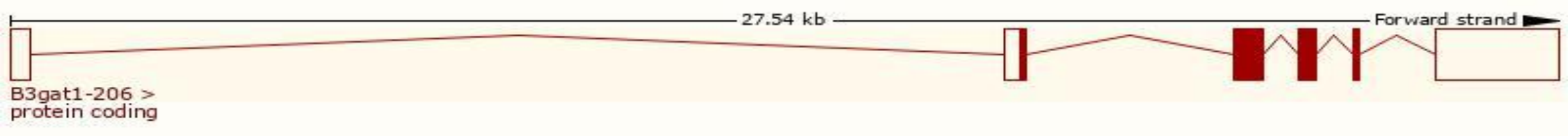
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	9	NC_000075.6 (26733723..26761350)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	9	NC_000075.5 (26559147..26568923)

Transcript information (Ensembl)

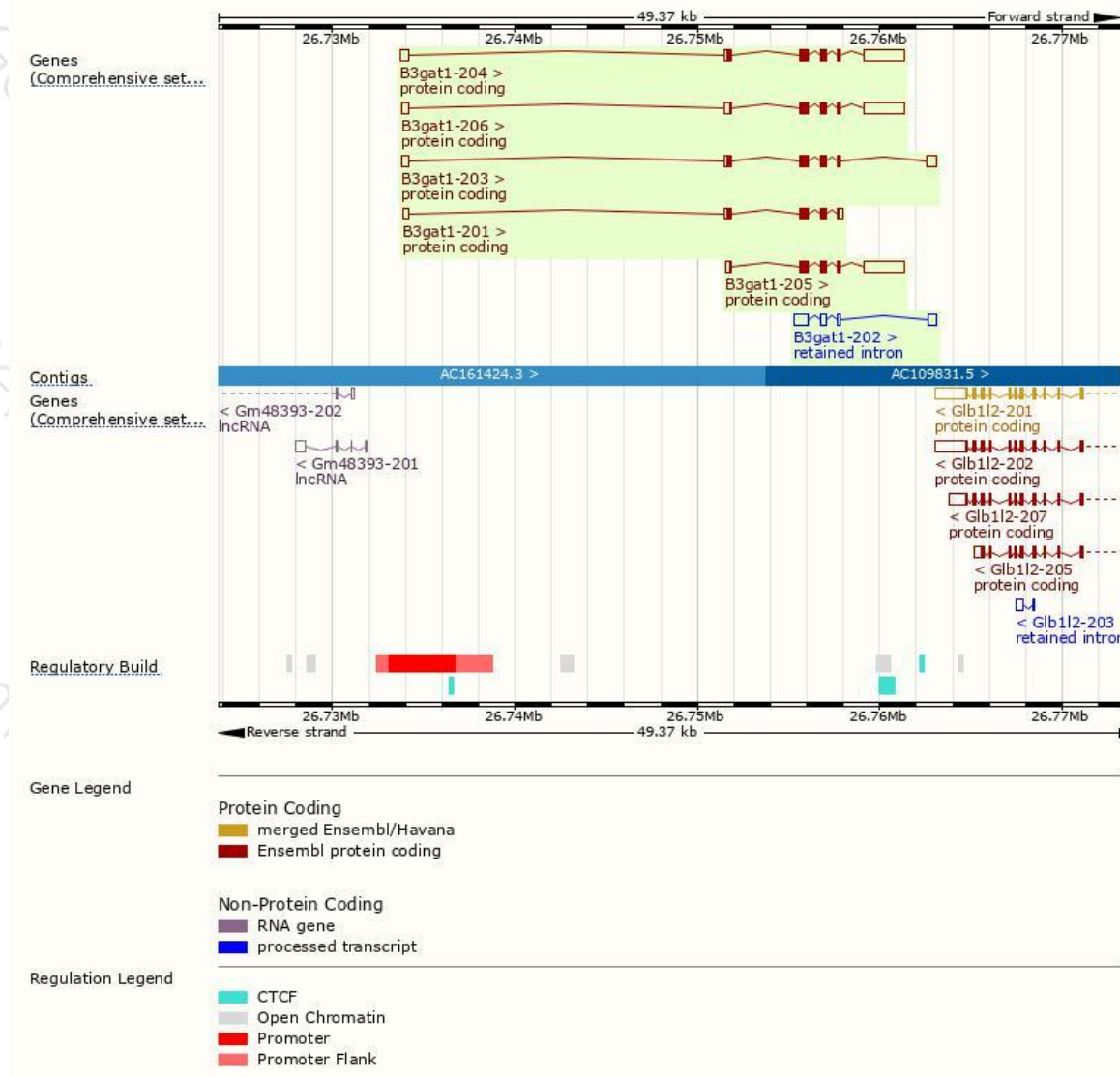
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
B3gat1-206	ENSMUST00000161431.2	3858	334aa	Protein coding	CCDS22936	A0A0R4J1Z6 Q9CW73	TSL:5 GENCODE basic APPRIS P3
B3gat1-204	ENSMUST00000160899.7	3801	347aa	Protein coding	CCDS80970	Q9CW73	TSL:1 GENCODE basic APPRIS ALT 1
B3gat1-205	ENSMUST00000161115.7	3426	334aa	Protein coding	CCDS22936	Q9CW73	TSL:1 GENCODE basic APPRIS P3
B3gat1-203	ENSMUST00000159799.7	2021	347aa	Protein coding	CCDS80970	Q9CW73	TSL:1 GENCODE basic APPRIS ALT 1
B3gat1-201	ENSMUST00000115269.8	1665	347aa	Protein coding	CCDS80970	Q9CW73	TSL:1 GENCODE basic APPRIS ALT 1
B3gat1-202	ENSMUST00000159527.1	1661	No protein	Retained intron	-	-	TSL:1

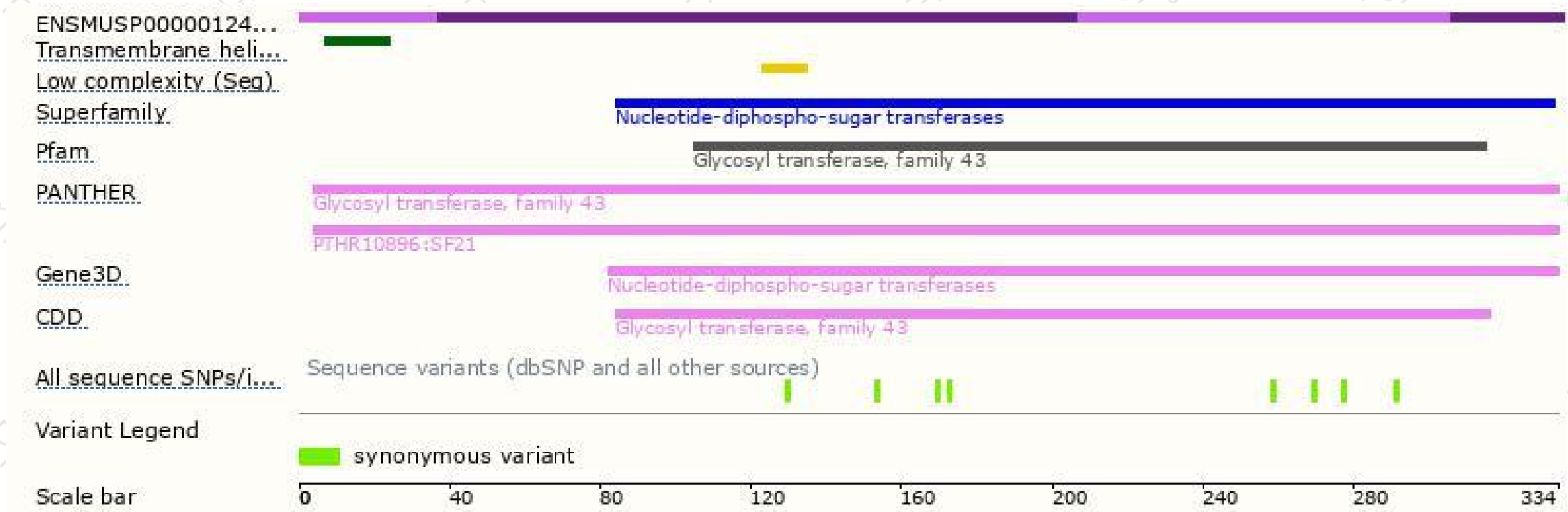
The strategy is based on the design of *B3gat1-206* transcript,The transcription is shown below



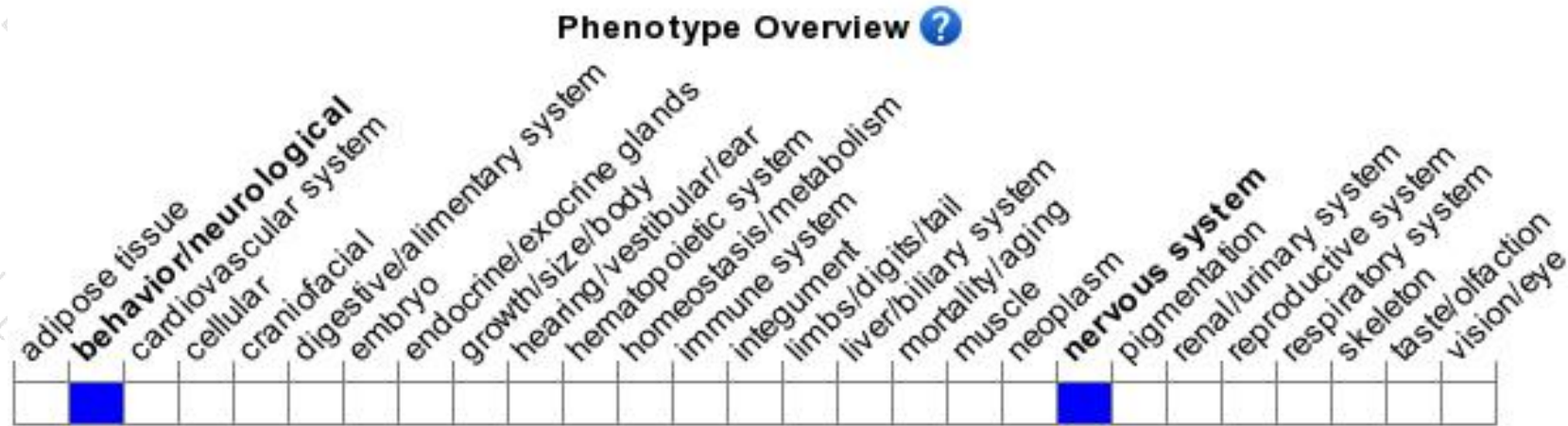
Genomic location distribution



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, Mice homozygous for a null allele exhibit reduced long term potentiation and impaired spatial learning.

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

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