Bcan Cas9-KO Strategy

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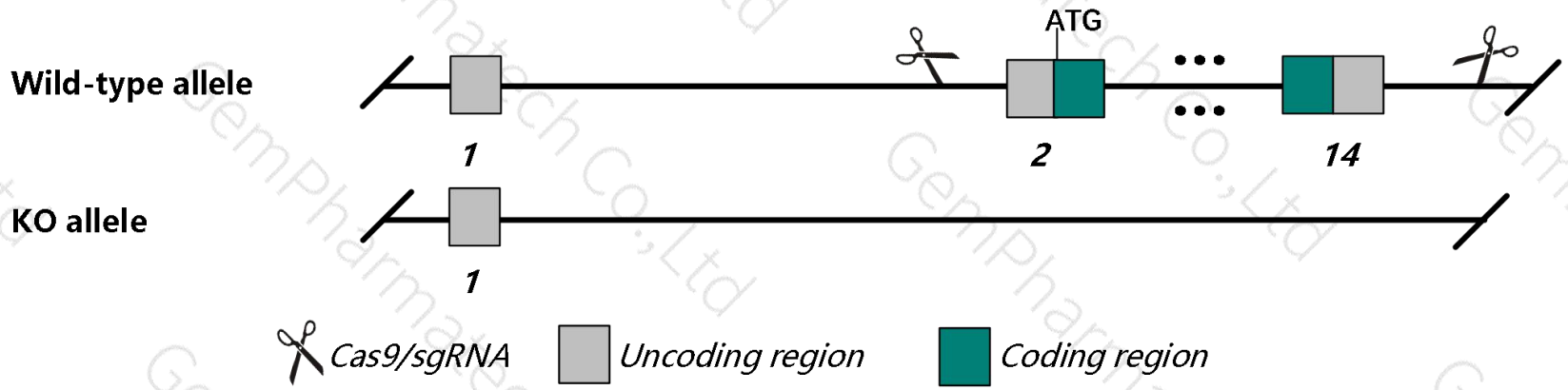
Date:2020-1-19

Project Overview

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

Knockout strategy

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



Technical routes

➢ The *Bcan* gene has 6 transcripts. According to the structure of *Bcan* gene, exon2-exon14 of *Bcan-201* (ENSMUST00000090971.10) 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 *Bcan* gene. The brief process is as follows: CRISPR/Cas9 system v

Notice

- According to the existing MGI data,Homozygous mutation of this gene results in impaired LTP maintenance, but mutant animals show normal behavior and spatial learning capabilities.

- The *Bcan* gene is located on the Chr3. 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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Bcan brevican [*Mus musculus* (house mouse)]

Gene ID: 12032, updated on 11-Sep-2019

Summary

Official Symbol	Bcan provided by MGI
Official Full Name	brevican provided by MGI
Primary source	MGI:MGI:1096385
See related	Ensembl:ENSMUSG00000004892
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	Cspg7
Expression	Biased expression in frontal lobe adult (RPKM 53.5), cortex adult (RPKM 50.8) and 6 other tissues See more
Orthologs	human all

Genomic context

Location: 3 F1; 3 38.78 cM

See Bcan in Genome Data Viewer

Exon count: 15

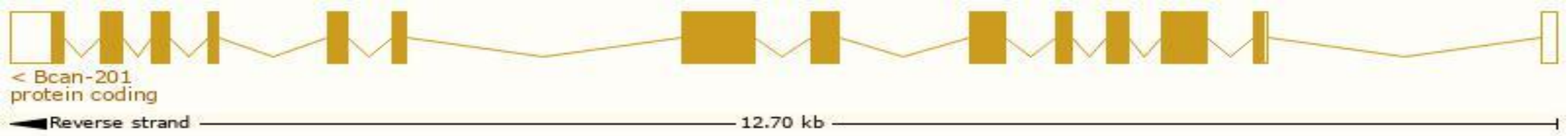
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	3	NC_000069.6 (87987531..88002175, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	3	NC_000069.5 (87791453..87804278, complement)

Transcript information（Ensembl）

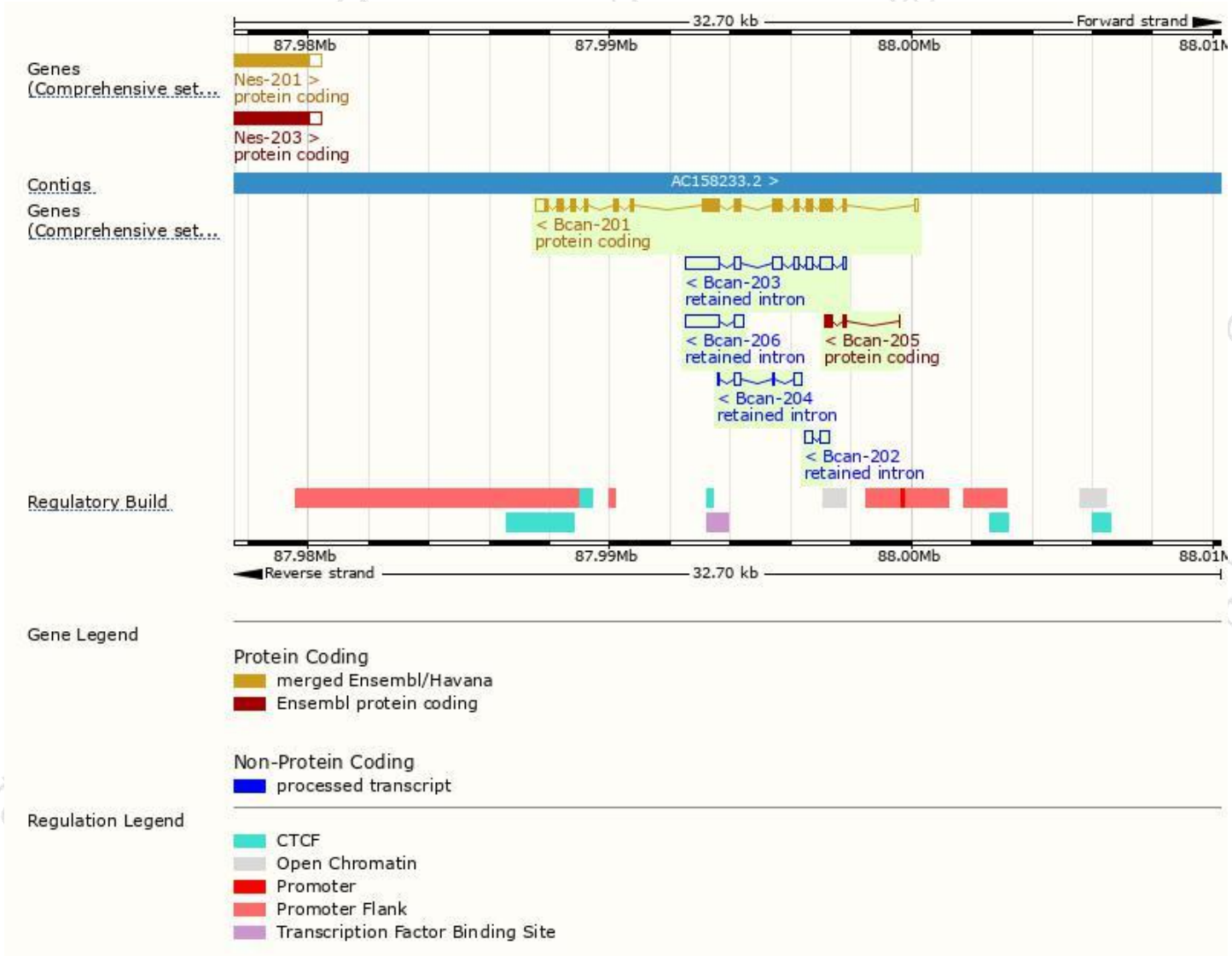
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Bcan-201	ENSMUST00000090971.10	3141	883aa	Protein coding	CCDS17462	Q61361	TSL:1 GENCODE basic APPRIS P1
Bcan-205	ENSMUST00000194193.1	381	105aa	Protein coding	-	A0A0A6YW95	CDS 3' incomplete TSL:3
Bcan-203	ENSMUST00000192274.5	2431	No protein	Retained intron	-	-	TSL:5
Bcan-206	ENSMUST00000194596.5	1473	No protein	Retained intron	-	-	TSL:2
Bcan-204	ENSMUST00000193276.1	568	No protein	Retained intron	-	-	TSL:3
Bcan-202	ENSMUST00000191627.1	550	No protein	Retained intron	-	-	TSL:2

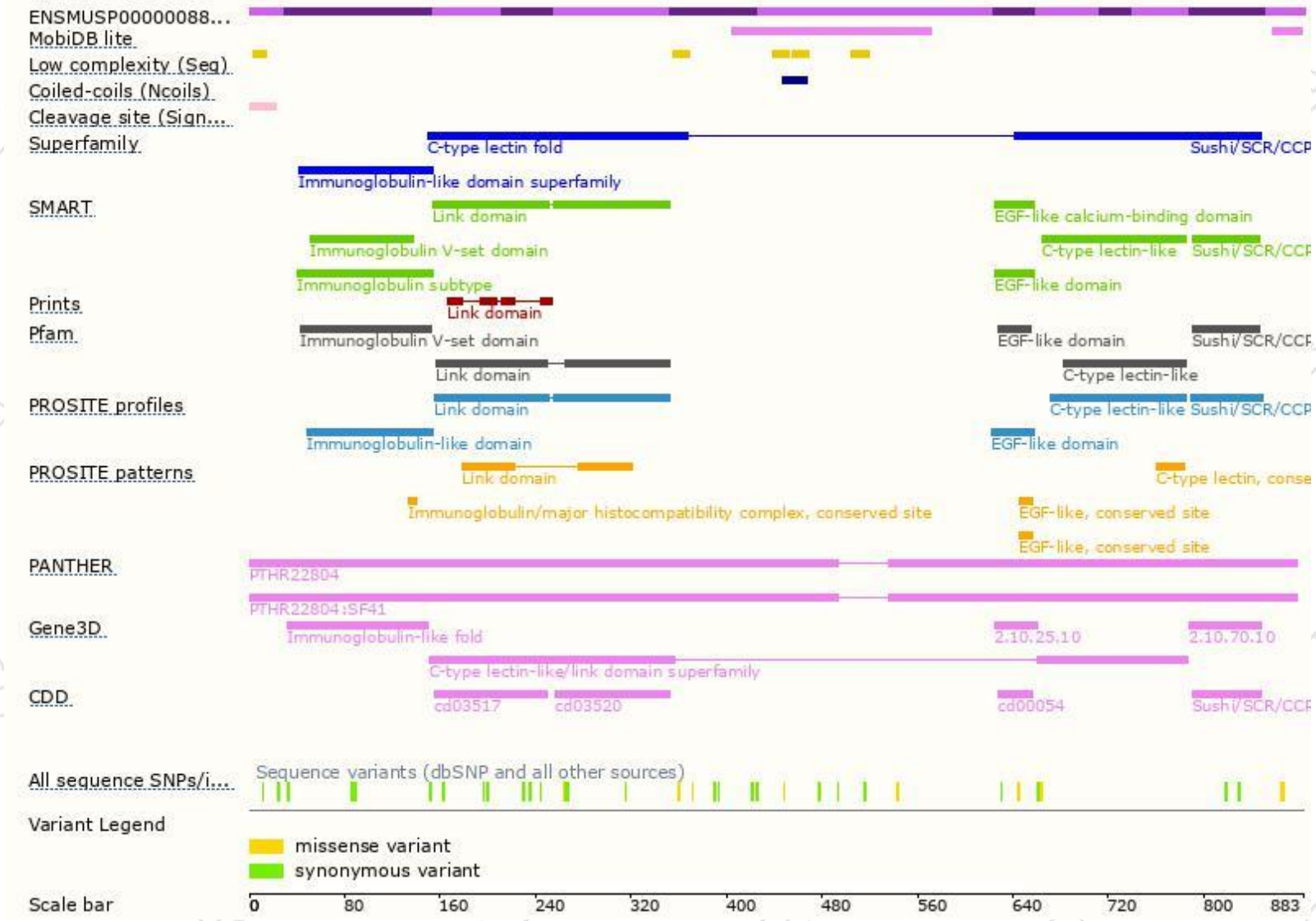
The strategy is based on the design of *Bcan-201* transcript,The transcription is shown below



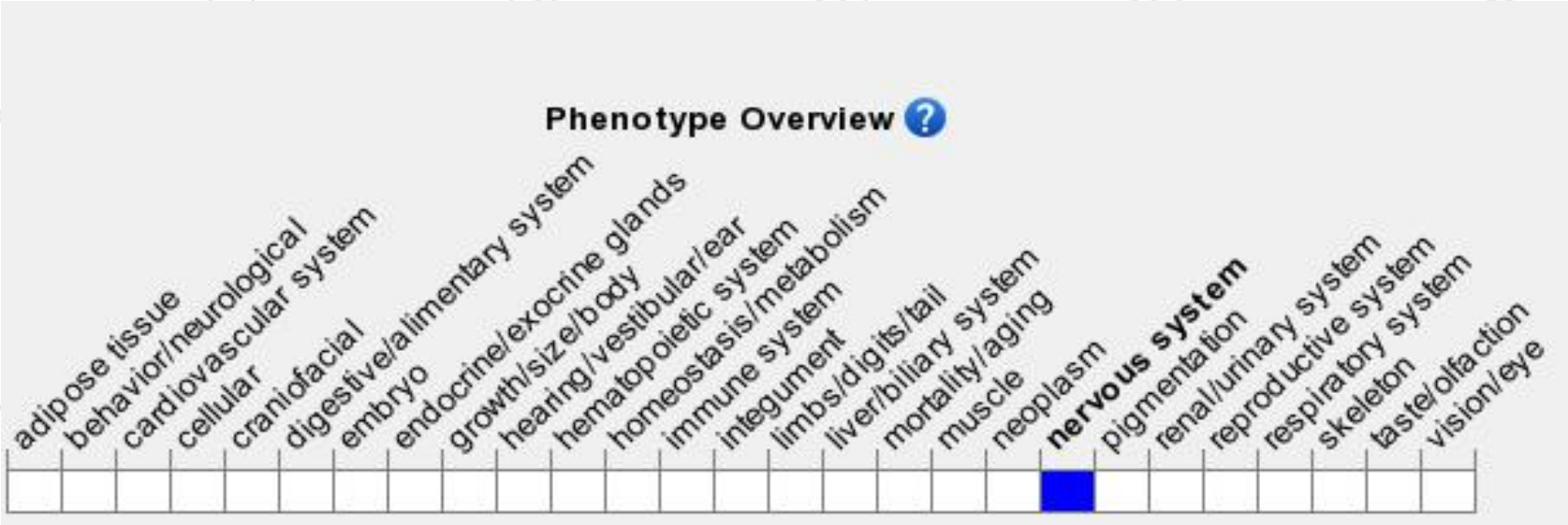
Genomic location distribution



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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