

L1cam Cas9-KO Strategy

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Project Overview



Project Name

L1cam

Project type

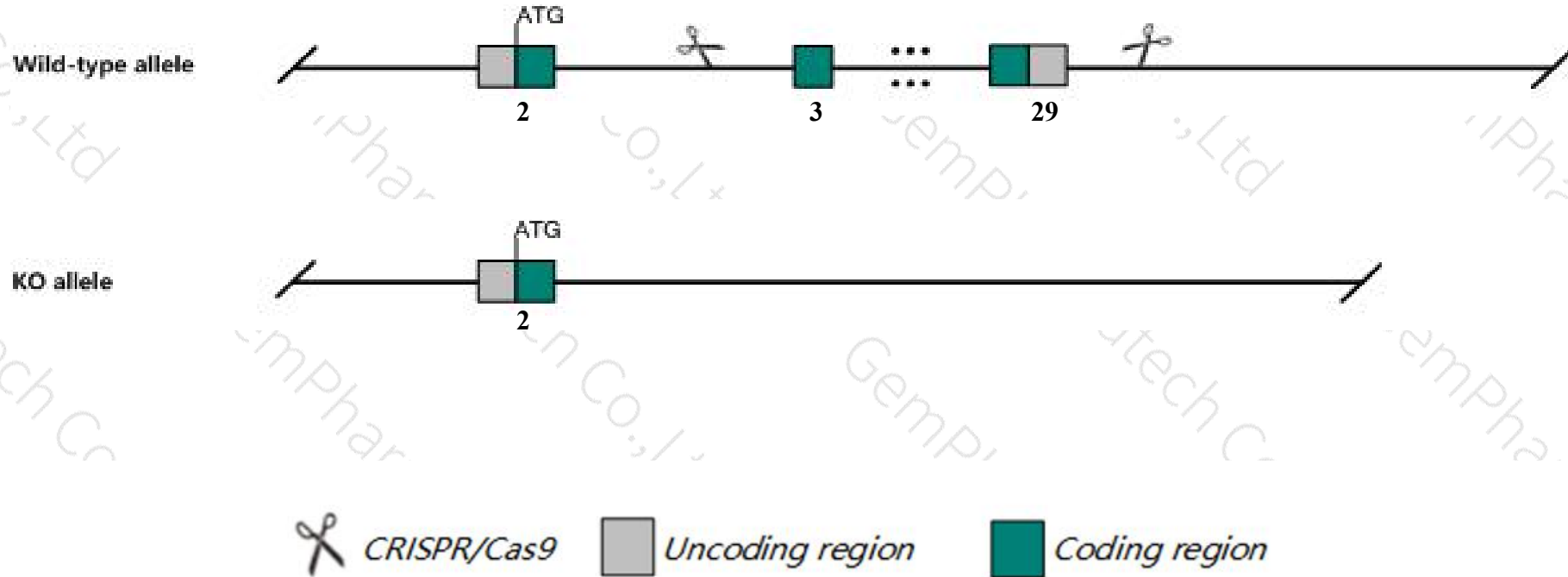
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *L1cam* gene has 13 transcripts. According to the structure of *L1cam* gene, exon3-exon29 of *L1cam-202* (ENSMUST00000102871.9) transcript is recommended as the knockout region. The region contains 3704bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *L1cam* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous null mutants have reduced size, lessened sensitivity to touch and pain, weakness and incoordination of hind-legs, reduced corticospinal tract, impaired guidance of retinal and corticospinal axons, and in some cases, enlarged lateral ventricles. A hypomorphic line shows background effects.
- The *Llcam* gene is located on the ChrX. 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)

L1cam L1 cell adhesion molecule [Mus musculus (house mouse)]

Gene ID: 16728, updated on 19-Mar-2019

Summary



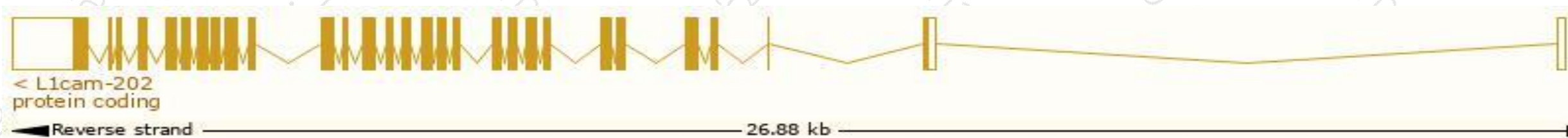
Official Symbol	L1cam provided by MGI
Official Full Name	L1 cell adhesion molecule provided by MGI
Primary source	MGI:MGI:96721
See related	Ensembl:ENSMUSG00000031391
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	CD171, L1, N-CAM-L1, NCAM-L1
Expression	Biased expression in CNS E18 (RPKM 43.2), whole brain E14.5 (RPKM 35.1) and 12 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

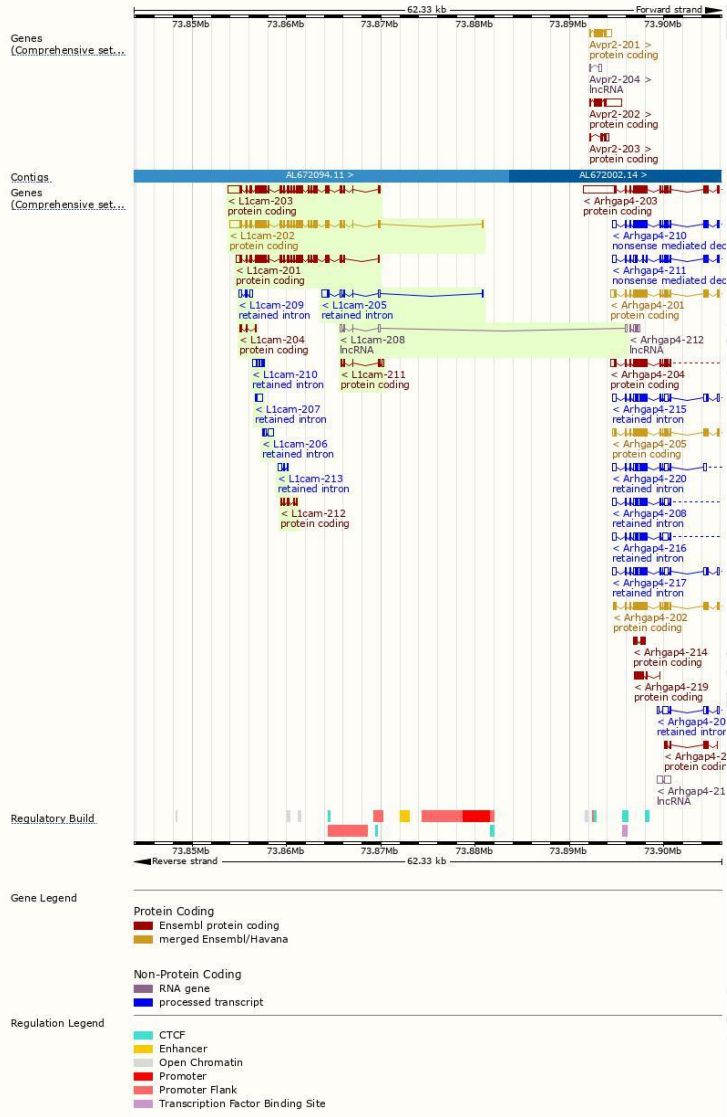
The gene has 13 transcripts, all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
L1cam-202	ENSMUST00000102871.9	5113	1259aa	Protein coding	CCDS30215	Q6PGJ3	TSL:1 GENCODE basic APPRIS P2
L1cam-203	ENSMUST00000114430.7	5126	1255aa	Protein coding	-	A2AFG8	TSL:5 GENCODE basic APPRIS ALT2
L1cam-201	ENSMUST00000066576.11	4116	1250aa	Protein coding	-	A2AFG7	TSL:5 GENCODE basic APPRIS ALT2
L1cam-211	ENSMUST00000146790.1	571	83aa	Protein coding	-	B7ZCD3	CDS 3' incomplete TSL:5
L1cam-212	ENSMUST00000148250.1	570	190aa	Protein coding	-	F7A5H7	5' and 3' truncations in transcript evidence prevent annotation of the start and the end of the CDS. CDS 5' and 3' incomplete TSL:5
L1cam-204	ENSMUST00000124560.2	466	145aa	Protein coding	-	F6UIL7	CDS 5' incomplete TSL:5
L1cam-205	ENSMUST00000129612.7	1351	No protein	Retained intron	-	-	TSL:2
L1cam-206	ENSMUST00000130110.1	856	No protein	Retained intron	-	-	TSL:5
L1cam-210	ENSMUST00000145805.1	813	No protein	Retained intron	-	-	TSL:2
L1cam-209	ENSMUST00000144478.1	705	No protein	Retained intron	-	-	TSL:2
L1cam-213	ENSMUST00000155246.1	661	No protein	Retained intron	-	-	TSL:2
L1cam-207	ENSMUST00000135104.1	627	No protein	Retained intron	-	-	TSL:3
L1cam-208	ENSMUST00000141221.1	598	No protein	lncRNA	-	-	TSL:5

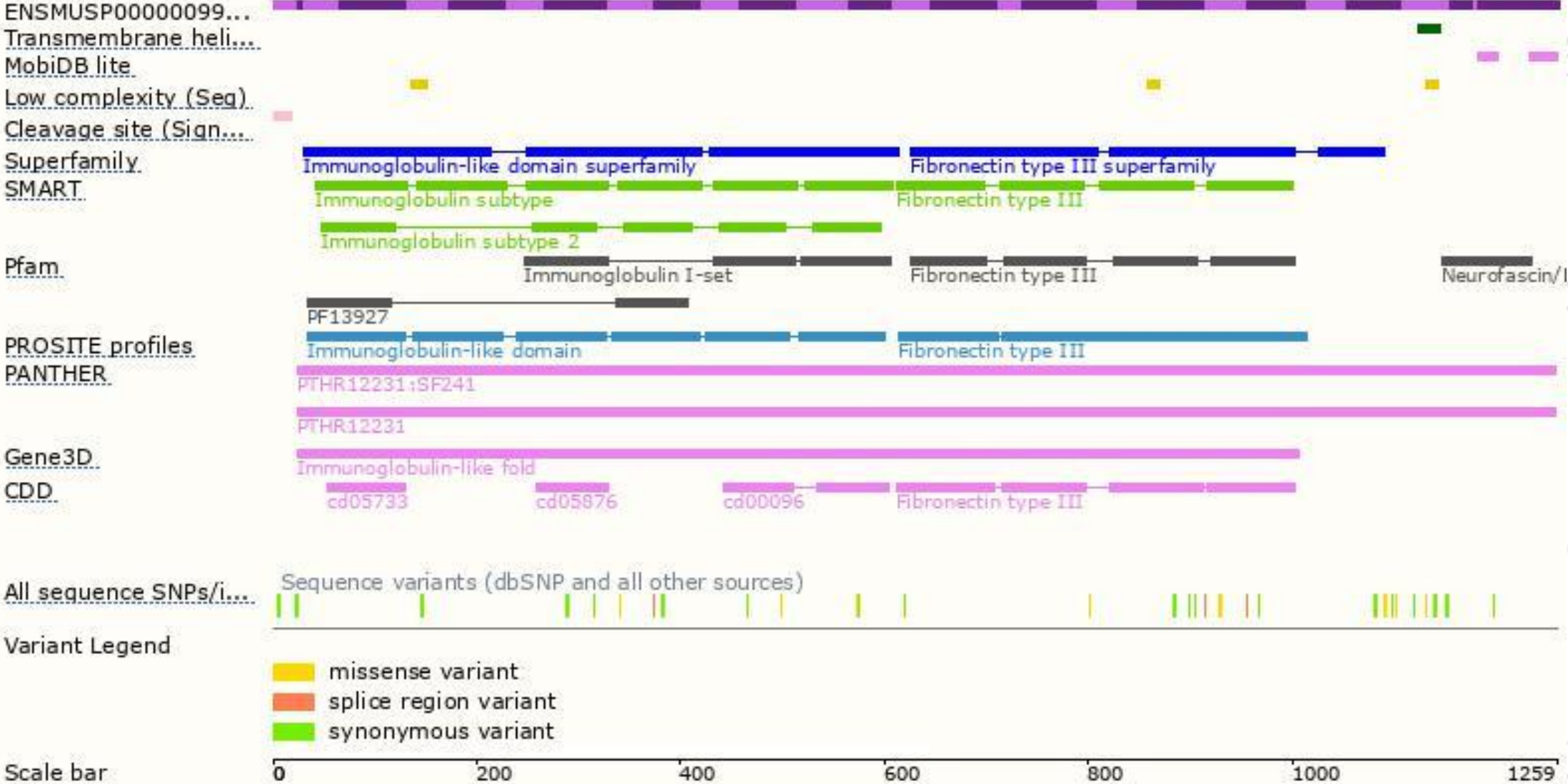
The strategy is based on the design of *L1cam-202* transcript, The transcription is shown below



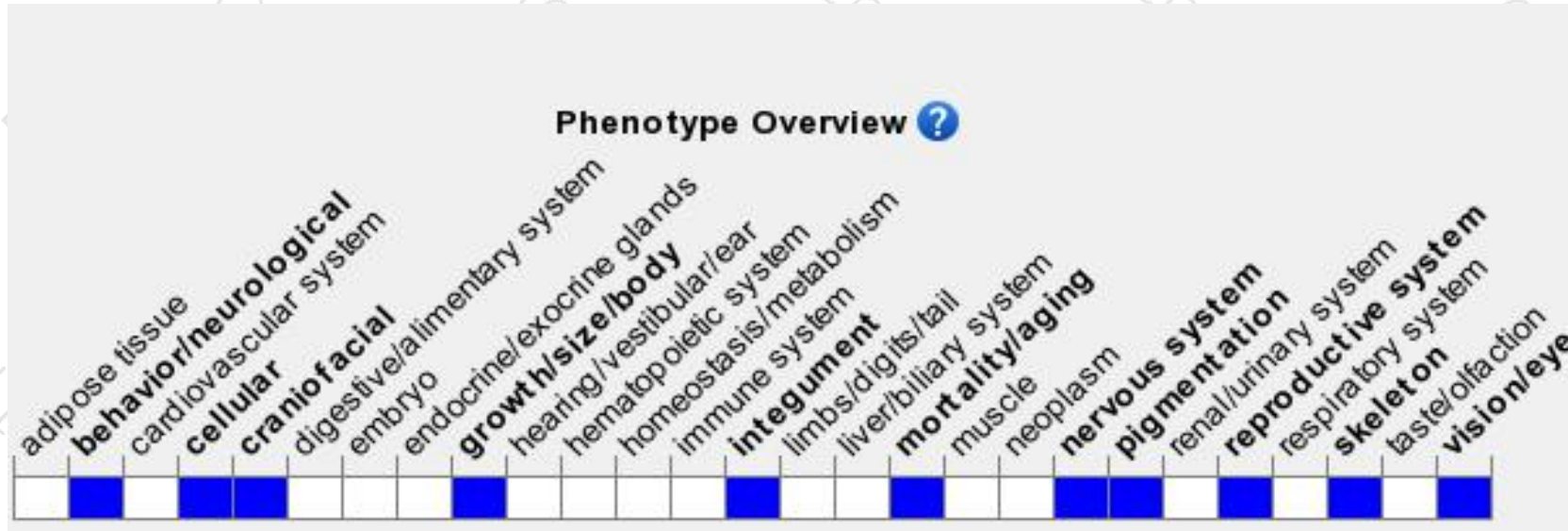
Genomic location distribution



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 mutants have reduced size, lessened sensitivity to touch and pain, weakness and incoordination of hind-legs, reduced corticospinal tract, impaired guidance of retinal and corticospinal axons, and in some cases, enlarged lateral ventricles. A hypomorphic line shows background effects.