

Unc13d Cas9-KO Strategy

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Project Overview

Project Name

Unc13d

Project type

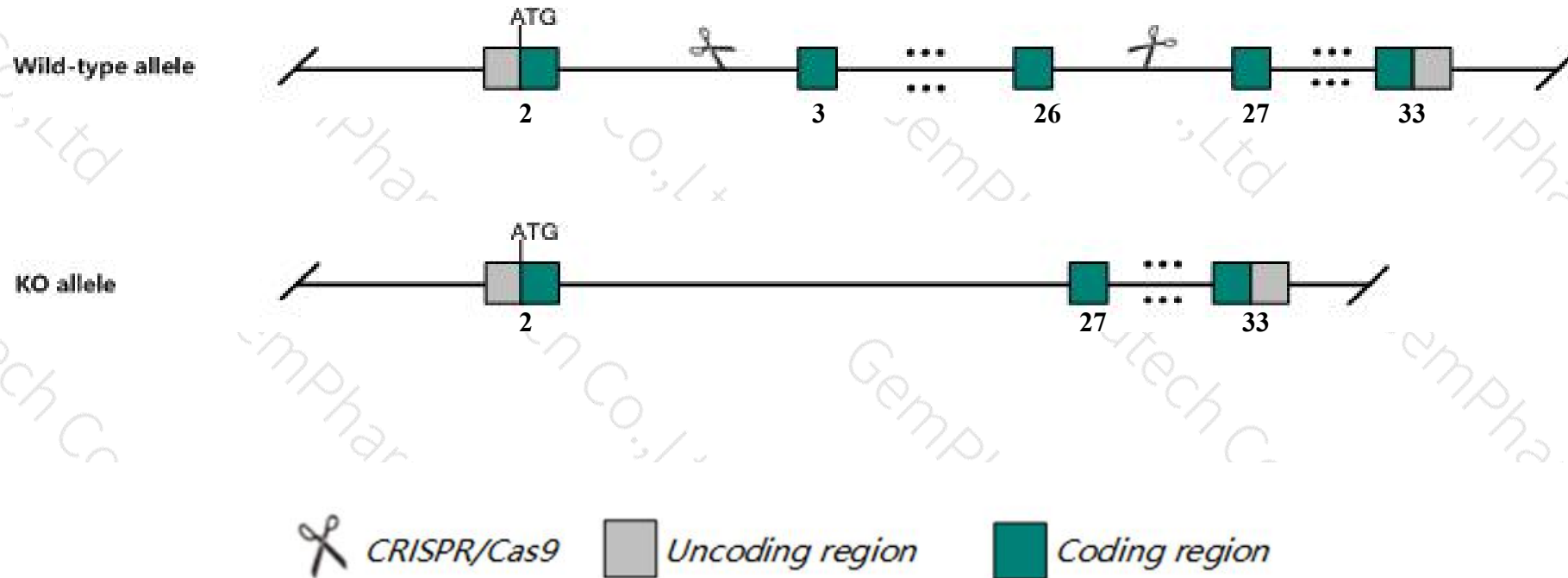
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Unc13d* gene. The schematic diagram is as follows:



- The *Unc13d* gene has 9 transcripts. According to the structure of *Unc13d* gene, exon3-exon26 of *Unc13d-201* (ENSMUST00000075036.8) transcript is recommended as the knockout region. The region contains 2324bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Unc13d* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Targeted deletion of this gene leads to defective hemostasis, abrogated thrombus formation and protection of homozygotes from ischemic stroke in the absence of intracranial bleeding. Homozygous ENU mutant mice are sensitive to infection by mouse cytomegalovirus.
- The *Unc13d* 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)

Unc13d unc-13 homolog D [*Mus musculus* (house mouse)]

Gene ID: 70450, updated on 10-Dec-2019

Summary

- Official Symbol** Unc13d provided by [MGI](#)
- Official Full Name** unc-13 homolog D provided by [MGI](#)
- Primary source** [MGI:MGI:1917700](#)
- See related** [Ensembl:ENSMUSG00000057948](#)
- 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** Jinx; Munc13-4; mFLJ00067; 2610108D09Rik
- Expression** Broad expression in thymus adult (RPKM 20.5), spleen adult (RPKM 18.5) and 15 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

Genomic context

Location: 11; 11 E2 See Unc13d in [Genome Data Viewer](#)

Exon count: 35

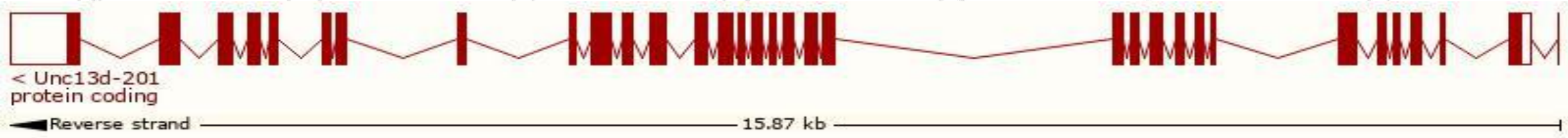
Annotation release	Status	Assembly	Chr	Location
108	current	GRCm38.p6 (GCF_000001635.26)	11	NC_000077.6 (116062095..116078495, complement)
Build 37.2	previous assembly	MGSCv37 (GCF_000001635.18)	11	NC_000077.5 (115923410..115939275, complement)

Transcript information (Ensembl)

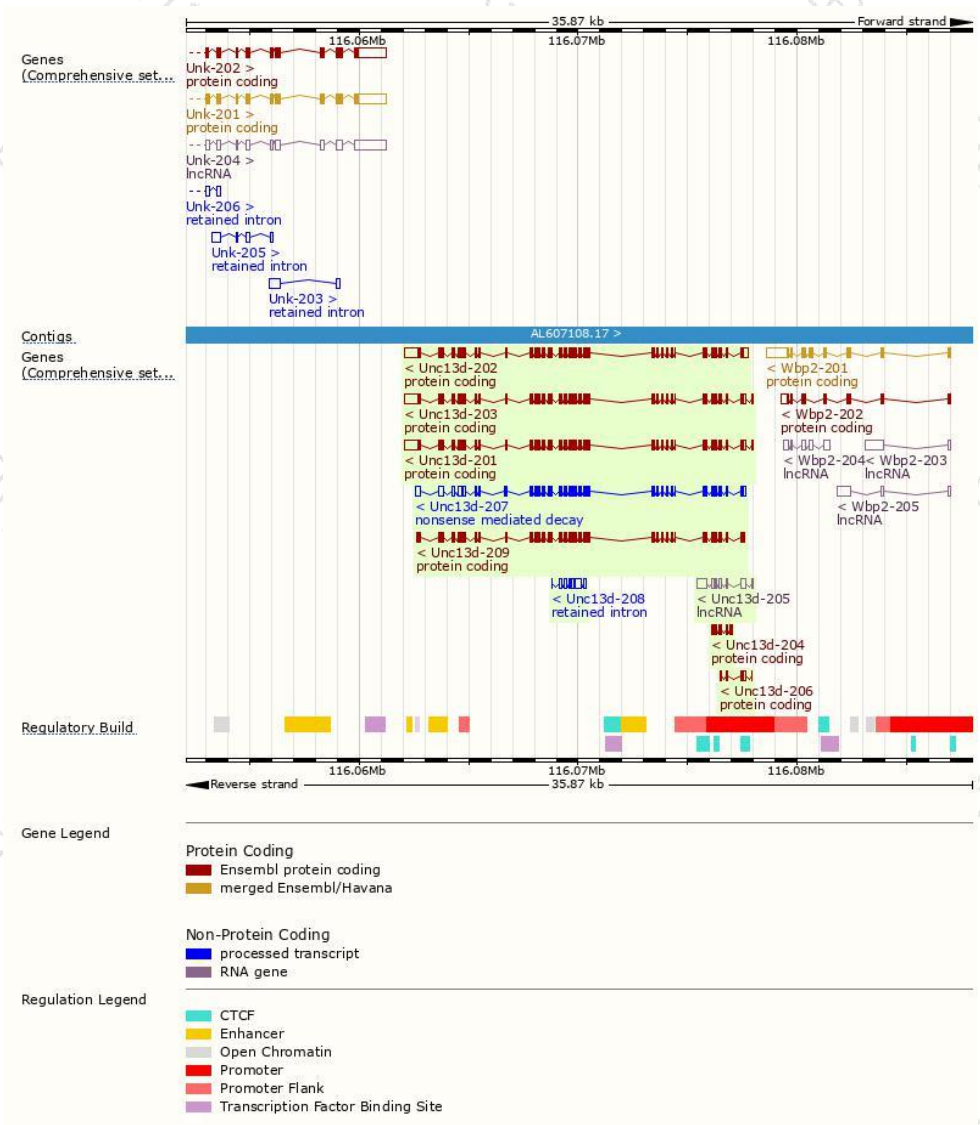
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Unc13d-201	ENSMUST00000075036.8	3967	1083aa	Protein coding	CCDS25656	B2RUP2	TSL:5 GENCODE basic APPRIS P2
Unc13d-209	ENSMUST00000174822.7	3337	1083aa	Protein coding	CCDS25656	B2RUP2	TSL:1 GENCODE basic APPRIS P2
Unc13d-202	ENSMUST00000106450.7	4046	1085aa	Protein coding	-	B2RUP2	TSL:5 GENCODE basic APPRIS ALT2
Unc13d-203	ENSMUST00000106451.7	3973	1085aa	Protein coding	-	B2RUP2	TSL:5 GENCODE basic APPRIS ALT2
Unc13d-204	ENSMUST00000153408.7	416	117aa	Protein coding	-	A2A855	CDS 3' incomplete TSL:3
Unc13d-206	ENSMUST00000156545.1	353	76aa	Protein coding	-	A2A858	CDS 3' incomplete TSL:5
Unc13d-207	ENSMUST00000173345.7	3514	834aa	Nonsense mediated decay	-	A0A0R4J257	TSL:1
Unc13d-208	ENSMUST00000173943.1	766	No protein	Retained intron	-	-	TSL:5
Unc13d-205	ENSMUST00000155120.1	991	No protein	lncRNA	-	-	TSL:1

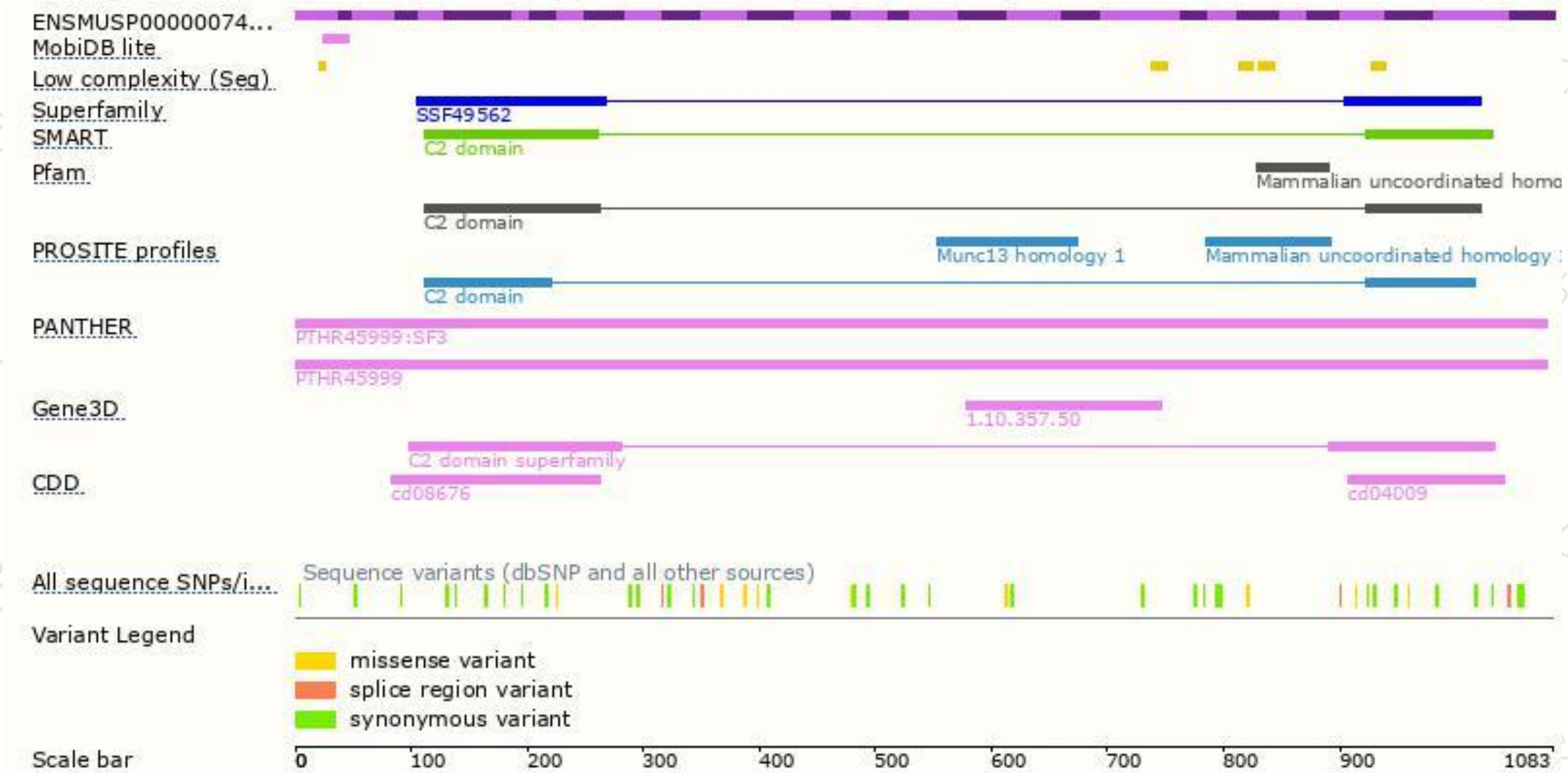
The strategy is based on the design of *Unc13d-201* transcript,The transcription is shown below



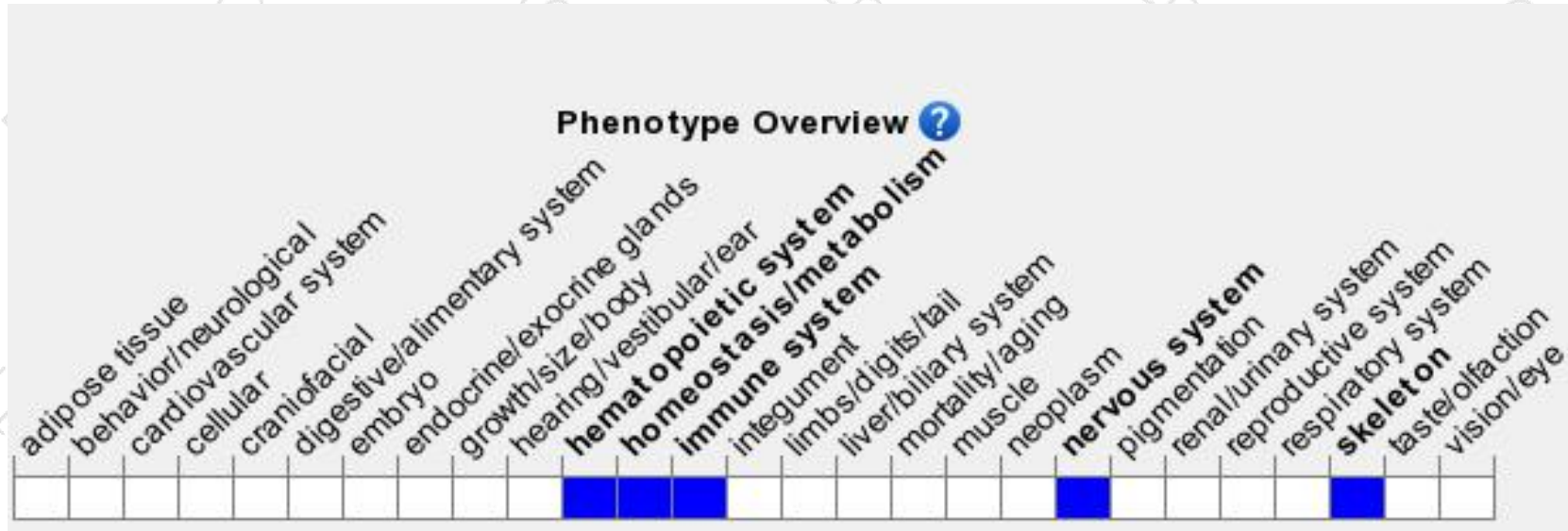
Genomic location distribution



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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