Card11 Cas9-CKO Strategy

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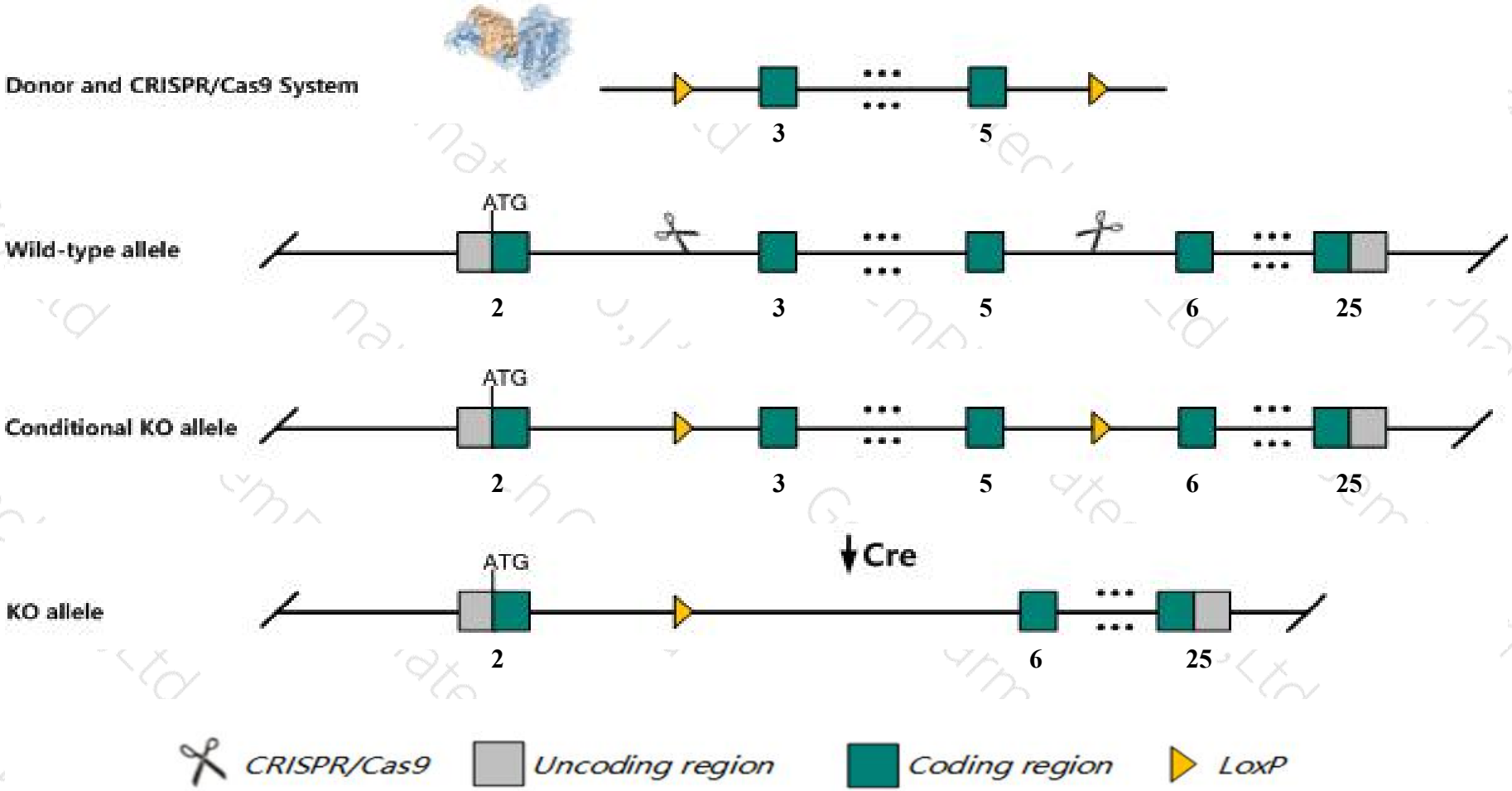
Project Overview

Project Name	***Card11***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Card11* gene. The schematic diagram is as follows:



Technical routes

- The *Card11* gene has 3 transcripts. According to the structure of *Card11* gene, exon3-exon5 of *Card11-201* (ENSMUST00000085786.6) transcript is recommended as the knockout region.The region contains 677bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Card11* gene. The brief process is as follows:gRNA was transcribed in vitro, donor was constructed.Cas9, gRNA 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.

Notice

- According to the existing MGI data,mice homozygous for a targeted null mutation exhibit defects in antigen receptor signalling in both t and b lymphocytes.
- The *Card11* gene is located on the Chr5. 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）

集萃药康 GemPharmatech

Card11 caspase recruitment domain family, member 11 [Mus musculus (house mouse)]

Gene ID: 108723, updated on 13-Mar-2020

Summary

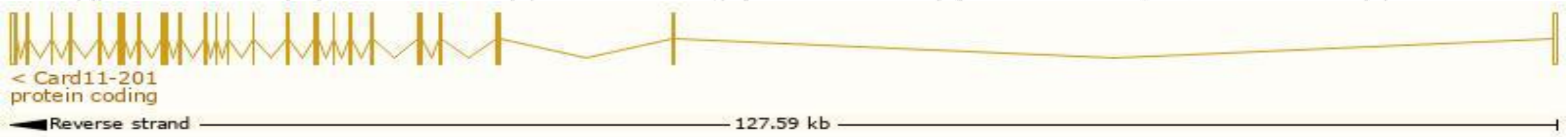
Official Symbol	Card11 provided by MGI
Official Full Name	caspase recruitment domain family, member 11 provided by MGI
Primary source	MGI:MGI:1916978
See related	Ensembl:ENSMUSG00000036526
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	0610008L17Rik, 2410011D02Rik, BIMP3, CARMA1
Expression	Biased expression in spleen adult (RPKM 26.7), thymus adult (RPKM 15.8) and 6 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

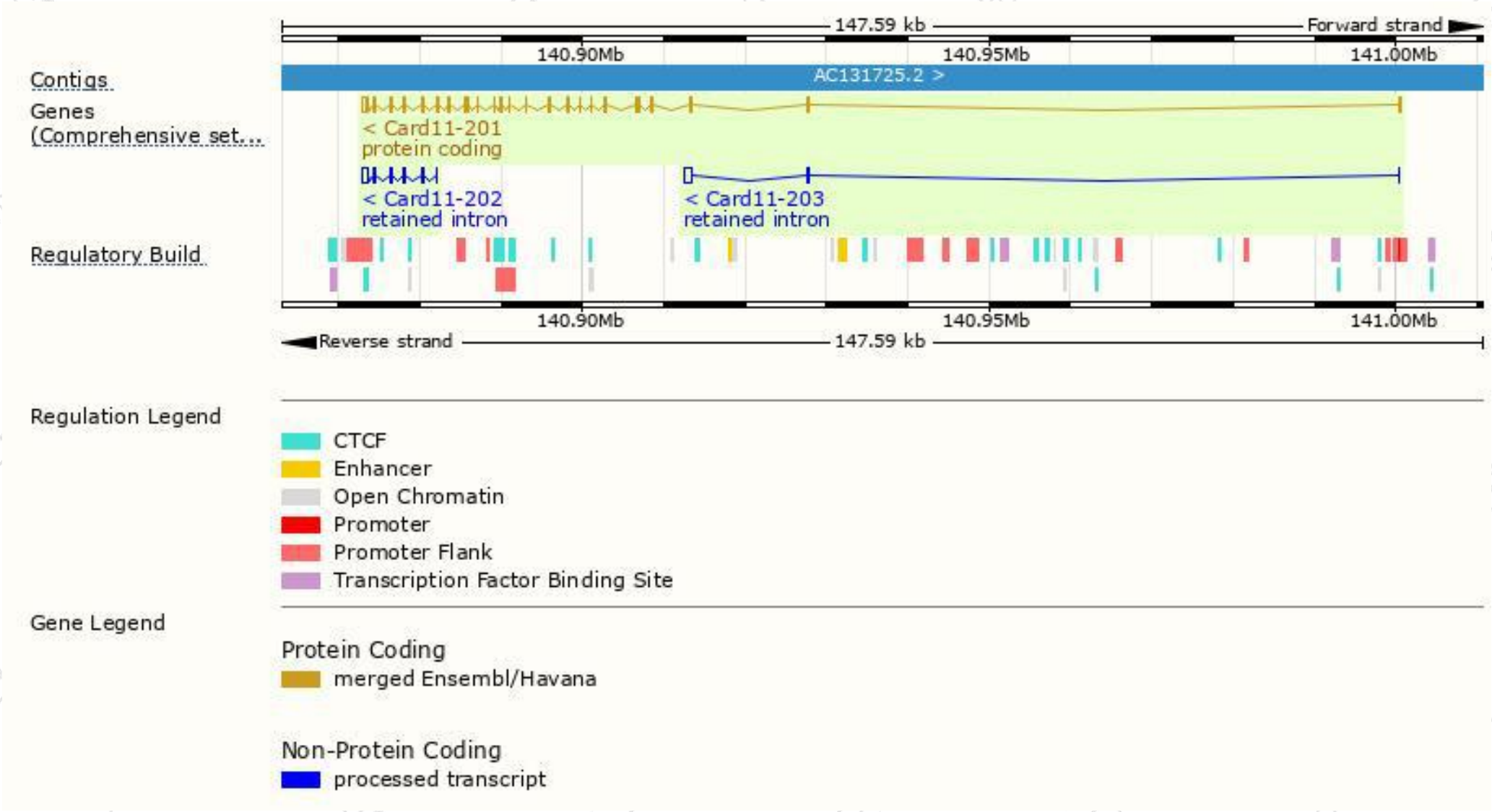
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Card11-201	ENSMUST00000085786.6	4107	1154aa	Protein coding	CCDS51686	Q8CIS0	TSL:1 GENCODE basic APPRIS P1
Card11-202	ENSMUST00000196169.1	1299	No protein	Retained intron	-	-	TSL:1
Card11-203	ENSMUST00000199091.1	1067	No protein	Retained intron	-	-	TSL:1

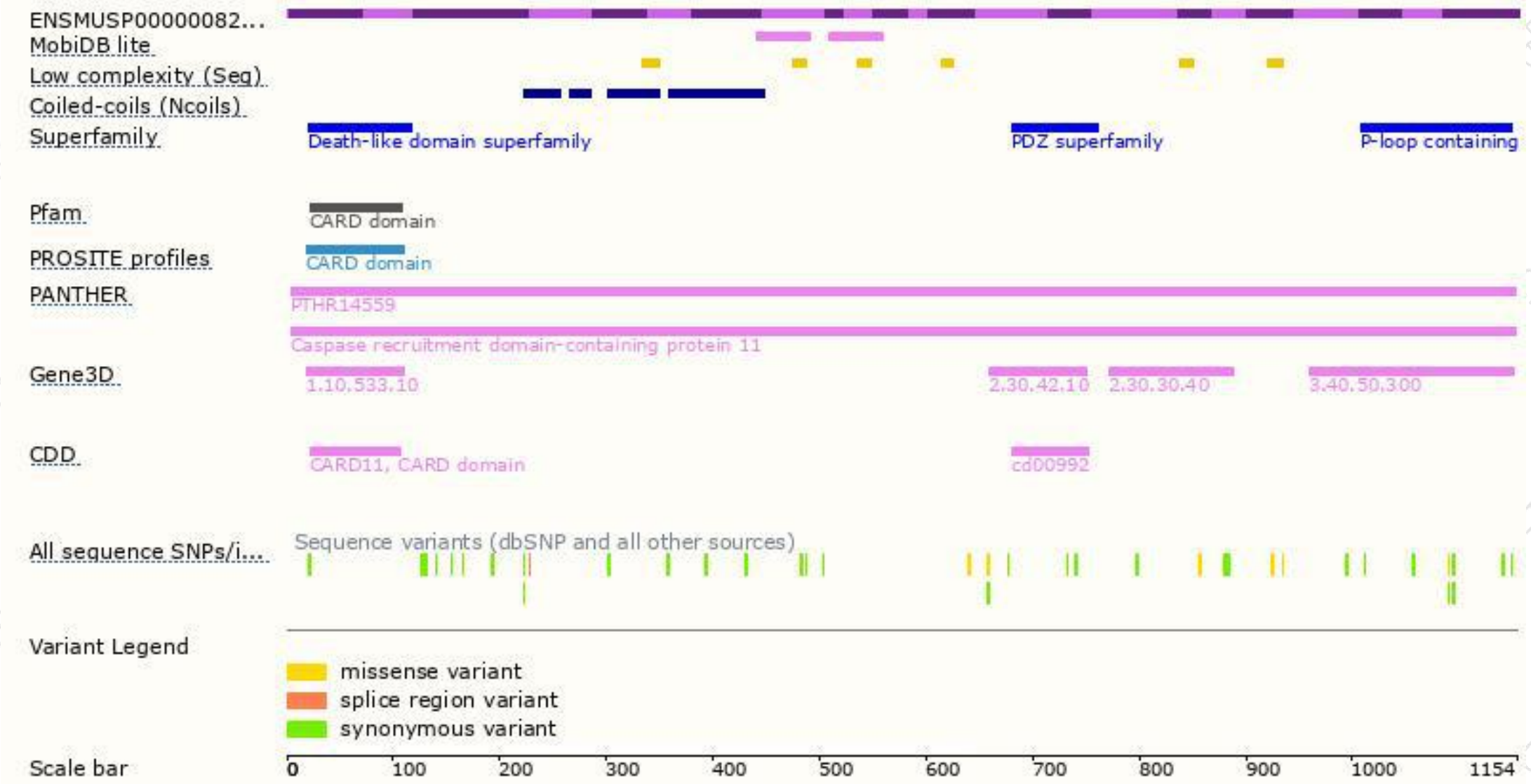
The strategy is based on the design of *Card11-201* transcript,the transcription is shown below:



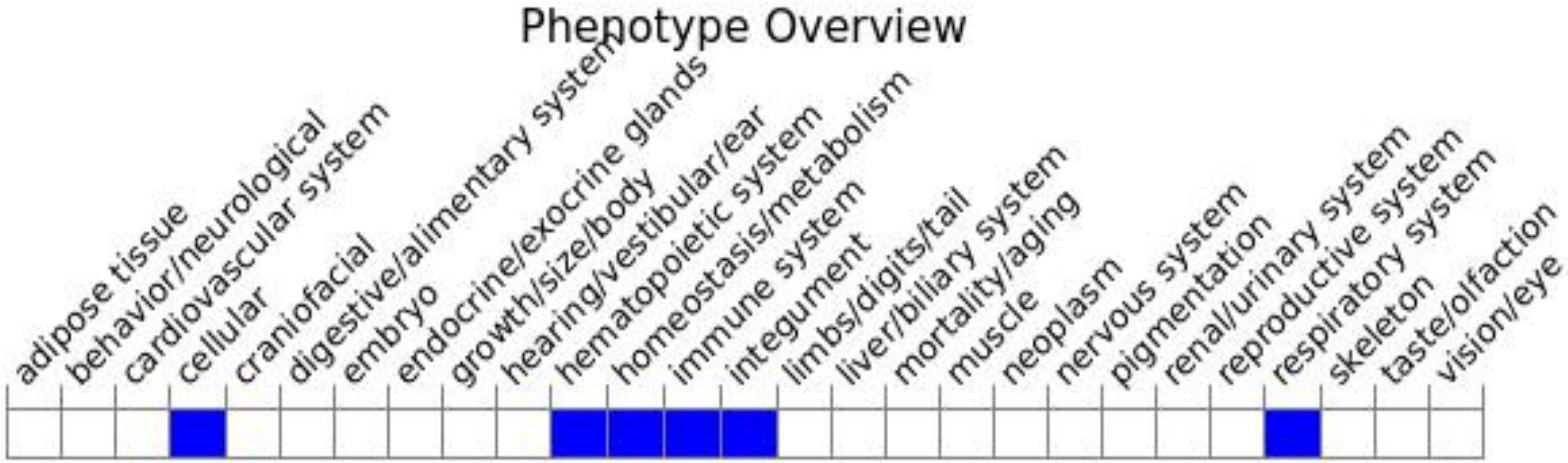
Genomic location distribution



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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