

# ***Card6* Cas9-CKO Strategy**

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# Project Overview

**Project Name**

*Card6*

**Project type**

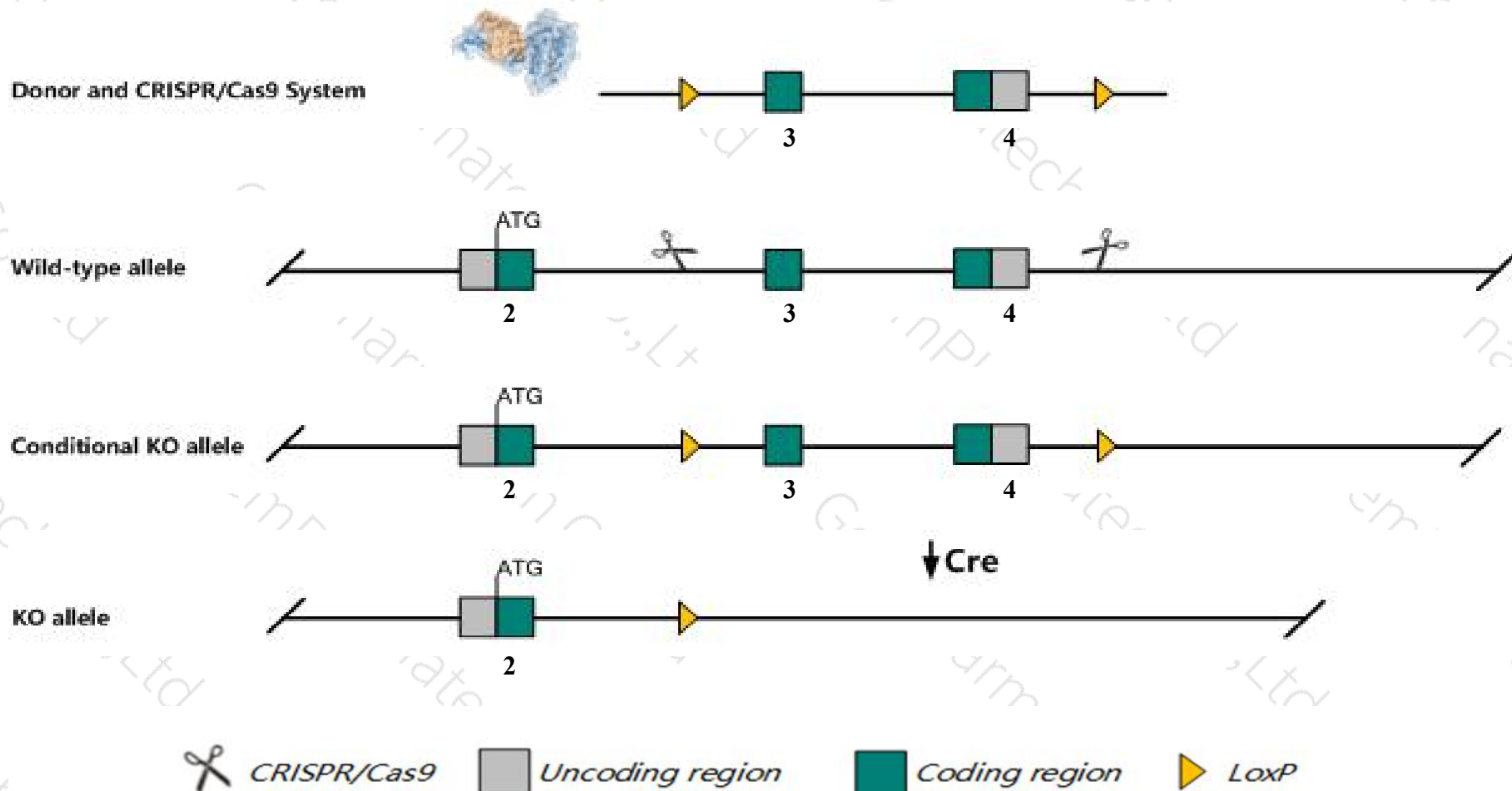
**Cas9-CKO**

**Strain background**

**C57BL/6JGpt**

# Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Card6* gene. The schematic diagram is as follows:



# Technical routes

- The *Card6* gene has 2 transcripts. According to the structure of *Card6* gene, exon3-exon4 of *Card6-201* (ENSMUST00000118365.2) transcript is recommended as the knockout region. The region contains 3245bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Card6* 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, Knockout mice are viable and grossly normal with no deficits in thymocytes, granulocytes, macrophages, NK cells or T- and B-cell subsets. Various signaling pathways mediating innate and adaptive immune responses appear unaltered. Mice are normally resistant to infection by a wide range of pathogens.
- The *Card6* gene is located on the Chr15. 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)

## Card6 caspase recruitment domain family, member 6 [Mus musculus (house mouse)]

Gene ID: 239319, updated on 25-Mar-2019

### Summary



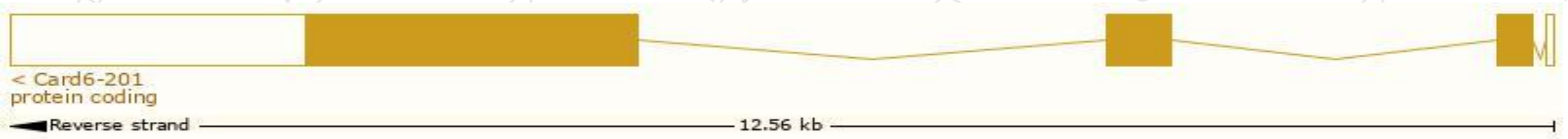
<b>Official Symbol</b>	Card6 provided by <a href="#">MGI</a>
<b>Official Full Name</b>	caspase recruitment domain family, member 6 provided by <a href="#">MGI</a>
<b>Primary source</b>	<a href="#">MGI:MGI:3032959</a>
<b>See related</b>	<a href="#">Ensembl:ENSMUSG00000041849</a>
<b>Gene type</b>	protein coding
<b>RefSeq status</b>	VALIDATED
<b>Organism</b>	<a href="#">Mus musculus</a>
<b>Lineage</b>	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
<b>Also known as</b>	D730008L15
<b>Expression</b>	Ubiquitous expression in spleen adult (RPKM 1.0), testis adult (RPKM 0.6) and 27 other tissues <a href="#">See more</a>
<b>Orthologs</b>	<a href="#">human</a> <a href="#">all</a>

# Transcript information (Ensembl)

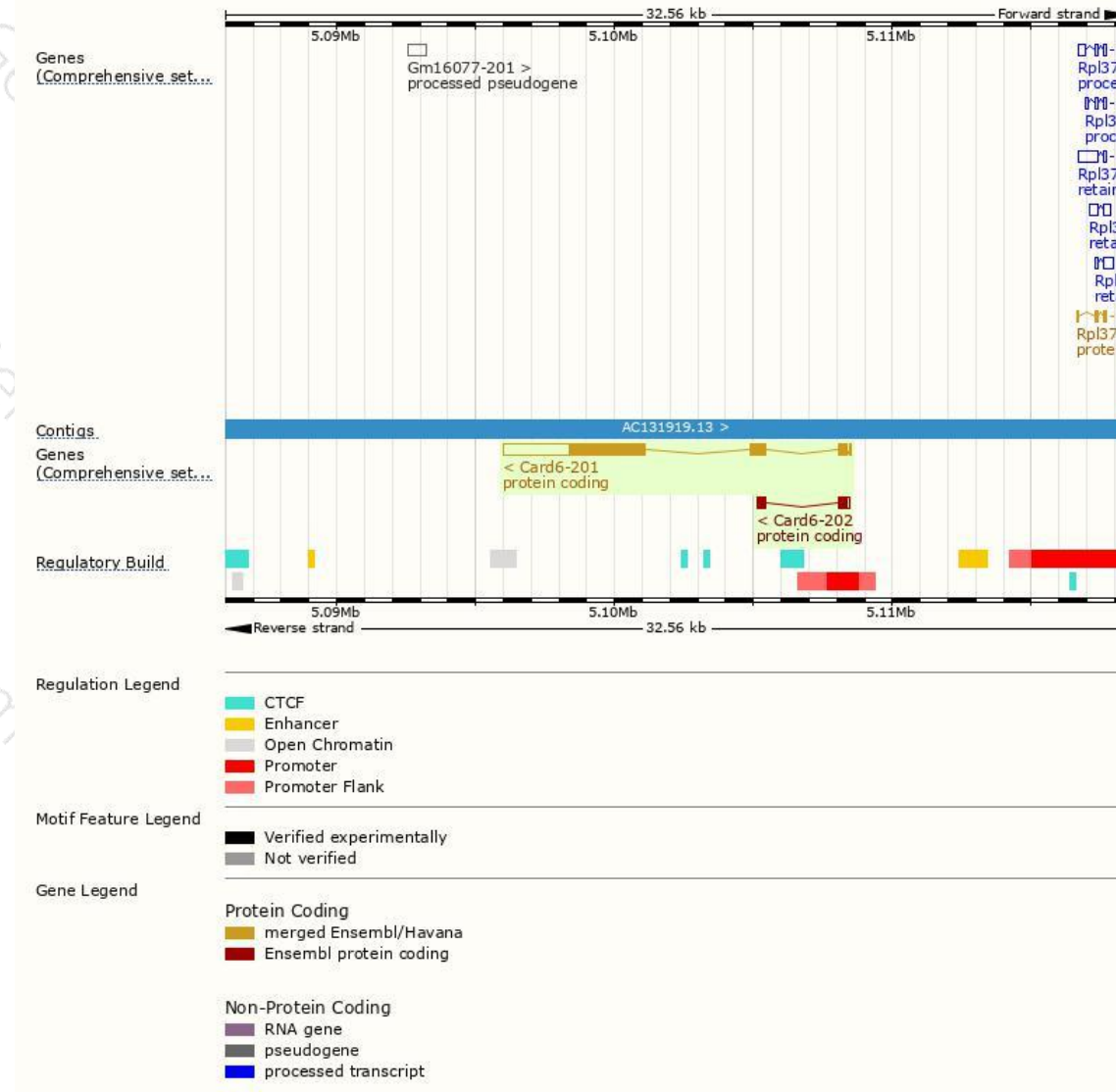
The gene has 2 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Card6-201	<a href="#">ENSMUST00000118365.2</a>	5995	<a href="#">1175aa</a>	Protein coding	<a href="#">CCDS49573</a>	<a href="#">E9PWH2</a>	TSL:5 GENCODE basic APPRIS P1
Card6-202	<a href="#">ENSMUST00000141020.1</a>	697	<a href="#">194aa</a>	Protein coding	-	<a href="#">D3YYK3</a>	CDS 3' incomplete TSL:2

The strategy is based on the design of *Card6-201* transcript,The transcription is shown below



# Genomic location distribution





# Protein domain

ENSMUSP00000112...

MobiDB lite

Low complexity (Seg)

Conserved Domains

hmmpanther

Superfamily domains

SMART domains

Pfam domain

PROSITE profiles

Gene3D

All sequence SNPs/i....



Variant Legend

- stop gained
- frameshift variant
- inframe insertion
- missense variant
- splice region variant
- synonymous variant

Scale bar

0 100 200 300 400 500 600 700 800 900 1000 1175

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

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