

***Card14* Cas9-KO Strategy**

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Project Overview

Project Name

Card14

Project type

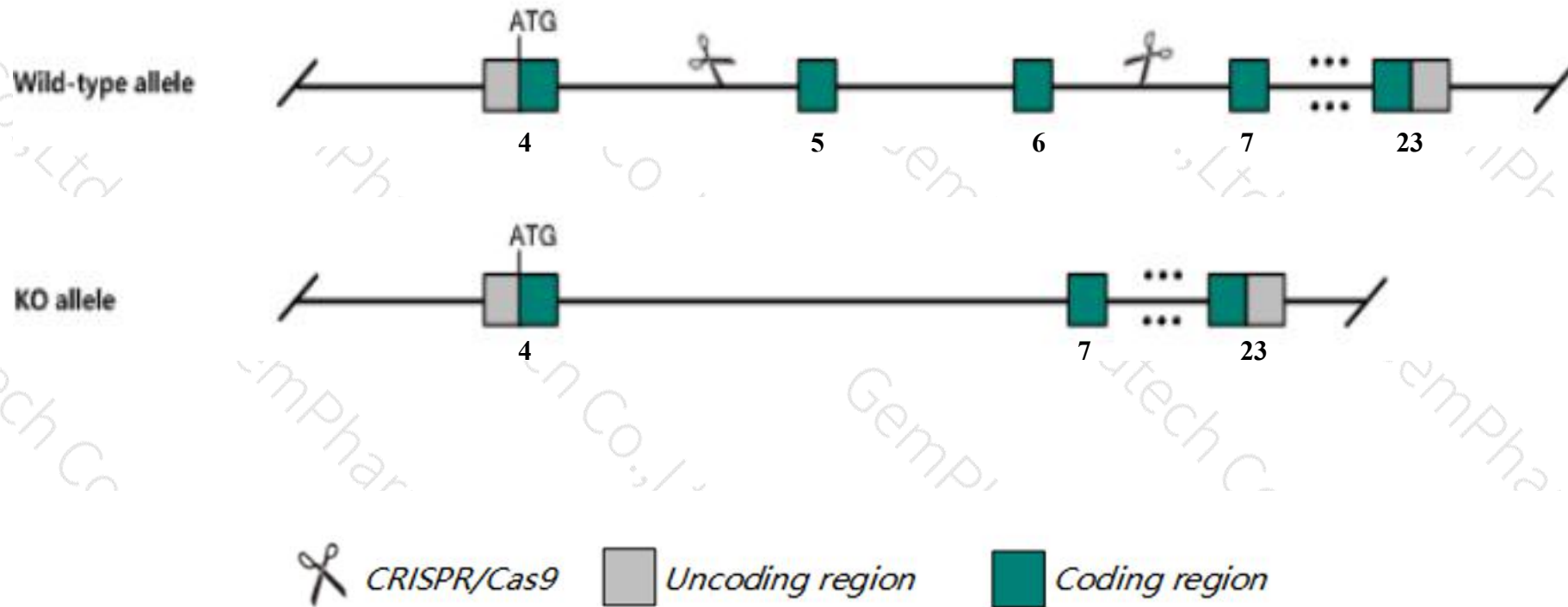
Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Card14* gene. The schematic diagram is as follows:



- The *Card14* gene has 4 transcripts. According to the structure of *Card14* gene, exon5-exon6 of *Card14-202* (ENSMUST00000106250.7) transcript is recommended as the knockout region. The region contains 464bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Card14* gene. The brief process is as follows: CRISPR/Cas9 system

- According to the existing MGI data, Homozygous null mice show resistance to IMQ-induced psoriasiform disease. Heterozygotes for a gain-of-function allele develop chronic psoriasis with scaly lesions, epidermal thickening, keratinocyte hyperproliferation, hyperkeratosis and skin inflammation while homozygotes die within days of birth.
- The *Card14* 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)

Card14 caspase recruitment domain family, member 14 [Mus musculus (house mouse)]

Gene ID: 170720, updated on 20-Mar-2020

Summary



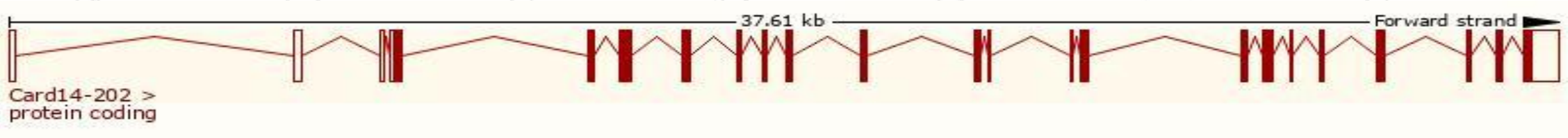
Official Symbol	Card14 provided by MGI
Official Full Name	caspase recruitment domain family, member 14 provided by MGI
Primary source	MGI:MGI:2386258
See related	Ensembl:ENSMUSG00000013483
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Bimp2, CARMA2
Expression	Broad expression in colon adult (RPKM 7.9), large intestine adult (RPKM 5.4) and 19 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

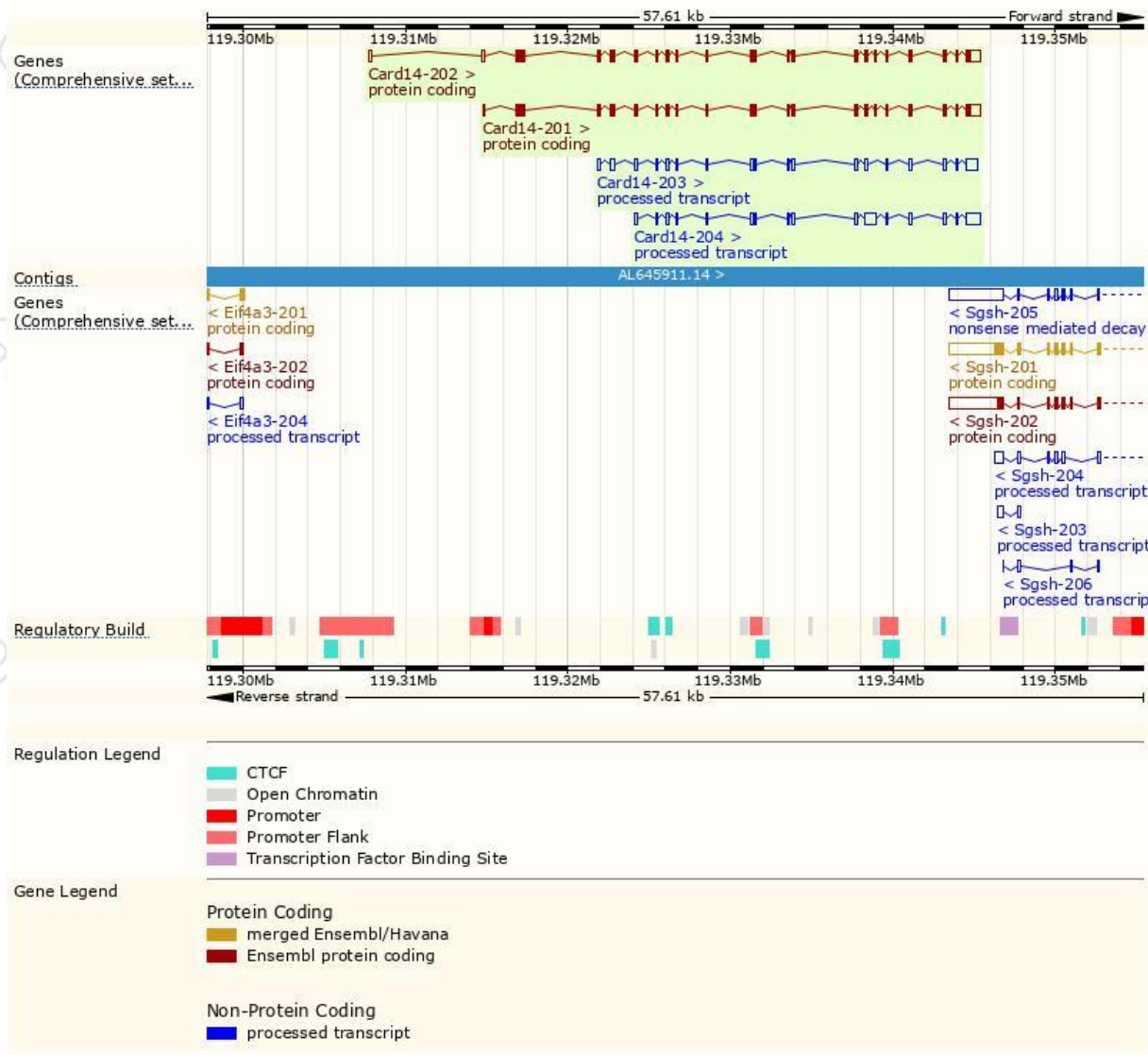
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Card14-202	ENSMUST00000106250.7	4206	999aa	Protein coding	CCDS25715	Q99KF0	TSL:5 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1
Card14-201	ENSMUST00000053245.6	3958	999aa	Protein coding	CCDS25715	Q99KF0	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1
Card14-204	ENSMUST00000151052.1	3341	No protein	Processed transcript	-	-	TSL:1
Card14-203	ENSMUST00000147167.7	3141	No protein	Processed transcript	-	-	TSL:1

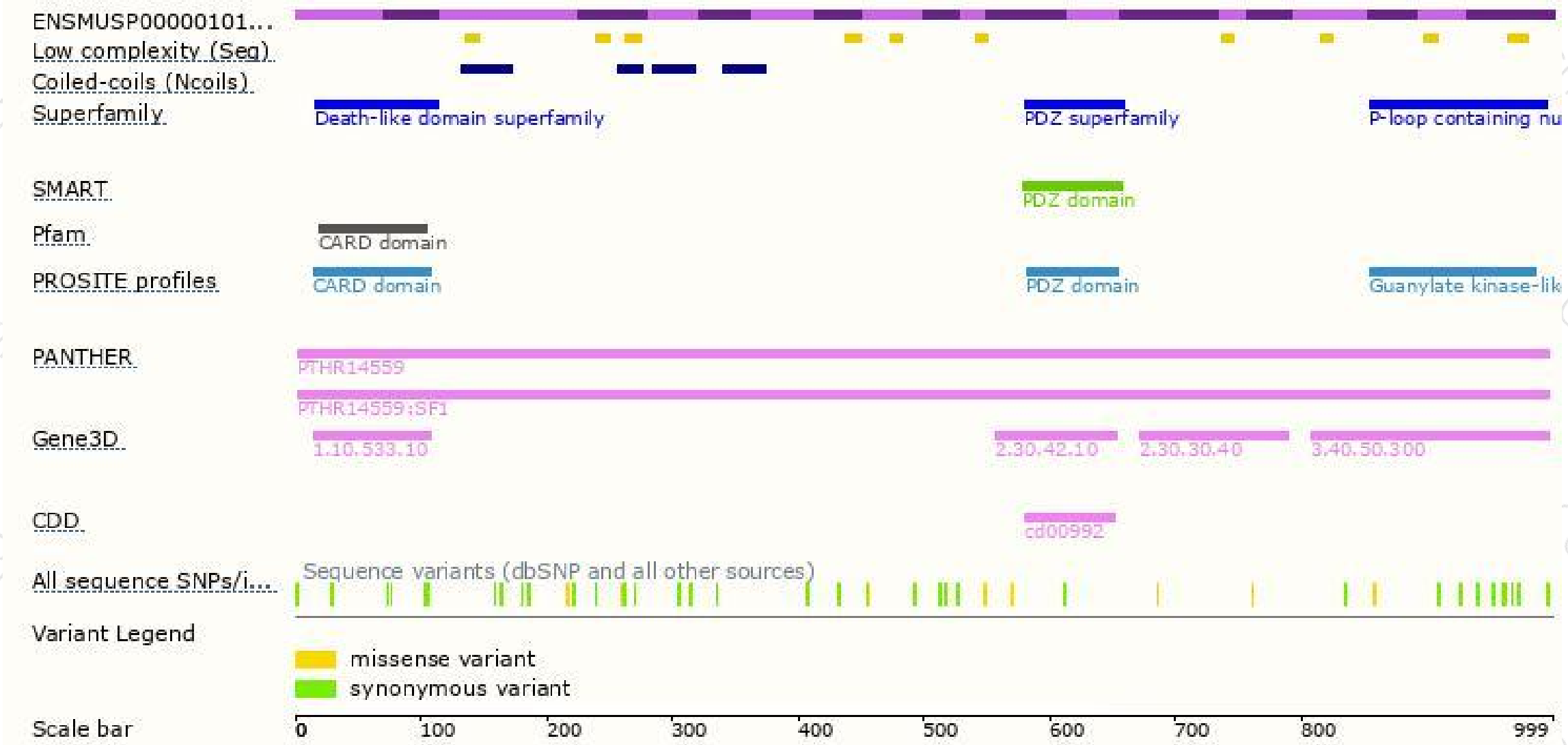
The strategy is based on the design of *Card14-202* transcript,The transcription is shown below



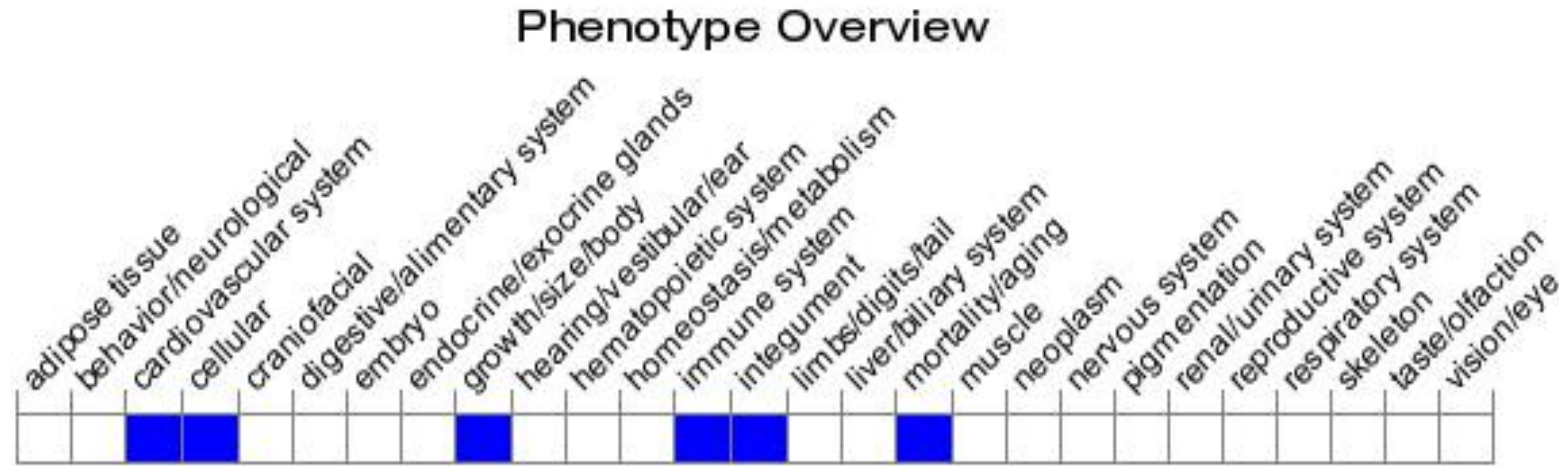
Genomic location distribution



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 mice show resistance to IMQ-induced psoriasiform disease.

Heterozygotes for a gain-of-function allele develop chronic psoriasis with scaly lesions, epidermal thickening, keratinocyte hyperproliferation, hyperkeratosis and skin inflammation while homozygotes die within days of birth.

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

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