

# ***Rnf14* Cas9-CKO Strategy**

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# Project Overview

**Project Name**

***Rnf14***

**Project type**

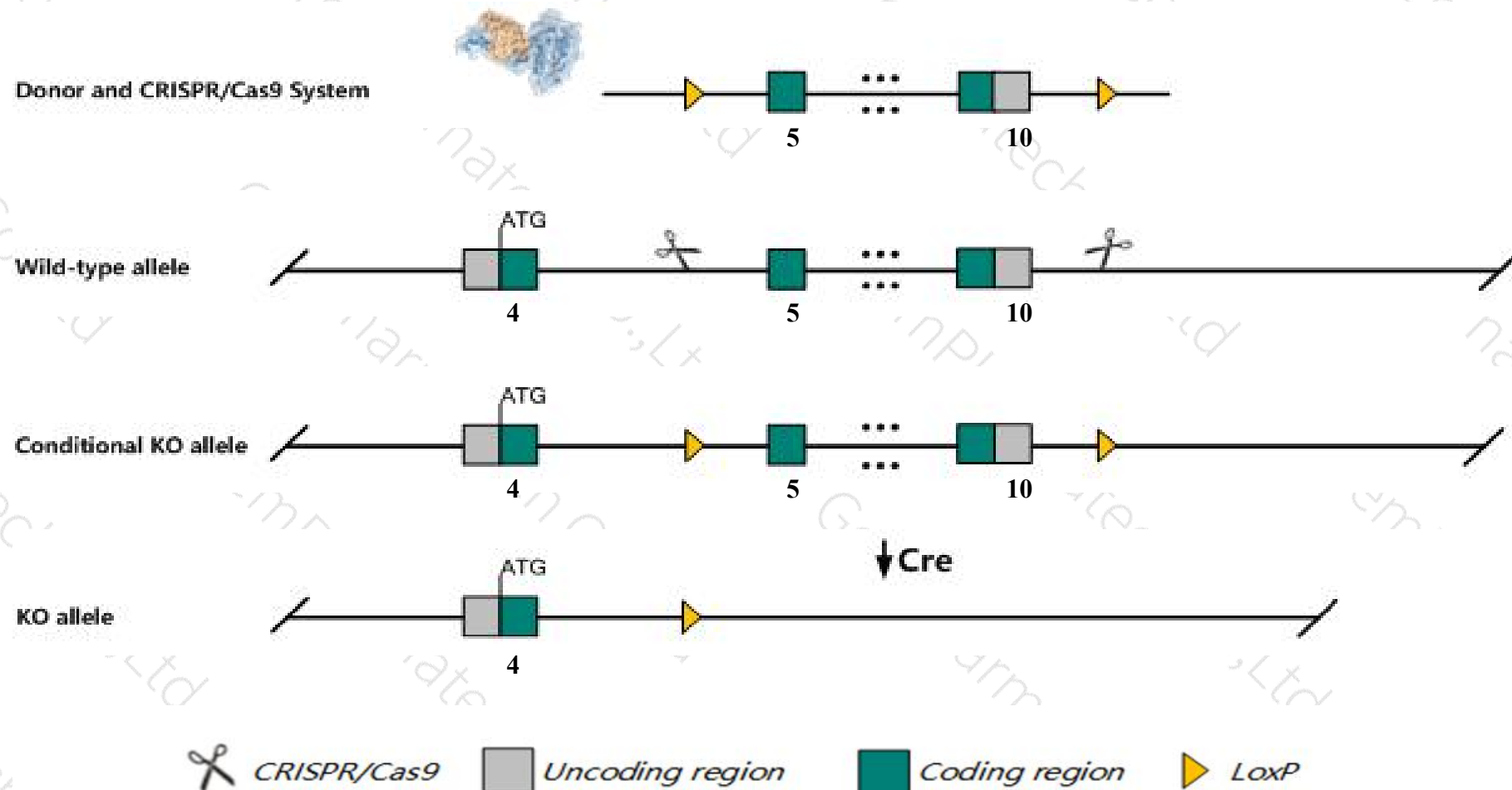
**Cas9-CKO**

**Strain background**

**C57BL/6JGpt**

# Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Rnfl4* gene. The schematic diagram is as follows:



- The *Rnfl4* gene has 21 transcripts. According to the structure of *Rnfl4* gene, exon5-exon10 of *Rnfl4*-203 (ENSMUST00000171461.2) transcript is recommended as the knockout region. The region contains most of the coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Rnfl4* 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.

# Notice

- The effect on transcript *Rnfl4*-206&210 is unknown.
- Transcript *Rnfl4*-207&213&221 may not be affected.
- The *Rnfl4* gene is located on the Chr18. 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)

## Rnf14 ring finger protein 14 [ *Mus musculus* (house mouse) ]

Gene ID: 56736, updated on 24-Oct-2019

### Summary

Official Symbol	Rnf14 provided by MGI
Official Full Name	ring finger protein 14 provided by MGI
Primary source	MGI:MGI:1929668
See related	Ensembl:ENSMUSG00000060450
Gene type	protein coding
RefSeq status	VALIDATED
Organism	<i>Mus musculus</i>
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Triad2; AA986456; AU041447; D7Bwg0165e; D18ErtD188e; 2310075C09Rik; 2610005D23Rik
Expression	Ubiquitous expression in CNS E18 (RPKM 51.1), cortex adult (RPKM 38.6) and 28 other tissues <a href="#">See more</a>
Orthologs	<a href="#">human</a> <a href="#">all</a>

### Genomic context

Location: 18 B3; 18 20.2 cM

See Rnf14 in [Genome Data Viewer](#)

Exon count: 15

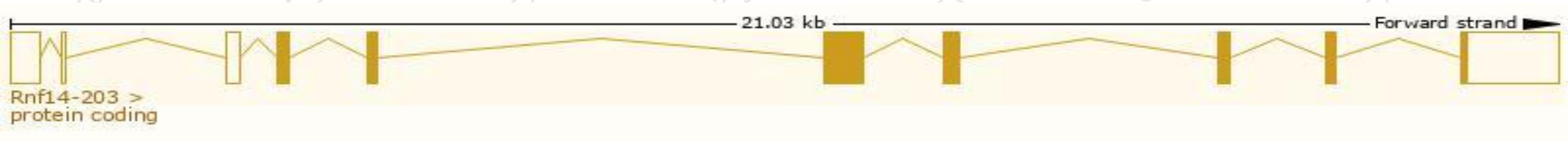
Annotation release	Status	Assembly	Chr	Location
<a href="#">108</a>	current	GRCm38.p6 ( <a href="#">GCF_000001635.26</a> )	18	NC_000084.6 (38277460..38317852)
Build 37.2	previous assembly	MGSCv37 ( <a href="#">GCF_000001635.18</a> )	18	NC_000084.5 (38456289..38477503)

# Transcript information (Ensembl)

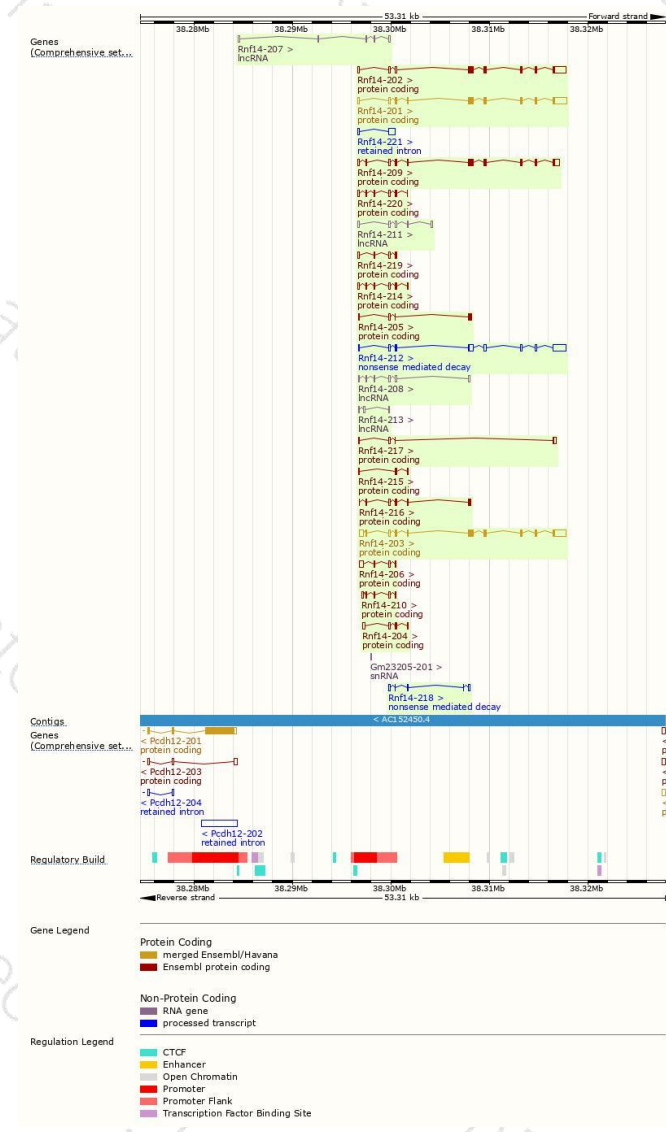
The gene has 21 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Rnf14-203	<a href="#">ENSMUST00000171461.2</a>	3340	<a href="#">485aa</a>	Protein coding	<a href="#">CCDS29200</a>	<a href="#">Q9JI90</a>	TSL:1 GENCODE basic APPRIS P1
Rnf14-201	<a href="#">ENSMUST00000072376.12</a>	3040	<a href="#">485aa</a>	Protein coding	<a href="#">CCDS29200</a>	<a href="#">Q9JI90</a>	TSL:1 GENCODE basic APPRIS P1
Rnf14-202	<a href="#">ENSMUST00000170811.7</a>	2886	<a href="#">359aa</a>	Protein coding	<a href="#">CCDS50261</a>	<a href="#">G3XA54</a>	TSL:1 GENCODE basic
Rnf14-209	<a href="#">ENSMUST00000236116.1</a>	2410	<a href="#">485aa</a>	Protein coding	<a href="#">CCDS29200</a>	-	GENCODE basic APPRIS P1
Rnf14-216	<a href="#">ENSMUST00000237211.1</a>	864	<a href="#">183aa</a>	Protein coding	-	-	CDS 3' incomplete
Rnf14-214	<a href="#">ENSMUST00000236982.1</a>	776	<a href="#">94aa</a>	Protein coding	-	-	CDS 3' incomplete
Rnf14-204	<a href="#">ENSMUST00000235491.1</a>	767	<a href="#">102aa</a>	Protein coding	-	-	CDS 3' incomplete
Rnf14-206	<a href="#">ENSMUST00000235811.1</a>	740	<a href="#">28aa</a>	Protein coding	-	-	CDS 3' incomplete
Rnf14-205	<a href="#">ENSMUST00000235549.1</a>	717	<a href="#">142aa</a>	Protein coding	-	-	CDS 3' incomplete
Rnf14-210	<a href="#">ENSMUST00000236319.1</a>	684	<a href="#">40aa</a>	Protein coding	-	-	CDS 3' incomplete
Rnf14-220	<a href="#">ENSMUST00000237903.1</a>	662	<a href="#">65aa</a>	Protein coding	-	-	CDS 3' incomplete
Rnf14-217	<a href="#">ENSMUST00000237416.1</a>	618	<a href="#">23aa</a>	Protein coding	-	-	GENCODE basic
Rnf14-219	<a href="#">ENSMUST00000237824.1</a>	530	<a href="#">49aa</a>	Protein coding	-	-	CDS 3' incomplete
Rnf14-215	<a href="#">ENSMUST00000237089.1</a>	364	<a href="#">87aa</a>	Protein coding	-	-	CDS 3' incomplete
Rnf14-212	<a href="#">ENSMUST00000236649.1</a>	2822	<a href="#">79aa</a>	Nonsense mediated decay	-	-	
Rnf14-218	<a href="#">ENSMUST00000237667.1</a>	674	<a href="#">39aa</a>	Nonsense mediated decay	-	-	
Rnf14-221	<a href="#">ENSMUST00000238031.1</a>	796	No protein	Retained intron	-	-	
Rnf14-208	<a href="#">ENSMUST00000236032.1</a>	778	No protein	lncRNA	-	-	
Rnf14-211	<a href="#">ENSMUST00000236353.1</a>	743	No protein	lncRNA	-	-	
Rnf14-207	<a href="#">ENSMUST00000235812.1</a>	548	No protein	lncRNA	-	-	
Rnf14-213	<a href="#">ENSMUST00000236690.1</a>	424	No protein	lncRNA	-	-	

The strategy is based on the design of *Rnf14-203* transcript,The transcription is shown below

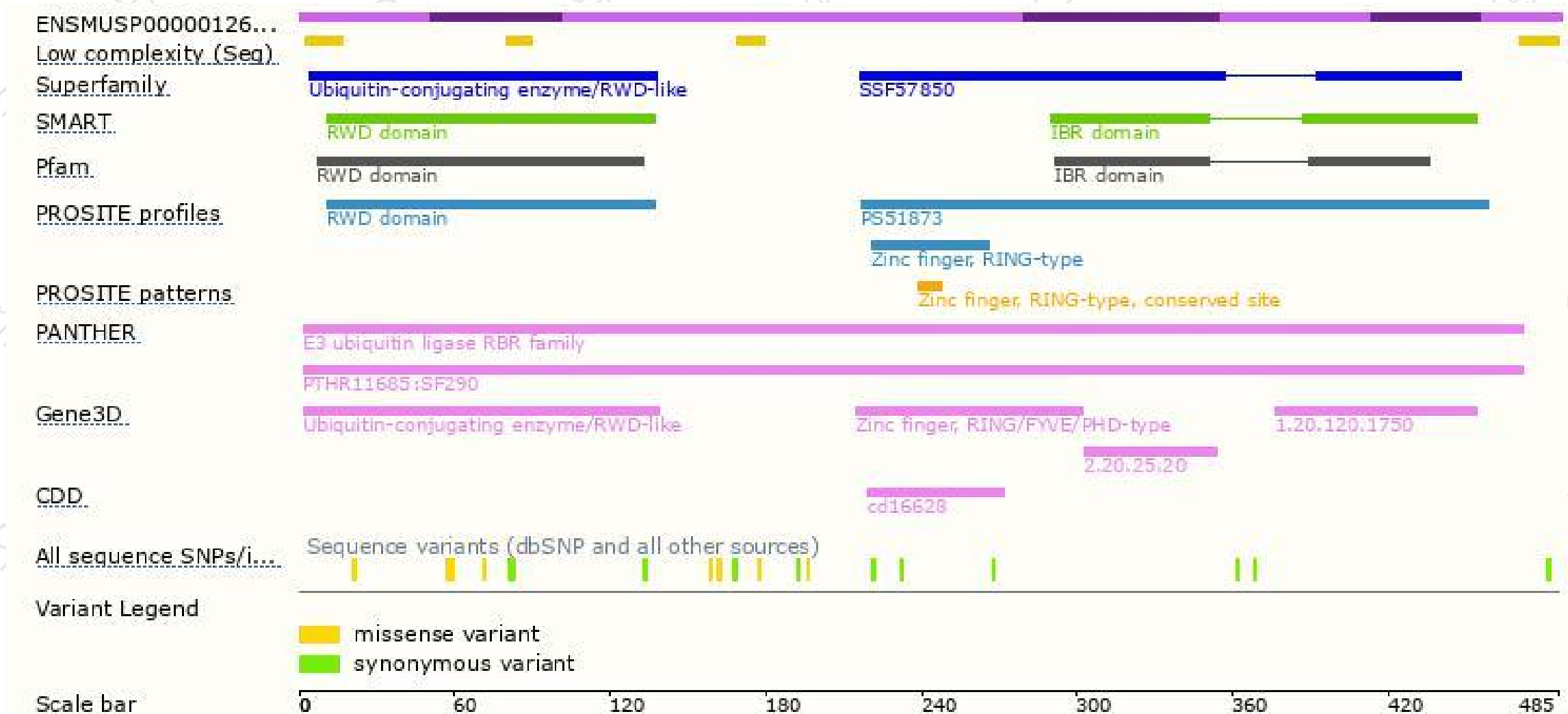


# Genomic location distribution





# Protein domain



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

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