

Rtkn Cas9-CKO Strategy

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Reviewer :

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Project Overview

Project Name

Rtkn

Project type

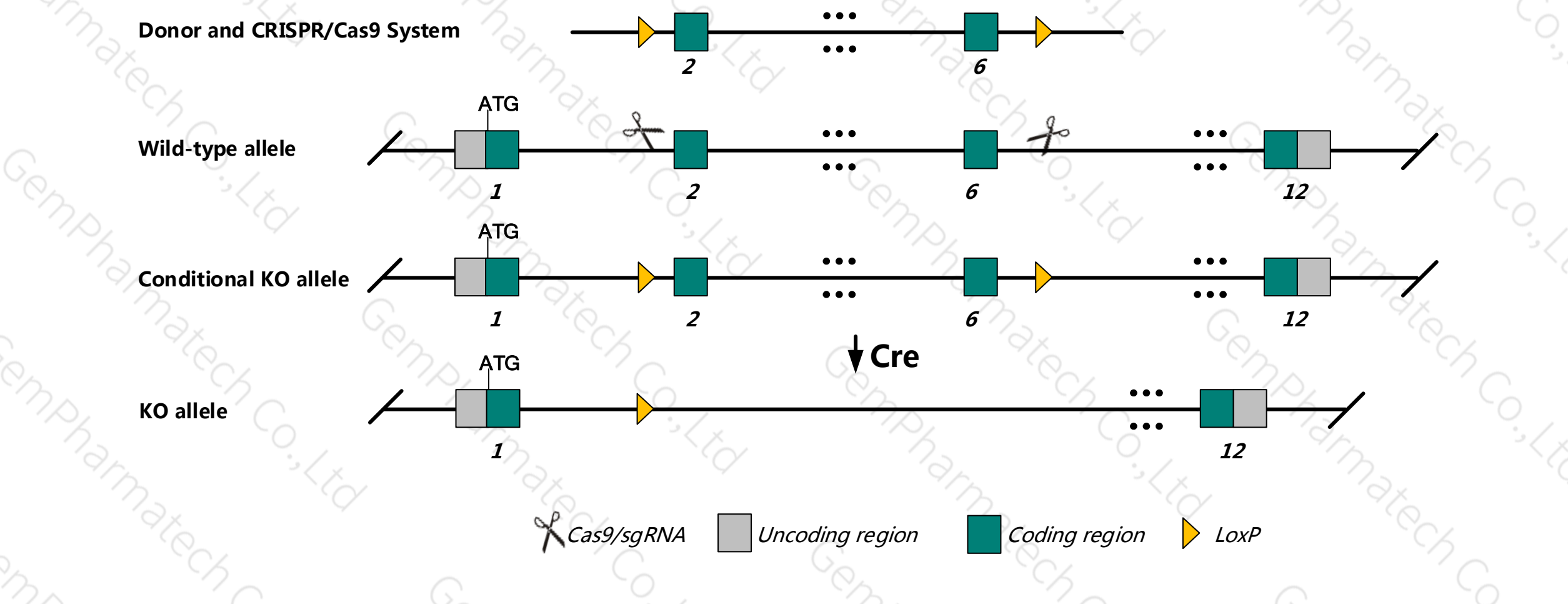
Cas9-CKO

Animal background

C57BL/6JGpt

Conditional Knockout strategy

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



Technical routes

- The *Rtkn* gene has 9 transcripts, According to the structure of *Rtkn* gene, exon2-exon6 of *Rtkn-201* transcript is recommended as the knockout region. The region contains the 644bp coding sequence. Knock out the region, result in destruction of protein.
- This project uses CRISPR/Cas9 technology to modify *Rtkn* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed, Cas9, sgRNA and donor were microinjected into fertilized eggs of C57BL/6JGpt mice and homologous recombination was carried out to obtain F0 mice. A stable and hereditary F1 generation mouse model was obtained by mating F0 generation mice with C57BL/6JGpt mice which were confirmed positive by PCR-sequencing.
- The flox mice was 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.

- Transcript *Rtkn*-209 may not be affected.
- The *Rtkn* gene is located in the Chr6. If the knockout mice are mixed with other mice, two target genes are avoided on the same chromosome as possible, otherwise the offspring of mice with double gene positive and homozygous gene knockout can not be obtained.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of gene transcription and translation processes, all risks cannot be predicted under existing information.

Gene information (NCBI)

Rtkn rhotekin [*Mus musculus* (house mouse)]

Gene ID: 20166, updated on 31-Jan-2019

Summary

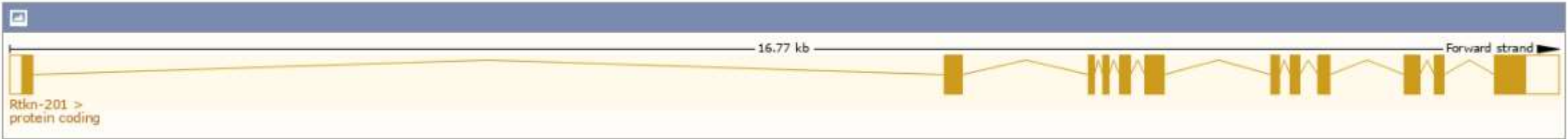
Official Symbol	Rtkn provided by MGI
Official Full Name	rhotekin provided by MGI
Primary source	MGI:MGI:107371
See related	Ensembl:ENSMUSG00000034930
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Ubiquitous expression in limb E14.5 (RPKM 11.3), duodenum adult (RPKM 8.2) and 27 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

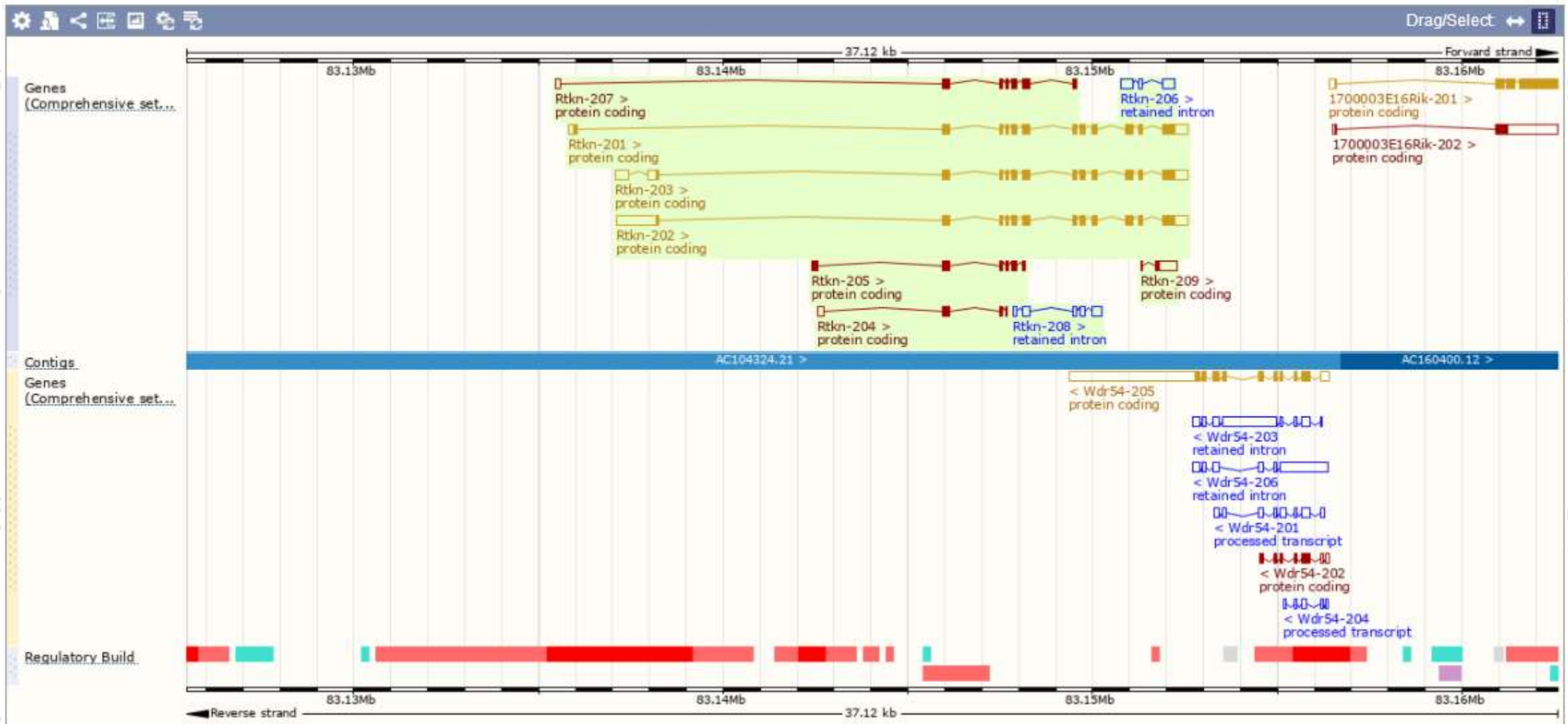
The gene has 9 transcripts, and all transcripts are shown below :

Show/hide columns (1 hidden)								Filter		
Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	RefSeq	Flags		
Rtkn-202	ENSMUST00000087938.10	3080	551aa	Protein coding	CCDS20274	Q8C6B2	NM_133641 NP_598396	TSL:1	GENCODE basic	APPRIS P3
Rtkn-203	ENSMUST00000121093.7	2597	551aa	Protein coding	CCDS20274	Q8C6B2	NM_009106 NP_033132	TSL:1	GENCODE basic	APPRIS P3
Rtkn-201	ENSMUST00000065512.10	2191	564aa	Protein coding	CCDS51817	Q8C6B2	NM_001136227 NP_001129699	TSL:1	GENCODE basic	APPRIS ALT2
Rtkn-207	ENSMUST00000135490.7	862	233aa	Protein coding	-	D3Z7S7	-	CDS 3' incomplete	TSL:5	
Rtkn-205	ENSMUST00000130622.7	653	217aa	Protein coding	-	D3Z4N1	-	CDS 3' incomplete	TSL:3	
Rtkn-209	ENSMUST00000213056.1	608	48aa	Protein coding	-	A0A1D5RLJ9	-	CDS 5' incomplete	TSL:3	
Rtkn-204	ENSMUST00000129316.1	434	82aa	Protein coding	-	D3YXC9	-	CDS 3' incomplete	TSL:3	
Rtkn-208	ENSMUST00000203183.1	792	No protein	Retained intron	-	-	-	TSL:3		
Rtkn-206	ENSMUST00000133226.1	750	No protein	Retained intron	-	-	-	TSL:2		

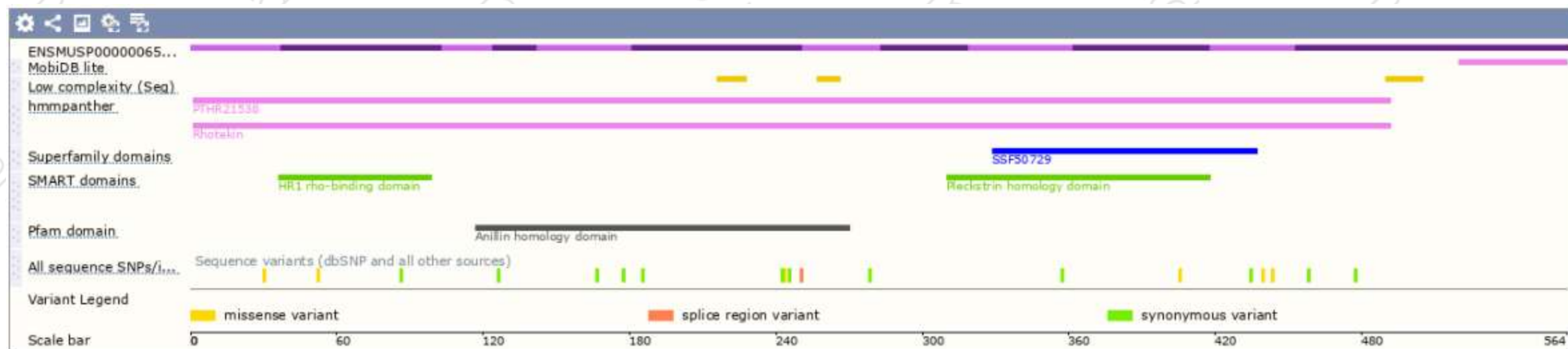
The strategy is based on the design of *Rtkn -201* transcript,The transcription is shown below :



Genomic location distribution



Protein domain



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