Ran Cas9-KO Strategy

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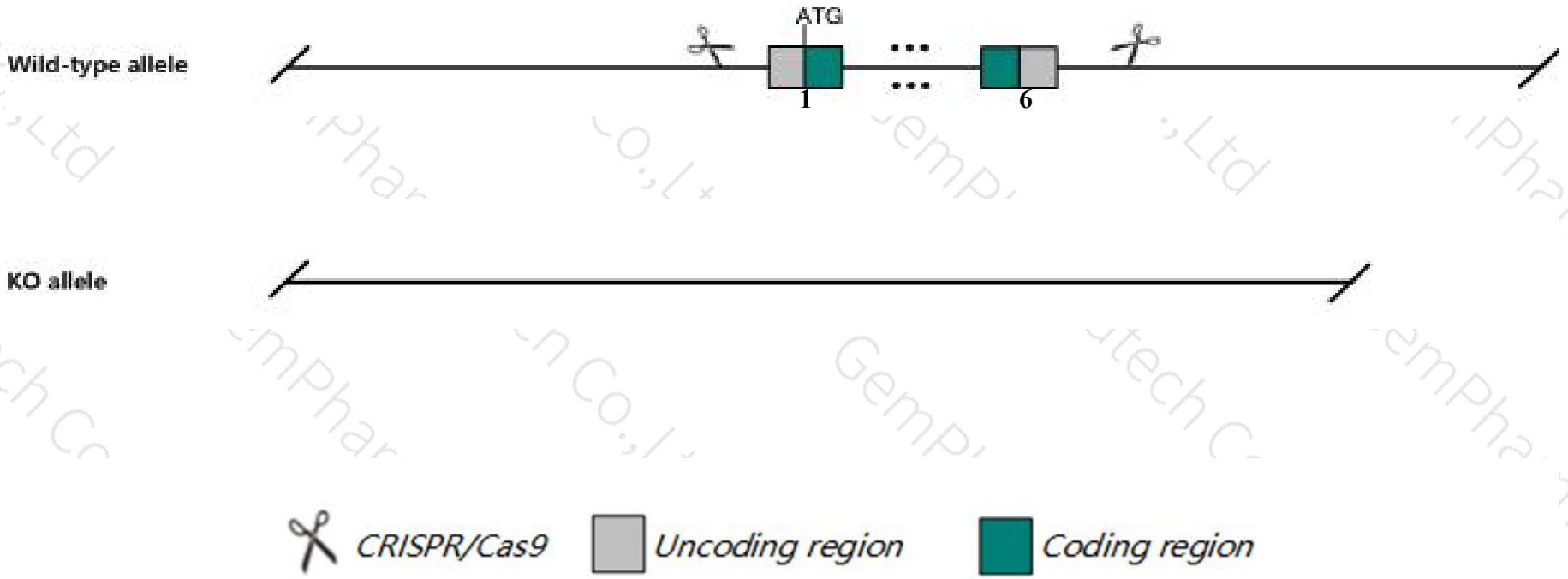
Project Overview

Project Name	***Ran***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

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



Technical routes

➢ The *Ran* gene has 3 transcripts. According to the structure of *Ran* gene, exon1-exon6 of *Ran-202* (ENSMUST00000111343.1) transcript is recommended as the knockout region.The region contains all 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 *Ran* gene. The brief process is as follows: CRISPR/Cas9 system w

Notice

- The *Ran* 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 the gene knockout on gene transcription, RNA splicing and protein translation cannot be predicted at the existing technology level.

Gene information（NCBI）

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Ran RAN, member RAS oncogene family [Mus musculus (house mouse)]

Gene ID: 19384, updated on 7-Apr-2019

Summary

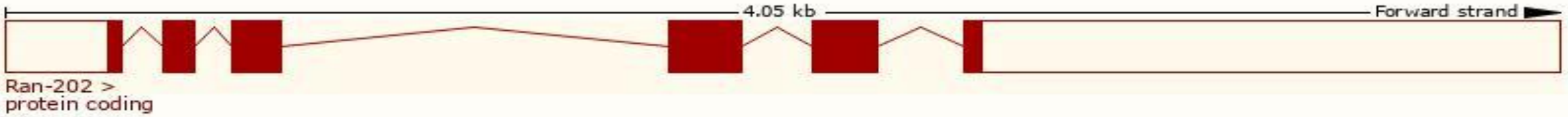
Official Symbol	Ran provided by MGI
Official Full Name	RAN, member RAS oncogene family provided by MGI
Primary source	MGI:MGI:1333112
See related	Ensembl:ENSMUSG00000029430
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Expression	Ubiquitous expression in CNS E11.5 (RPKM 161.6), liver E14 (RPKM 152.8) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

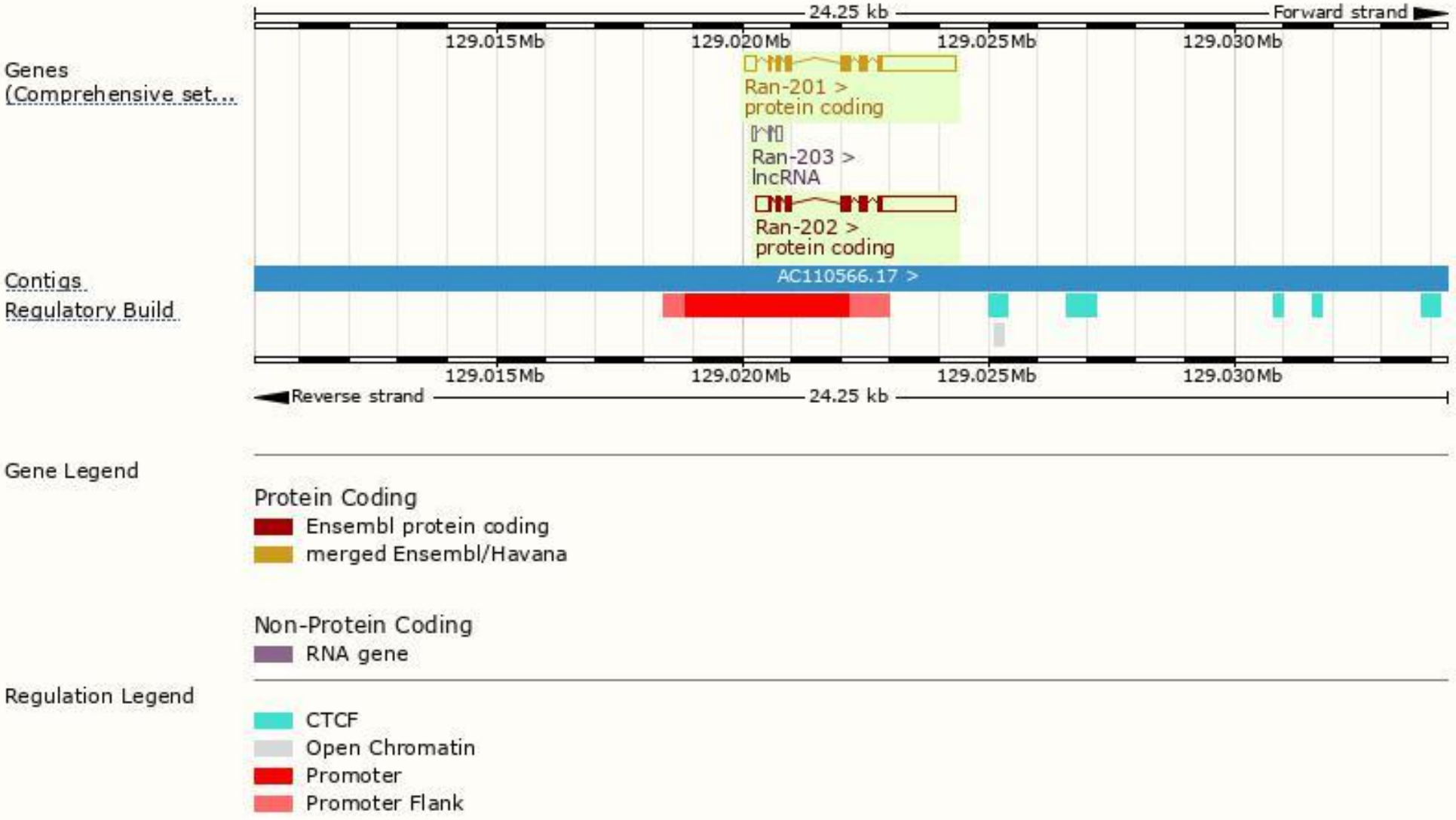
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ran-202	ENSMUST00000111343.1	2423	216aa	Protein coding	CCDS19693	P62827	TSL:1 GENCODE basic APPRIS P1
Ran-201	ENSMUST00000031383.13	2377	216aa	Protein coding	CCDS19693	P62827	TSL:1 GENCODE basic APPRIS P1
Ran-203	ENSMUST00000134632.1	229	No protein	lncRNA	-	-	TSL:2

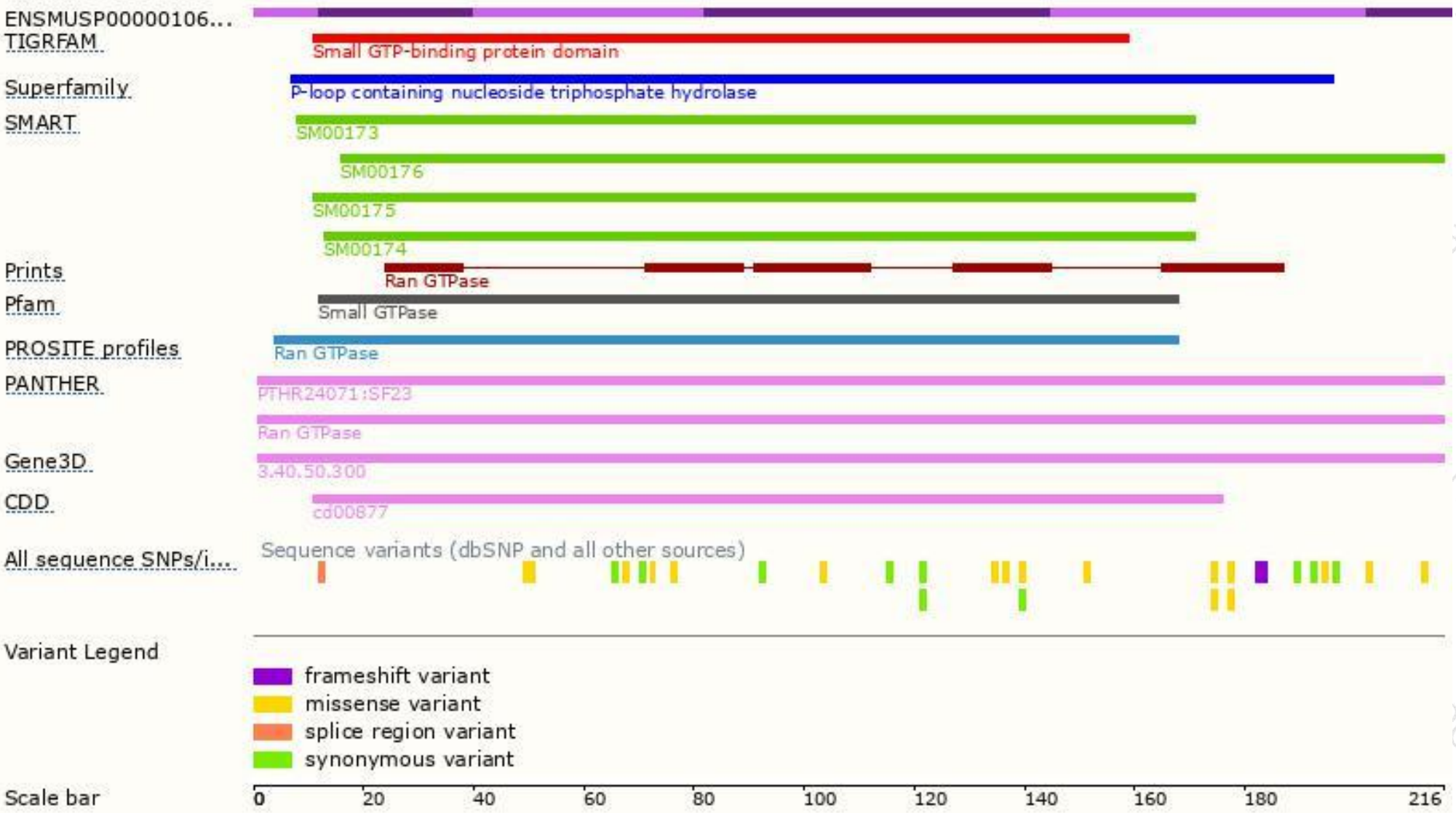
The strategy is based on the design of *Ran-202* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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