Ros1 Cas9-KO Strategy

Designer: Daohua Xu
Reviewer: Huimin Su

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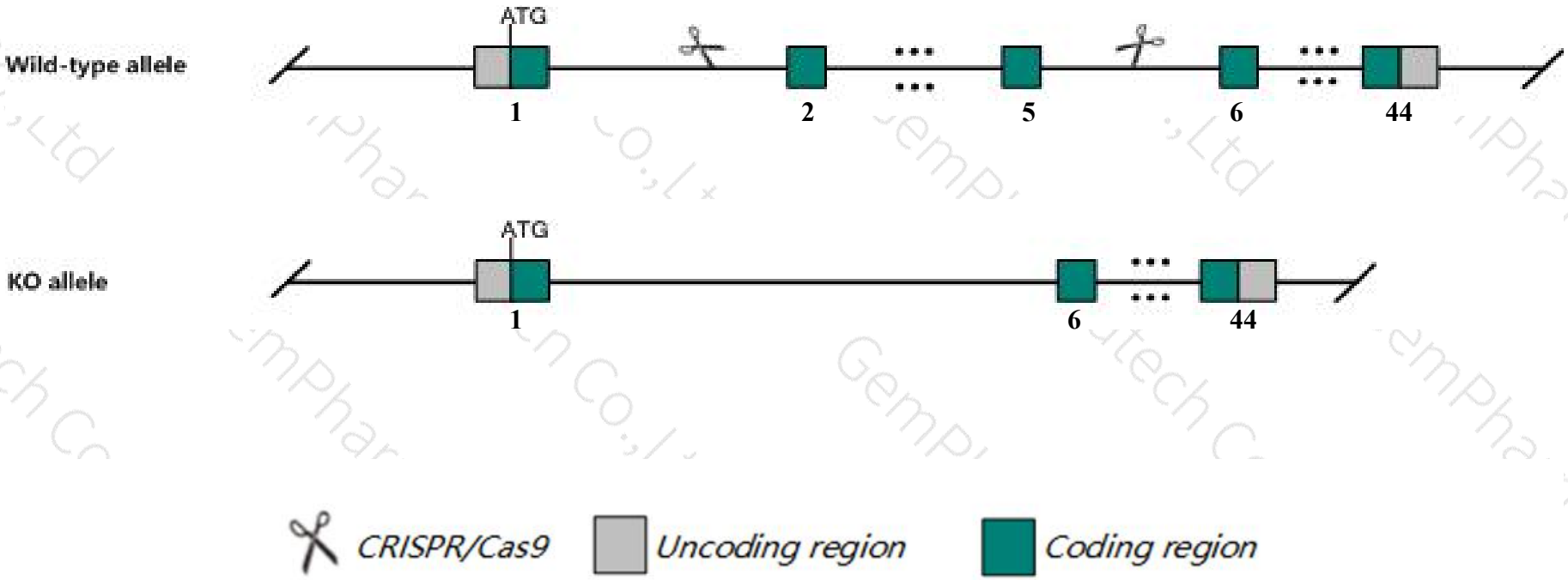
Project Overview

Project Name	***Ros1***
Project type	**Cas9-KO**
Strain background	**C57BL/6JGpt**

Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Ros1* gene. The schematic diagram is as follows:



Technical routes

➢ The *Ros1* gene has 4 transcripts. According to the structure of *Ros1* gene, exon2-exon5 of *Ros1-201* (ENSMUST00000020045.9) transcript is recommended as the knockout region.The region contains 193bp coding sequence. Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Ros1* gene. The brief process is as follows: CRISPR/Cas9 system v

Notice

- According to the existing MGI data,Homozygotes for targeted null mutations exhibit male infertility due to impaired sperm maturation in the epididymis. Mutant sperm are capable of fertilization in vitro but not in vivo.

- The *Ros1* gene is located on the Chr10. 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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Ros1 Ros1 proto-oncogene [Mus musculus (house mouse)]

Gene ID: 19886, updated on 31-Jan-2019

Summary

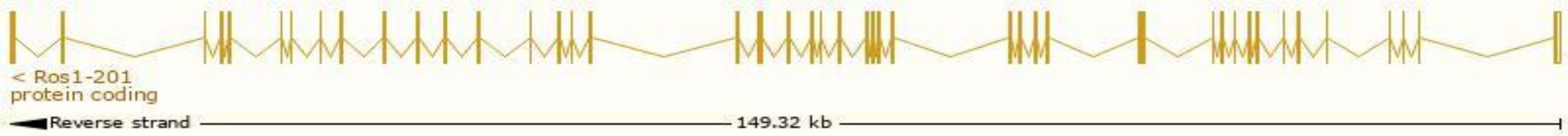
Official Symbol	Ros1 provided by MGI
Official Full Name	Ros1 proto-oncogene provided byMGI
Primary source	MGI:MGI:97999
See related	Ensembl:ENSMUSG00000019893
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	Ros-1, c-ros
Expression	Restricted expression toward genital fat pad adult (RPKM 7.5)See more
Orthologs	human all

Transcript information（Ensembl）

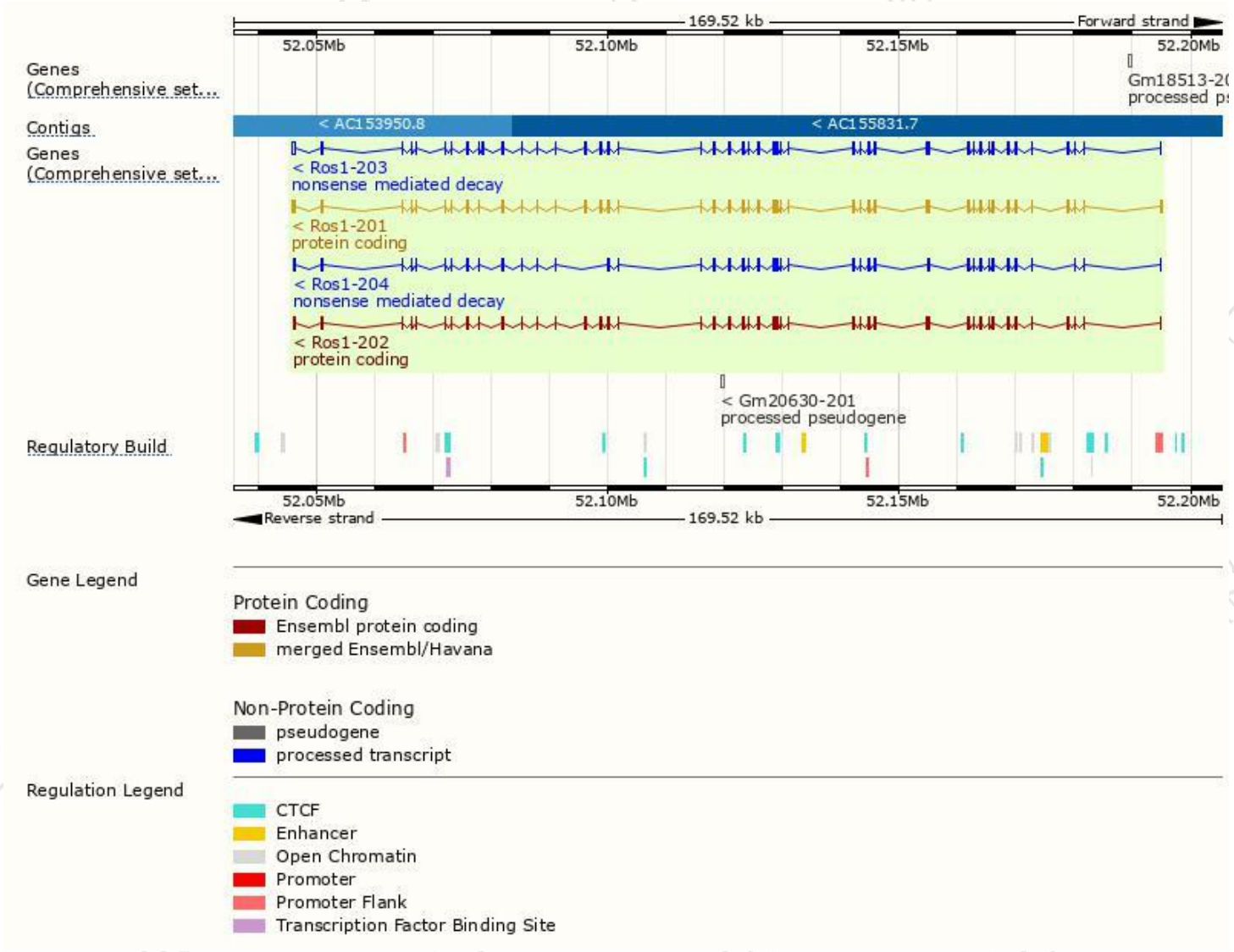
The gene has 4 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Ros1-201	ENSMUST00000020045.9	7401	2340aa	Protein coding	CCDS23838	Q78DX7	TSL:1 GENCODE basic APPRIS P2
Ros1-202	ENSMUST00000218452.1	6960	2319aa	Protein coding	-	A0A1W2P7L6	TSL:5 GENCODE basic APPRIS ALT2
Ros1-203	ENSMUST00000219173.1	7425	1855aa	Nonsense mediated decay	-	A0A1W2P7C6	TSL:5
Ros1-204	ENSMUST00000219692.1	6372	544aa	Nonsense mediated decay	-	A0A1W2P858	TSL:5

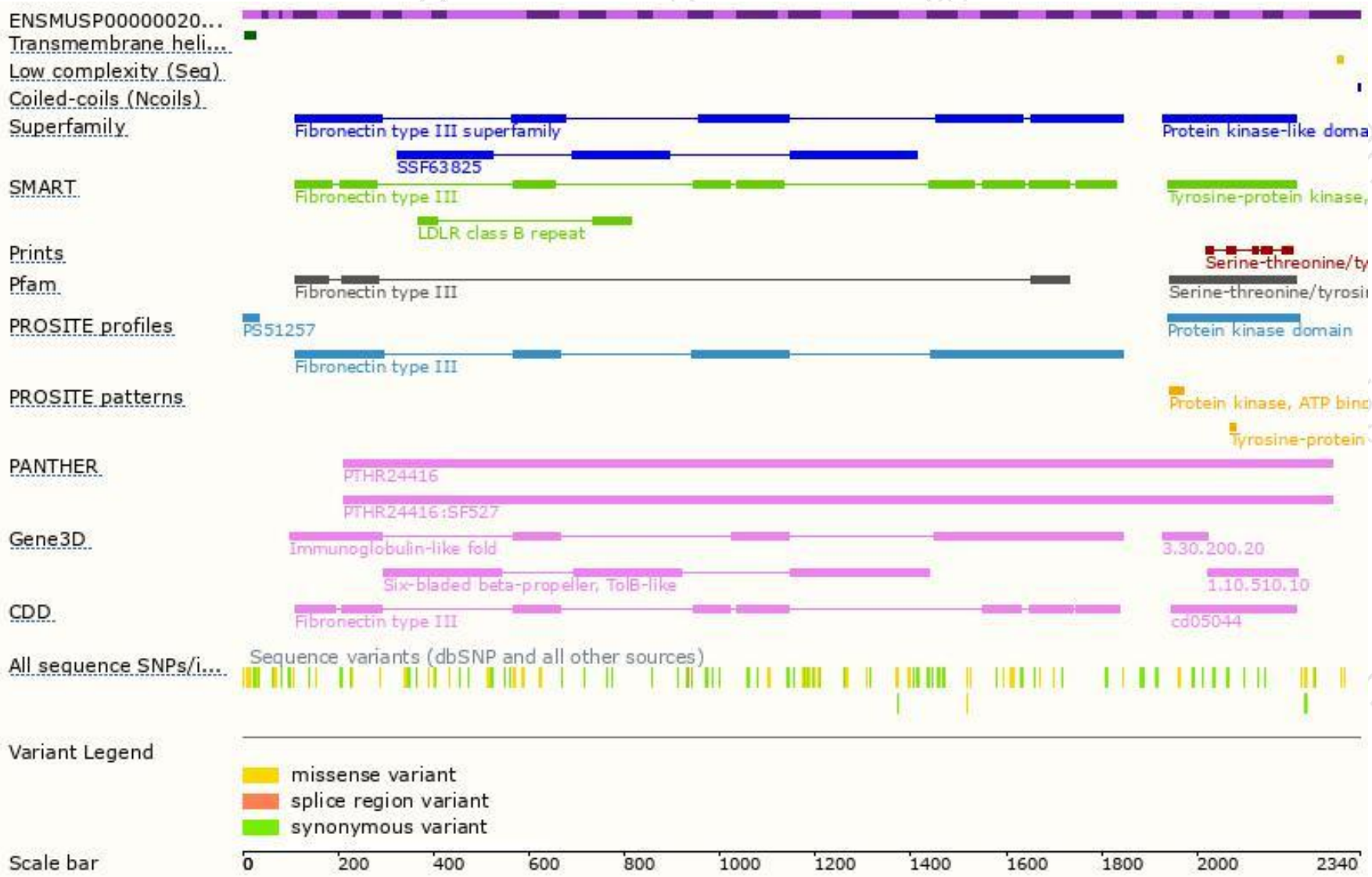
The strategy is based on the design of *Ros1-201* transcript,The transcription is shown below



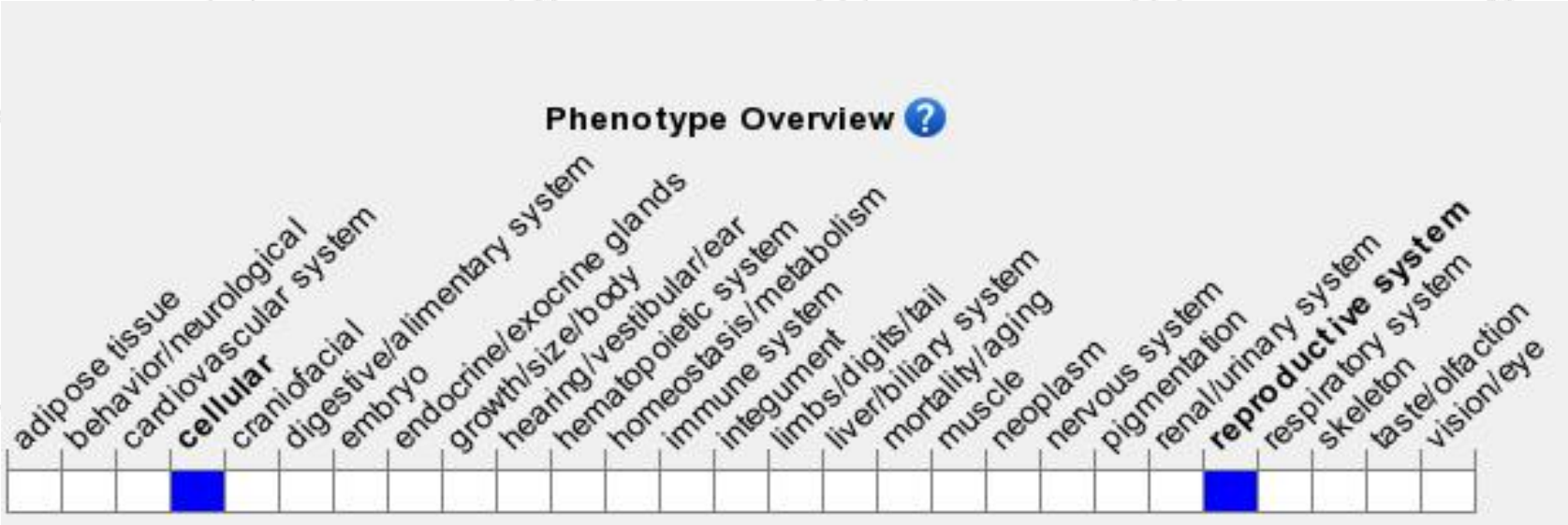
Genomic location distribution



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/).

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

Tel: 400-9660890

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GemPharmatech Co.,Ltd