

Scaper Cas9-KO Strategy

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Project Overview

Project Name

Scaper

Project type

Cas9-KO

Strain background

C57BL/6JGpt

Knockout strategy

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



- The *Scaper* gene has 5 transcripts. According to the structure of *Scaper* gene, exon3 of *Scaper*-201(ENSMUST00000037408.8) transcript is recommended as the knockout region. The region contains 71bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Scaper* gene. The brief process is as follows: CRISPR/Cas9 system 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 *Scaper* gene is located on the Chr9. 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)

Scaper S phase cyclin A-associated protein in the ER [Mus musculus (house mouse)]

Gene ID: 244891, updated on 13-Mar-2020

Summary



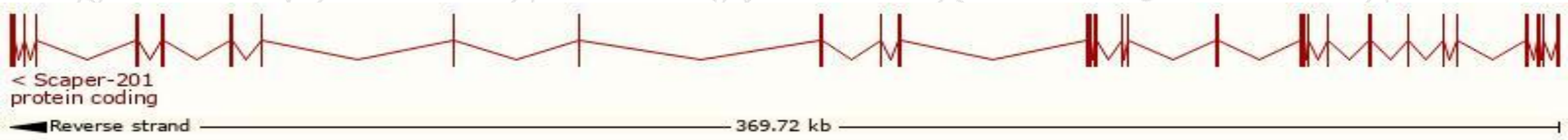
Official Symbol	Scaper provided by MGI
Official Full Name	S phase cyclin A-associated protein in the ER provided by MGI
Primary source	MGI:MGI:1925976
See related	Ensembl:ENSMUSG00000034007
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	C430017I08, D530014O03Rik, Zfp291
Expression	Ubiquitous expression in testis adult (RPKM 5.9), CNS E18 (RPKM 5.6) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

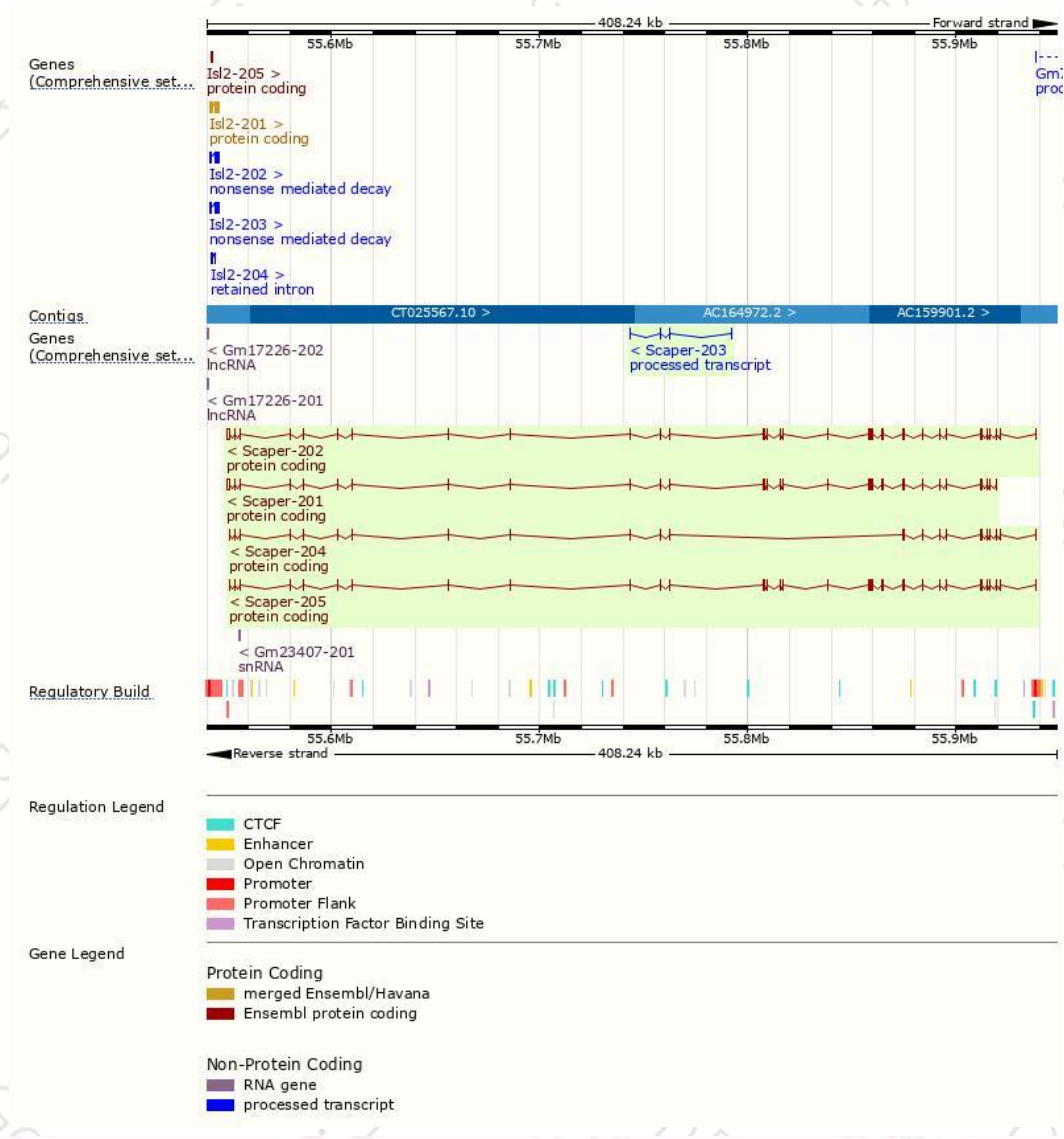
The gene has 5 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Scaper-201	ENSMUST00000037408.8	5158	1398aa	Protein coding	CCDS52802	F8VQ70	TSL:5 GENCODE basic APPRIS P2
Scaper-205	ENSMUST00000217647.1	4370	1398aa	Protein coding	CCDS52802	F8VQ70	TSL:5 GENCODE basic APPRIS P2
Scaper-202	ENSMUST00000214747.1	5231	1392aa	Protein coding	-	B2RXS3	TSL:5 GENCODE basic APPRIS ALT2
Scaper-204	ENSMUST00000216595.1	2911	905aa	Protein coding	-	Q8BIZ8	TSL:1 GENCODE basic
Scaper-203	ENSMUST00000215323.1	387	No protein	Processed transcript	-	-	TSL:2

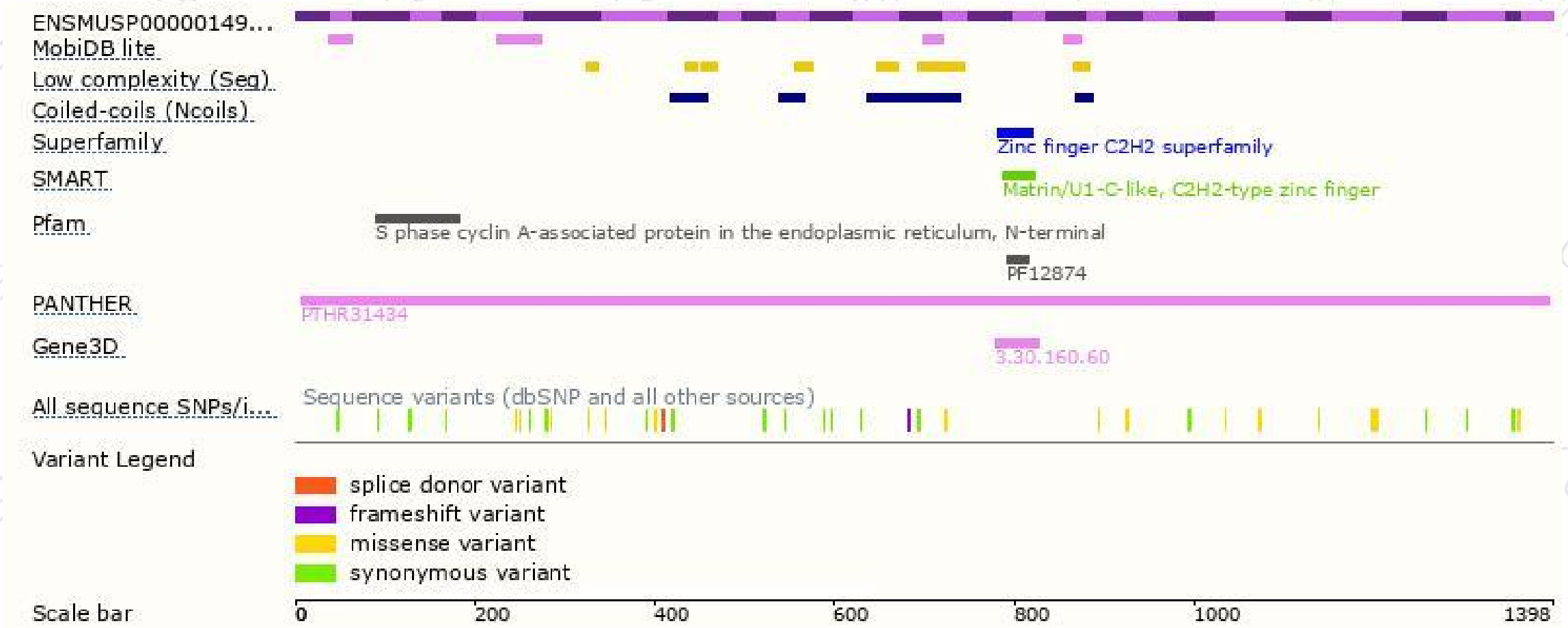
The strategy is based on the design of *Scaper-201* transcript,the transcription is shown below:



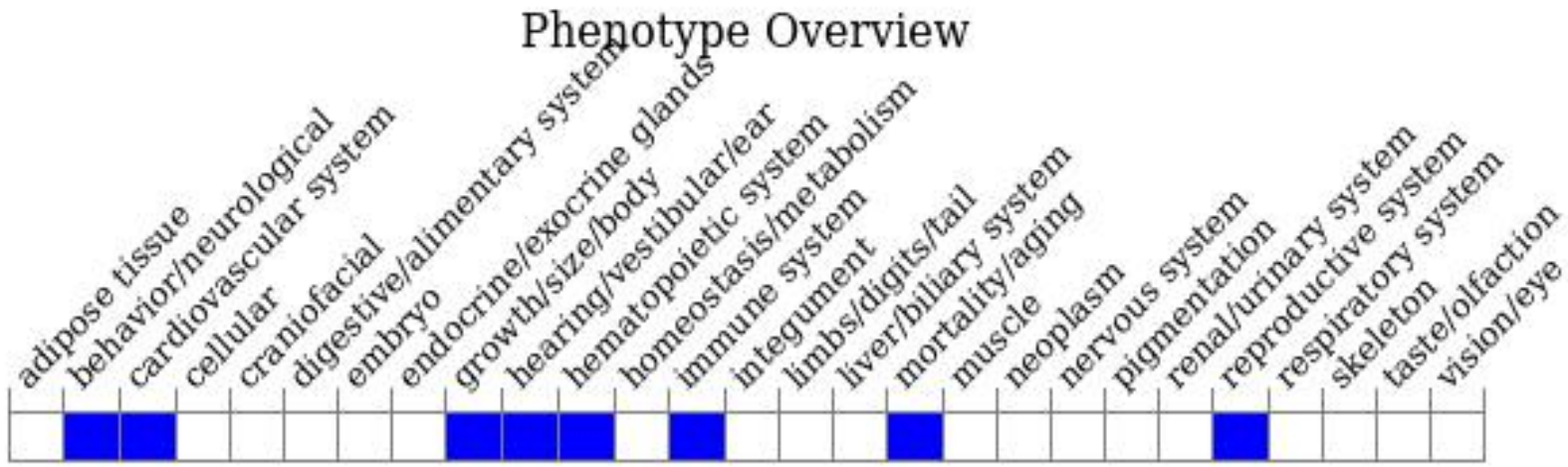
Genomic location distribution



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/>).

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

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