

Nsun5 Cas9-CKO Strategy

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Reviewer:

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Design Date:

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Project Overview

Project Name

Nsun5

Project type

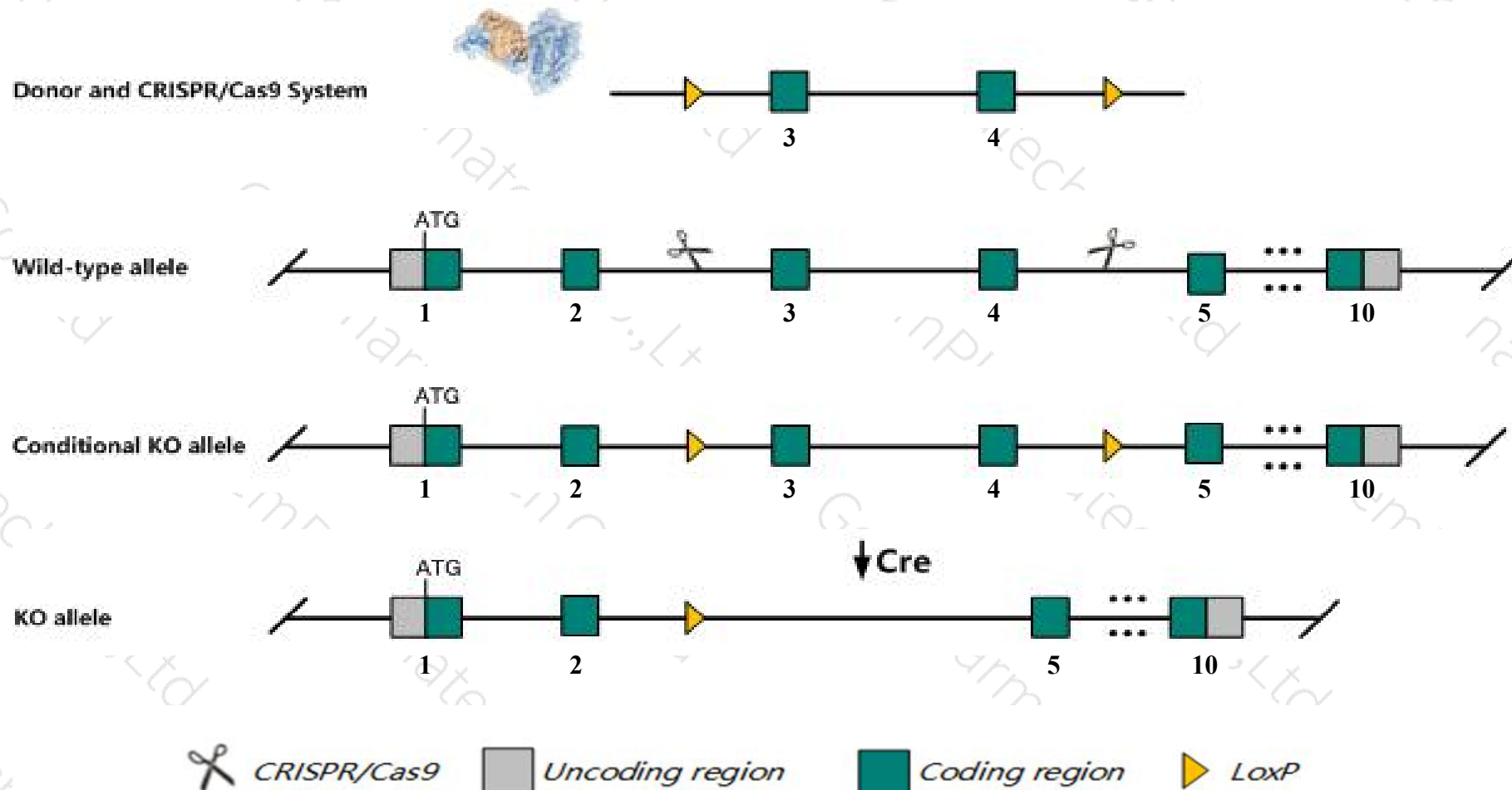
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Nsun5* gene. The schematic diagram is as follows:



Technical routes

- The *Nsun5* gene has 9 transcripts. According to the structure of *Nsun5* gene, exon3-exon4 of *Nsun5*-201 (ENSMUST00000000940.14) transcript is recommended as the knockout region. The region contains 284bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Nsun5* 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 *Nsun5* 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 loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information (NCBI)

Nsun5 NOL1/NOP2/Sun domain family, member 5 [Mus musculus (house mouse)]

Gene ID: 100609, updated on 31-Jan-2019

Summary



Official Symbol Nsun5 provided by [MGI](#)

Official Full Name NOL1/NOP2/Sun domain family, member 5 provided by [MGI](#)

Primary source [MGI:MGI:2140844](#)

See related [Ensembl:ENSMUSG00000000916](#)

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 9830109N13Rik, AI326939, Nol1r, Wbscr20, Wbscr20a

Expression Ubiquitous expression in thymus adult (RPKM 14.2), limb E14.5 (RPKM 13.8) and 28 other tissues [See more](#)

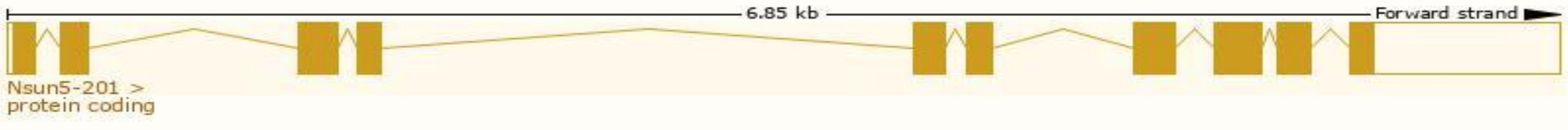
Orthologs [human](#) [all](#)

Transcript information (Ensembl)

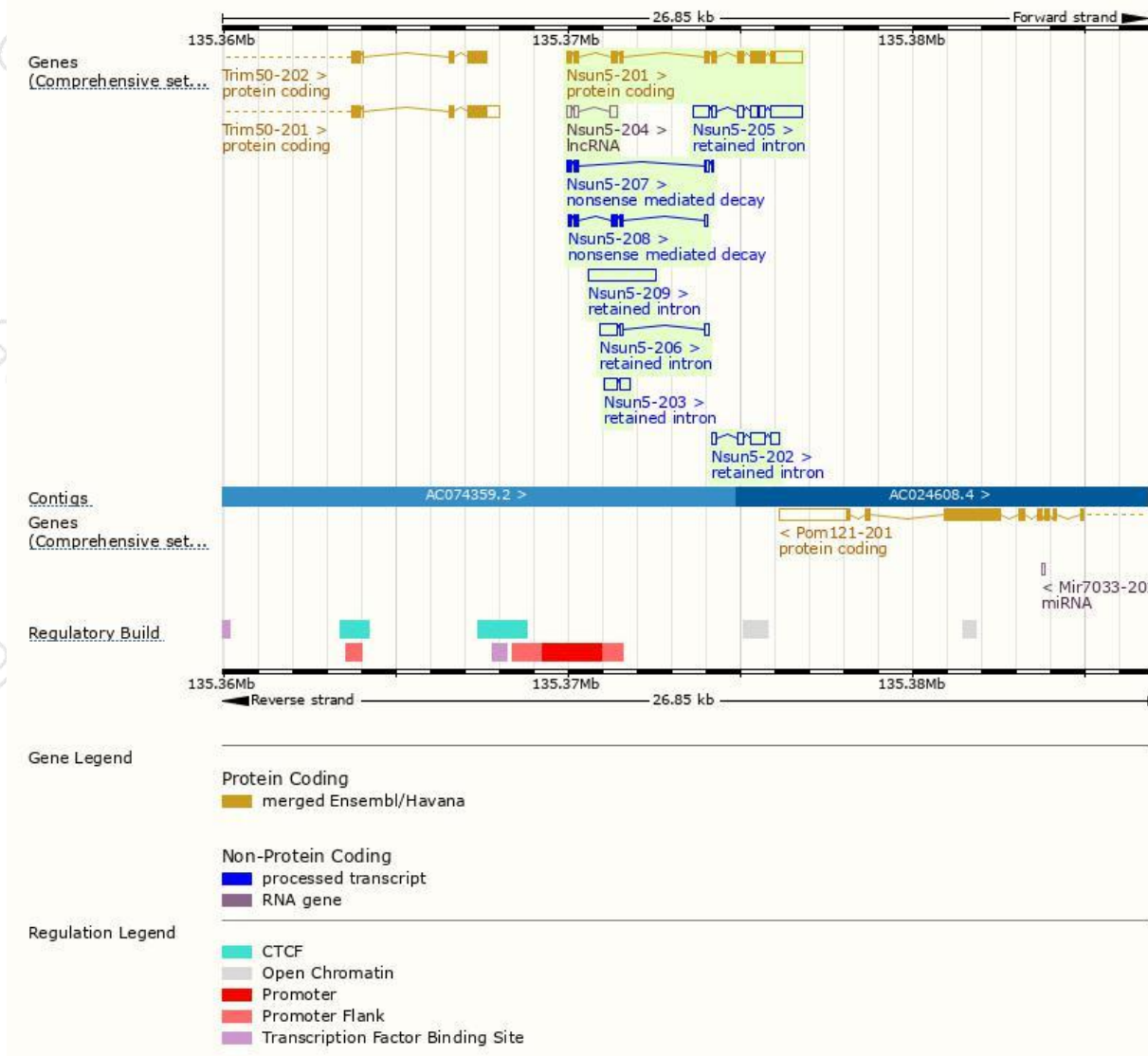
The gene has 9 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Nsun5-201	ENSMUST00000000940.14	2243	465aa	Protein coding	CCDS19740	Q8K4F6	TSL:1 GENCODE basic APPRIS P1
Nsun5-208	ENSMUST00000202422.1	597	142aa	Nonsense mediated decay	-	A0A0J9YTU6	CDS 5' incomplete TSL:3
Nsun5-207	ENSMUST00000170342.4	385	91aa	Nonsense mediated decay	-	E9QAY1	TSL:3
Nsun5-205	ENSMUST00000131863.7	1991	No protein	Retained intron	-	-	TSL:1
Nsun5-209	ENSMUST00000202792.1	1965	No protein	Retained intron	-	-	TSL:NA
Nsun5-202	ENSMUST00000124453.2	952	No protein	Retained intron	-	-	TSL:3
Nsun5-206	ENSMUST00000141867.1	729	No protein	Retained intron	-	-	TSL:3
Nsun5-203	ENSMUST00000126454.1	668	No protein	Retained intron	-	-	TSL:2
Nsun5-204	ENSMUST00000127746.1	415	No protein	lncRNA	-	-	TSL:3

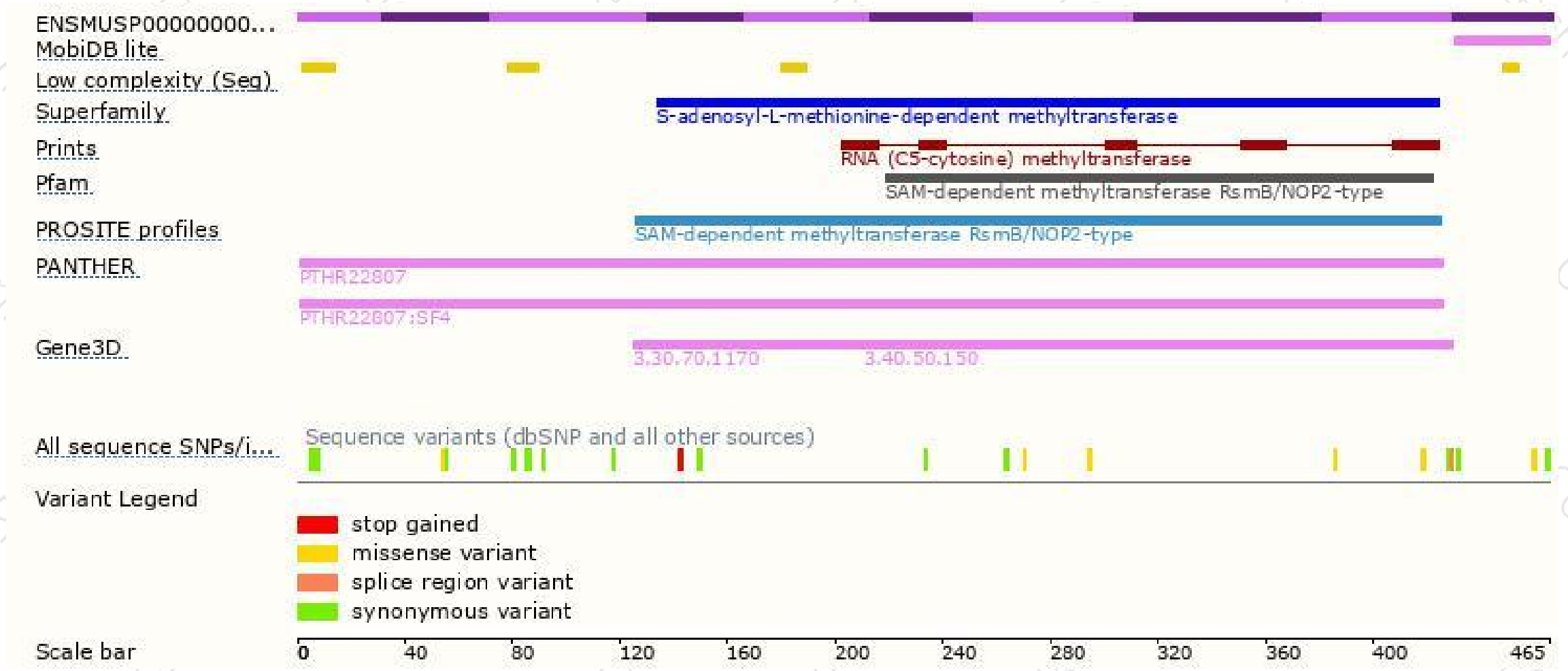
The strategy is based on the design of *Nsun5-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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