

Srd5a3 Cas9-CKO Strategy

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Project Overview

Project Name

Srd5a3

Project type

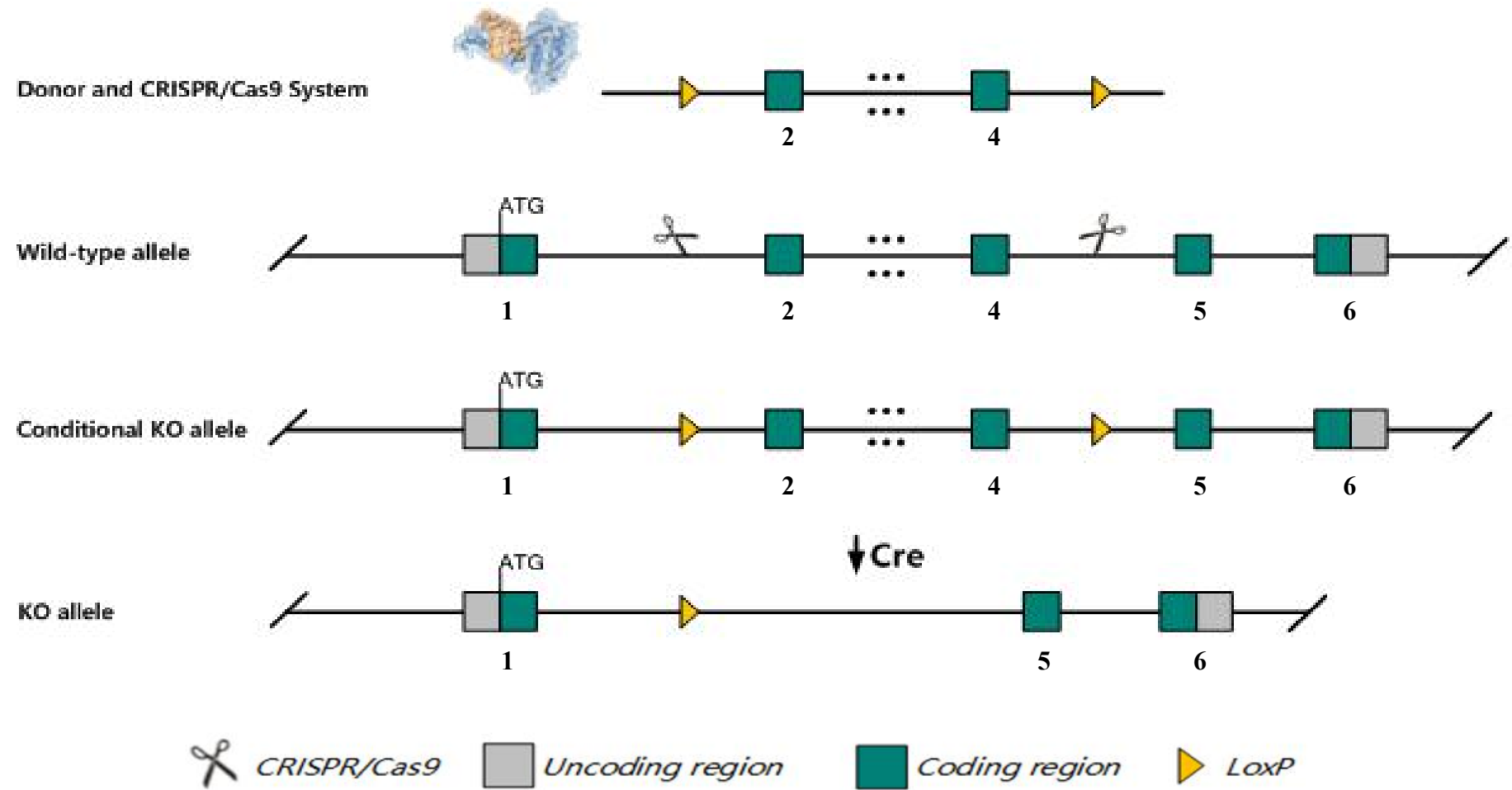
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Srd5a3* gene. The schematic diagram is as follows:



The *Srd5a3* gene has 8 transcripts. According to the structure of *Srd5a3* gene, exon2-exon4 of *Srd5a3-201*(ENSMUST00000031143.13) transcript is recommended as the knockout region. The region contains 377bp coding sequence. Knock out the region will result in disruption of protein function.

In this project we use CRISPR/Cas9 technology to modify *Srd5a3* 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.

According to the existing MGI data, mice homozygous for a gene trapped allele exhibit embryonic lethality between E11.5 and E13.5 with open neural tubes, failure to turn, dilated hearts, and ventral body wall defects.

The *Srd5a3* 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.

Srd5a3 steroid 5 alpha-reductase 3 [Mus musculus (house mouse)]

Gene ID: 57357, updated on 17-Feb-2021

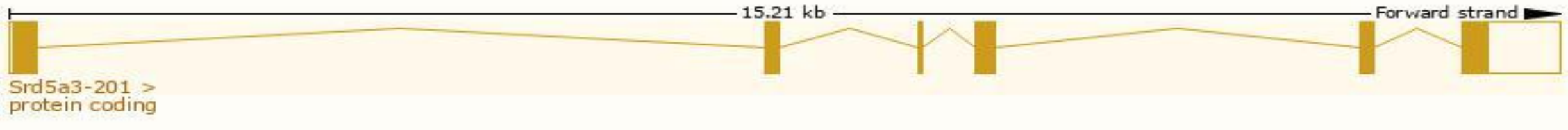
Summary**Official Symbol** Srd5a3 provided by [MGI](#)**Official Full Name** steroid 5 alpha-reductase 3 provided by [MGI](#)**Primary source** [MGI:MGI:1930252](#)**See related** [Ensembl:ENSMUSG00000029233](#)**Gene type** protein coding**RefSeq status** VALIDATED**Organism** [Mus musculus](#)**Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus**Also known as** 1110025P14Rik, A430076C09, AV364670, AW987574, D730040M03Rik, H5ar, S5AR 3, Srd, Srd5a2l**Expression** Ubiquitous expression in adrenal adult (RPKM 34.2), ovary adult (RPKM 24.0) and 28 other tissues [See more](#)**Orthologs** [human](#) [all](#)

Transcript information Ensembl

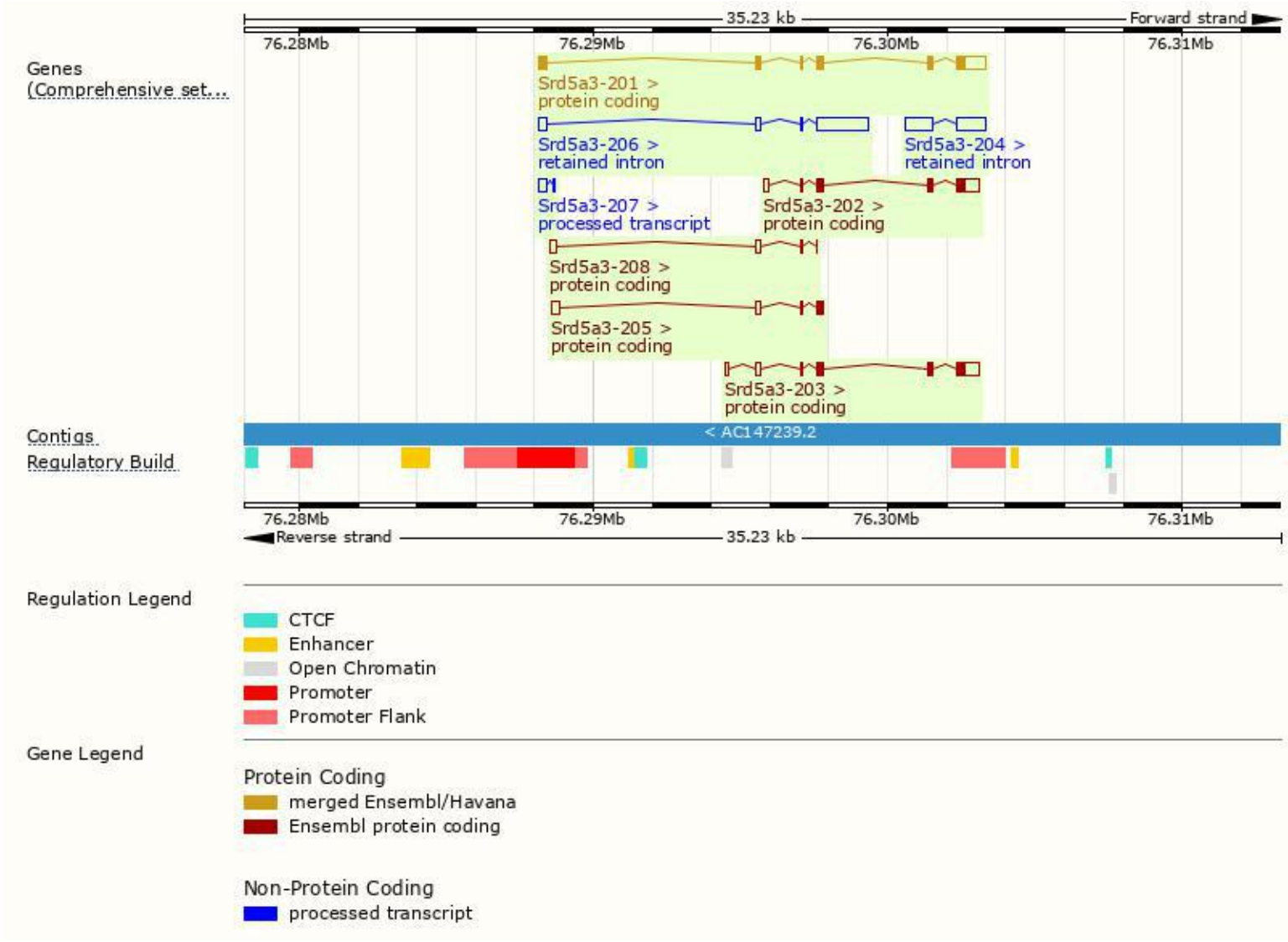
The gene has 8 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Srd5a3-201	ENSMUST00000031143.13	1747	330aa	Protein coding	CCDS19358		TSL:1 , GENCODE basic , APPRIS P2 ,
Srd5a3-203	ENSMUST00000113507.8	1358	206aa	Protein coding	-		TSL:1 , GENCODE basic , APPRIS ALT2 ,
Srd5a3-202	ENSMUST00000113506.2	1241	206aa	Protein coding	-		TSL:5 , GENCODE basic , APPRIS ALT2 ,
Srd5a3-205	ENSMUST00000127278.8	628	74aa	Protein coding	-		CDS 3' incomplete , TSL:3 ,
Srd5a3-208	ENSMUST00000152642.8	351	10aa	Protein coding	-		CDS 3' incomplete , TSL:5 ,
Srd5a3-207	ENSMUST00000149222.2	326	No protein	Processed transcript	-		TSL:3 ,
Srd5a3-206	ENSMUST00000138699.8	2220	No protein	Retained intron	-		TSL:1 ,
Srd5a3-204	ENSMUST00000124217.2	1872	No protein	Retained intron	-		TSL:2 ,

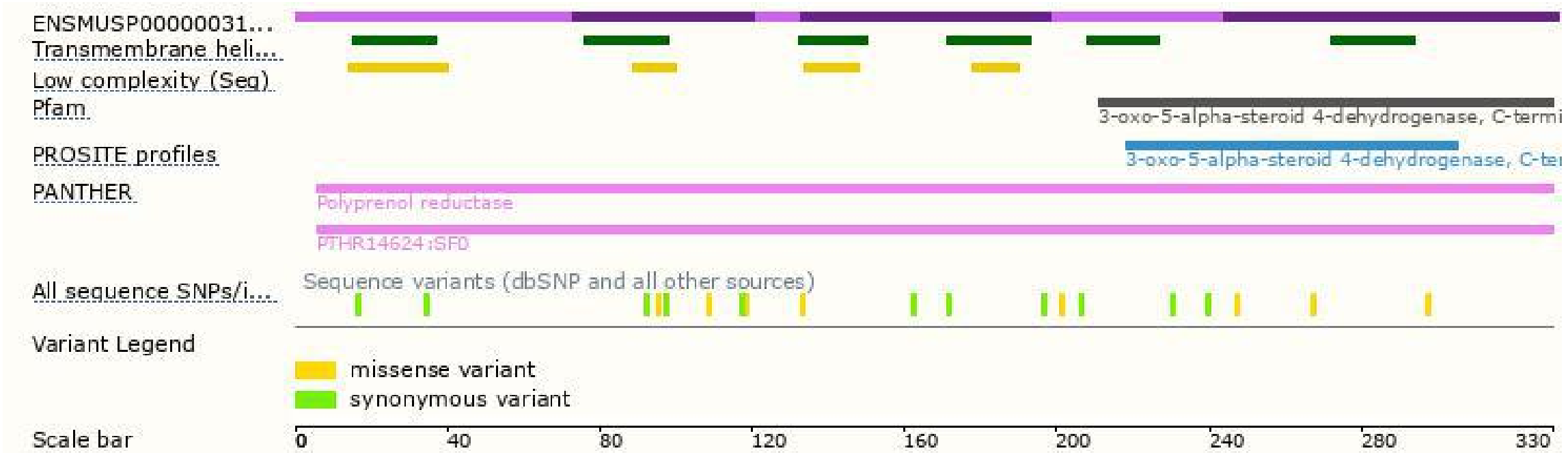
The strategy is based on the design of *Srd5a3-201* transcript,the transcription is shown below:



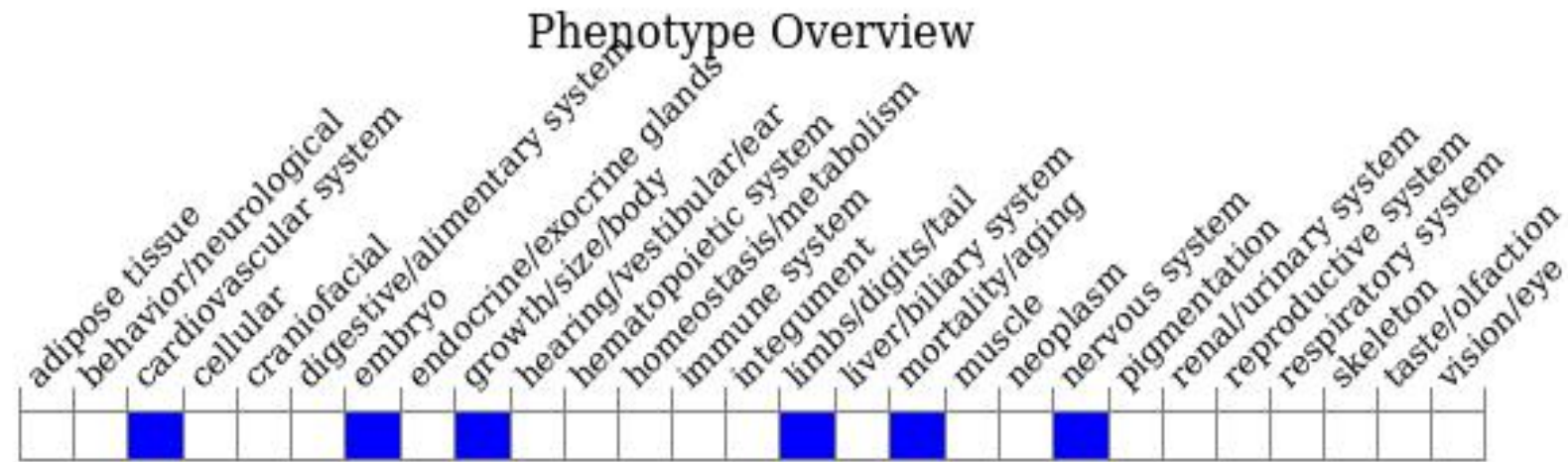
Genomic location distribution



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/>).

According to the existing MGI data, mice homozygous for a gene trapped allele exhibit embryonic lethality between E11.5 and E13.5 with open neural tubes, failure to turn, dilated hearts, and ventral body wall defects.

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