Desi1 Cas9-CKO Strategy

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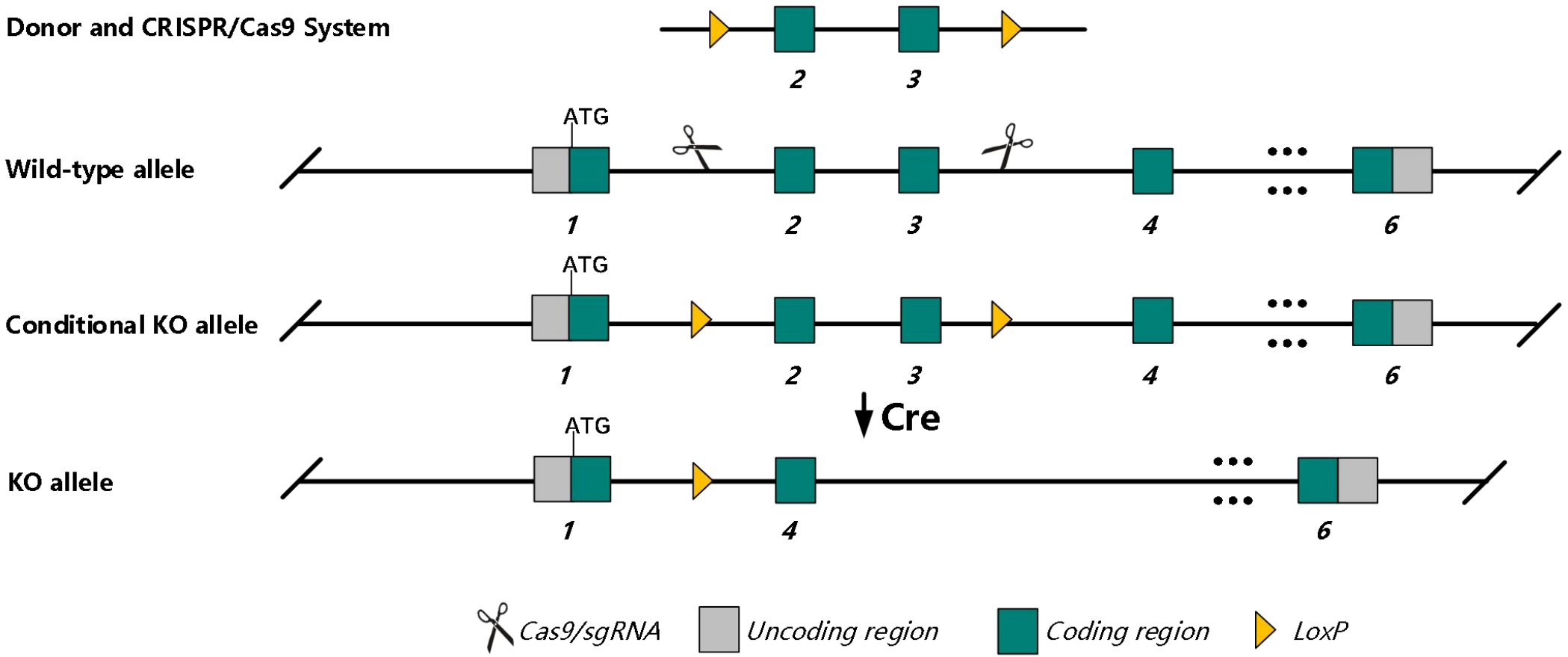
Project Overview

Project Name	***Desi1***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Desi1* gene. The schematic diagram is as follows:



Technical routes

- The *Desi1* gene has 6 transcripts. According to the structure of *Desi1* gene, exon2-exon3 of *Desi1-206* (ENSMUST00000152227.7) transcript is recommended as the knockout region.The region contains 92bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Desi1* 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 *Desi1* gene is located on the Chr15. 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.

➢The knockout region is located in the intron of Xrcc6-207 , which may affect its normal cleavage.

➢ 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）

集萃药康 GemPharmatech

Desi1 desumoylating isopeptidase 1 [*Mus musculus* (house mouse)]

Gene ID: 28075, updated on 13-Mar-2020

Summary

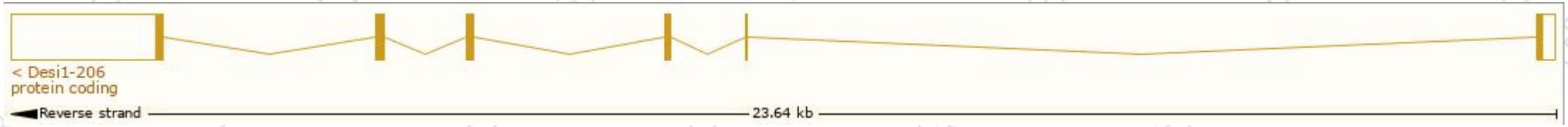
Official Symbol	Desi1 provided by MGI
Official Full Name	desumoylating isopeptidase 1 provided by MGI
Primary source	MGI:MGI:106313
See related	Ensembl:ENSMUSG00000022472
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	DeSI-1; Pppde2; Fam152b; AI427858; AI850401; D15Wsu75e
Expression	Broad expression in testis adult (RPKM 105.5), thymus adult (RPKM 62.0) and 28 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

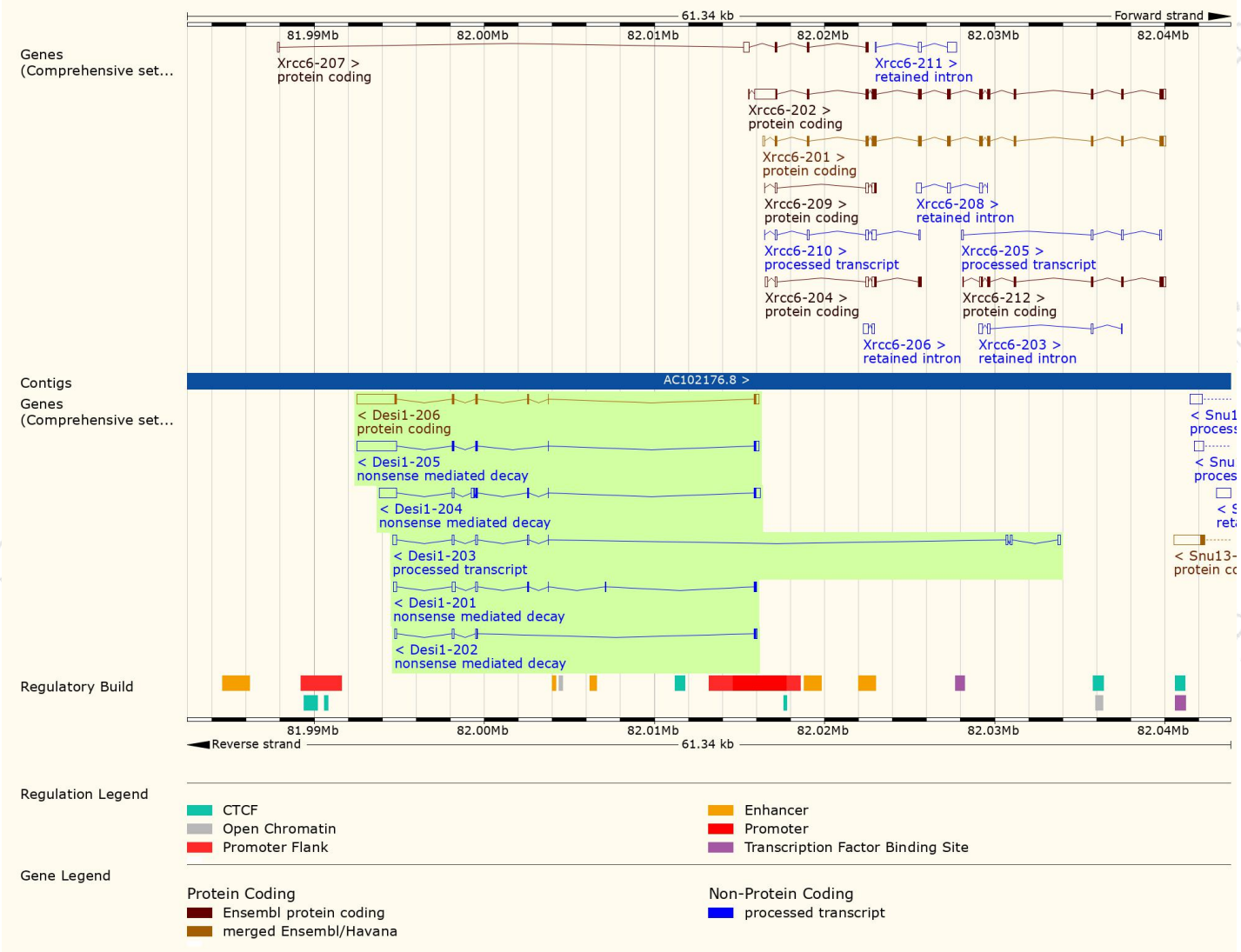
The gene has 6 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Desi1-201	ENSMUST00000023110.6	748	57aa	Nonsense mediated decay	-	F8WJJ8	TSL:3
Desi1-202	ENSMUST00000089187.6	518	41aa	Nonsense mediated decay	-	E9Q2Y9	TSL:5
Desi1-203	ENSMUST00000129039.7	881	No protein	Processed transcript	-	-	TSL:5
Desi1-204	ENSMUST00000135988.7	1855	106aa	Nonsense mediated decay	-	Q3TCG9	TSL:1
Desi1-205	ENSMUST00000146628.7	2854	95aa	Nonsense mediated decay	-	D6RDE8	TSL:1
Desi1-206	ENSMUST00000152227.7	2934	168aa	Protein coding	CCDS27681	Q9CQT7	TSL:1 GENCODE basic APPRIS P1

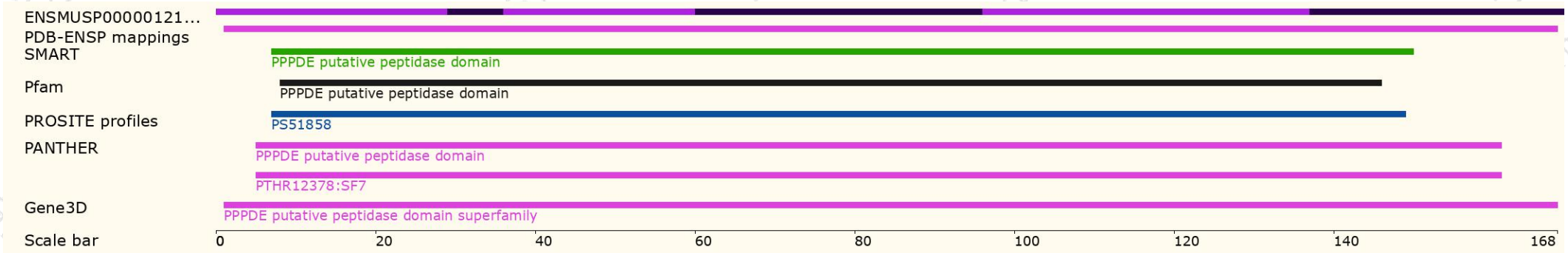
The strategy is based on the design of *Desi1-206* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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

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