Zxdc Cas9-CKO Strategy

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Project Overview

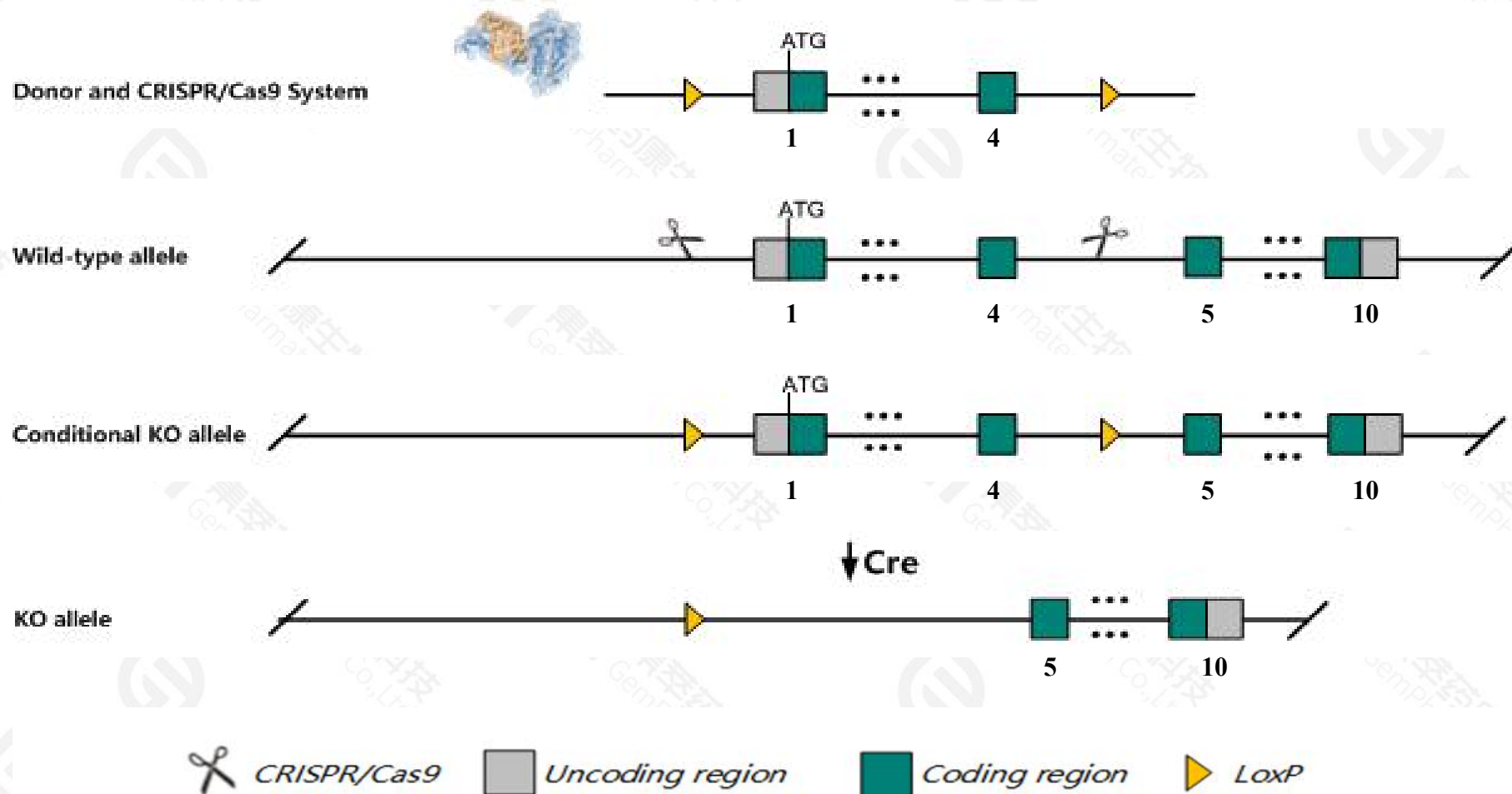|	
Project Name	*Zxdc*
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

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

Technical routes

➢ The *Zxdc* gene has 5 transcripts. According to the structure of *Zxdc* gene, exon1-exon4 of *Zxdc-202*(ENSMUST00000075117.10) transcript is recommended as the knockout region.The region contains start codon ATG.Knock out the region will result in disruption of protein function.

➢ In this project we use CRISPR/Cas9 technology to modify *Zxdc* 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 *Zxdc* gene is located on the Chr6. 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）

Zxdc ZXD family zinc finger C [Mus musculus (house mouse)]

Gene ID: 80292, updated on 17-Nov-2020

Summary

|	
Official Symbol	Zxdc provided by MGI
Official Full Name	ZXD family zinc finger C provided byMGI
Primary source	MGI:MGI:1933108
See related	Ensembl:ENSMUSG00000034430
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	A930012H20, B930086F11Rik, BC003332
Expression	Ubiquitous expression in ovary adult (RPKM 12.4), adrenal adult (RPKM 10.2) and 28 other tissuesSee 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
Zxdc-203	ENSMUST00000113539.8	4864	712aa	Protein coding	CCDS51848		TSL:1 , GENCODE basic , APPRIS ALT2 ,
Zxdc-202	ENSMUST00000075117.10	4126	858aa	Protein coding	CCDS20358		TSL:1 , GENCODE basic , APPRIS P3 ,
Zxdc-201	ENSMUST00000045740.8	1612	512aa	Protein coding	-		TSL:1 , GENCODE basic , APPRIS ALT2 ,
Zxdc-205	ENSMUST00000203493.2	1035	152aa	Protein coding	-		CDS 5' incomplete , TSL:1 ,
Zxdc-204	ENSMUST00000137483.2	2961	No protein	Retained intron	-		TSL:2 ,

The strategy is based on the design of *Zxdc-202* transcript,the transcription is shown below:
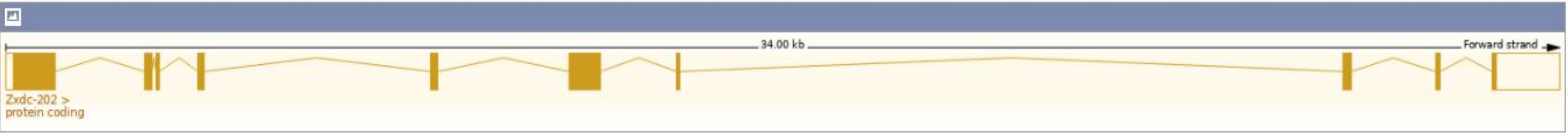
Genomic location distribution
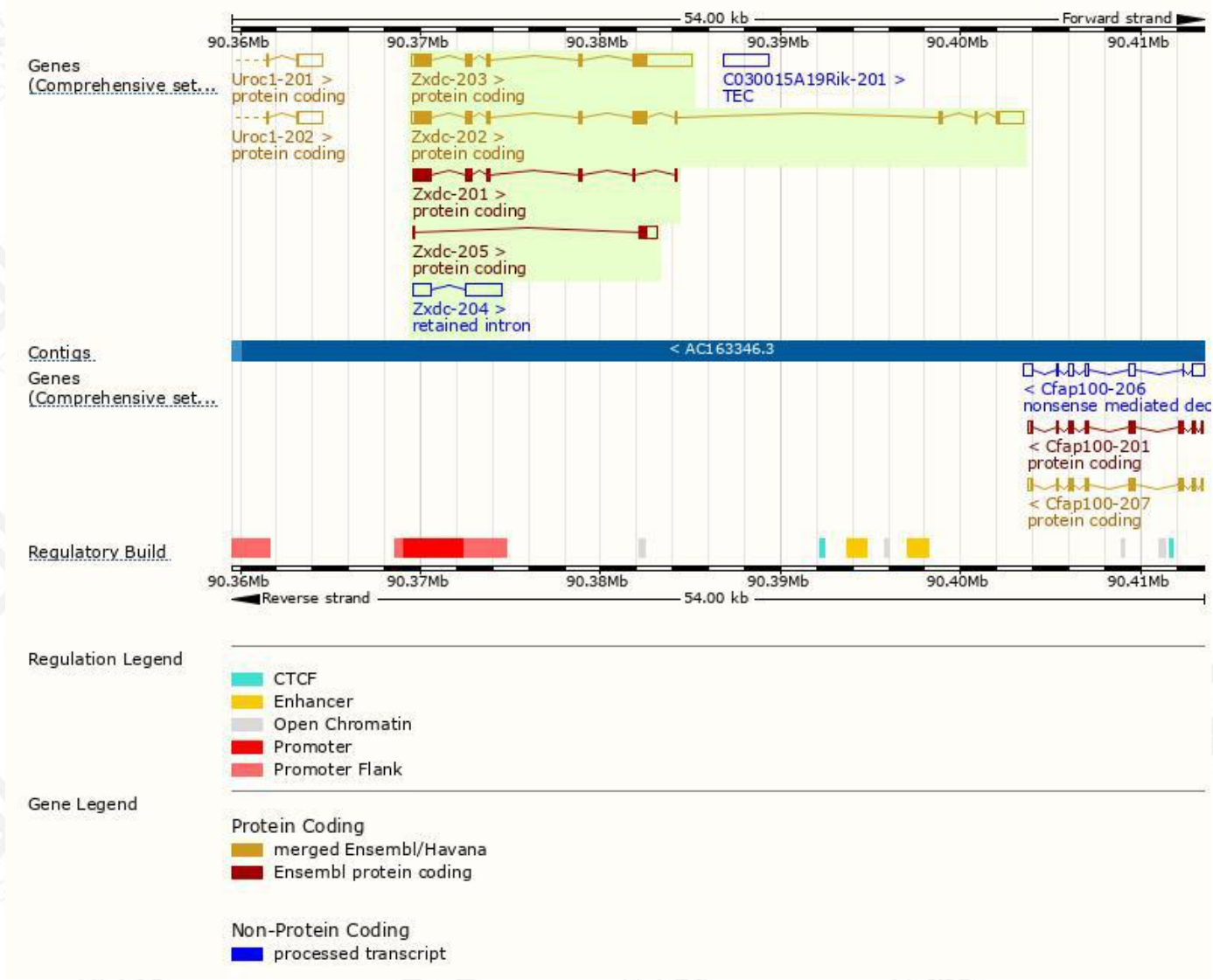
Protein domain
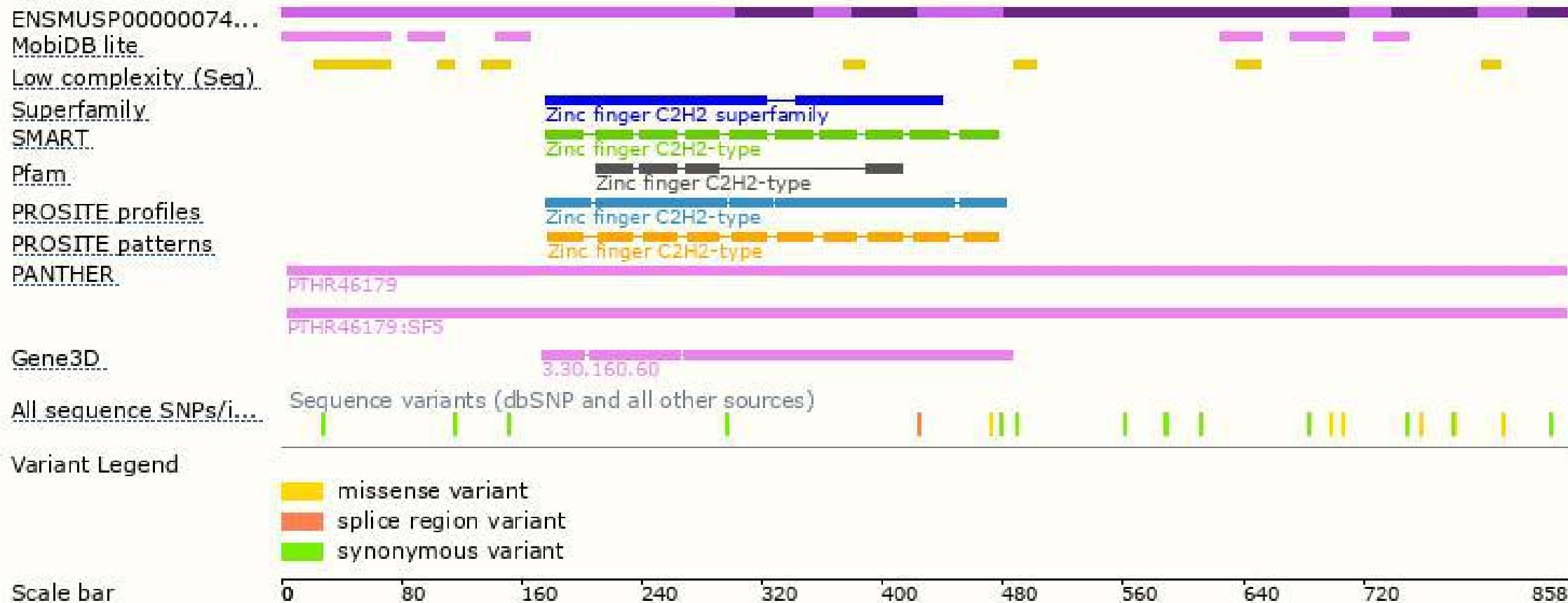
If you have any questions, you are welcome to inquire.
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