

Dtx4 Cas9-CKO Strategy

Designer: Daohua Xu

Reviewer: Huimin Su

Design Date: 2020-4-28

Project Overview

Project Name

Dtx4

Project type

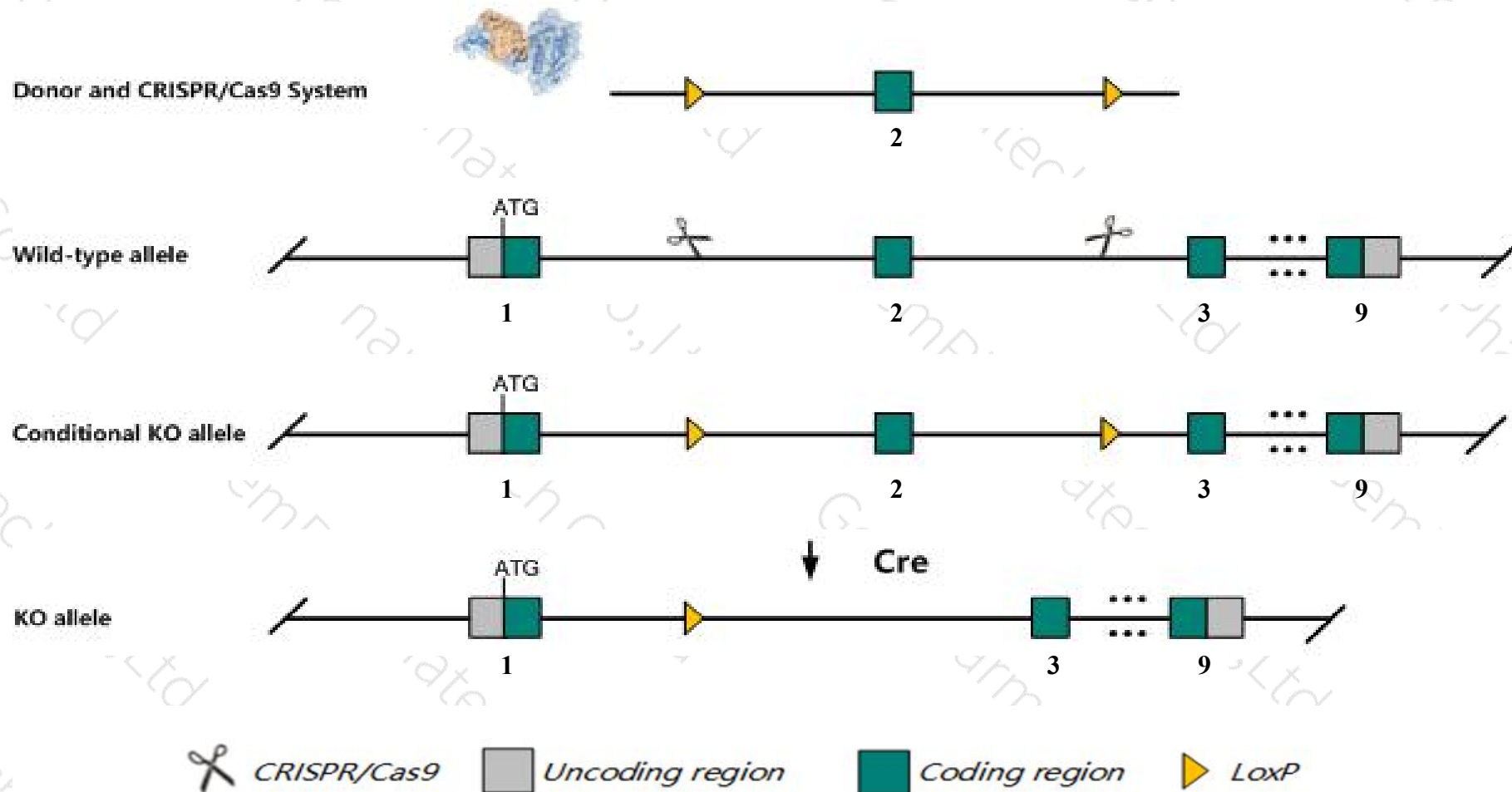
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Dtx4* gene. The schematic diagram is as follows:



Technical routes

- The *Dtx4* gene has 1 transcript. According to the structure of *Dtx4* gene, exon2 of *Dtx4-201* (ENSMUST00000045521.8) transcript is recommended as the knockout region. The region contains 715bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Dtx4* 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 *Dtx4* gene is located on the Chr19. 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)

Dtx4 deltex 4, E3 ubiquitin ligase [Mus musculus (house mouse)]

Gene ID: 207521, updated on 13-Mar-2020

Summary



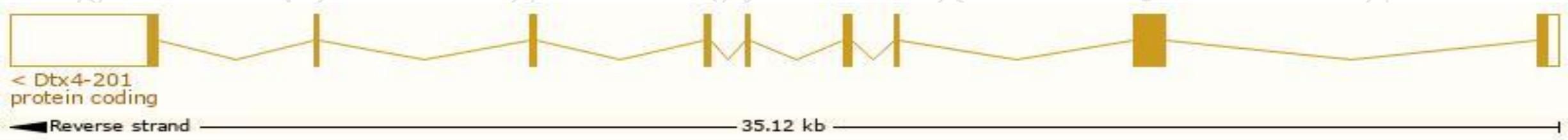
Official Symbol	Dtx4 provided by MGI
Official Full Name	deltex 4, E3 ubiquitin ligase provided by MGI
Primary source	MGI:MGI:2672905
See related	Ensembl:ENSMUSG00000039982
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	AI449438, BC044798, D930042H13, RNF155
Expression	Ubiquitous expression in ovary adult (RPKM 16.0), CNS E11.5 (RPKM 13.0) and 28 other tissues See more
Orthologs	human all

Transcript information (Ensembl)

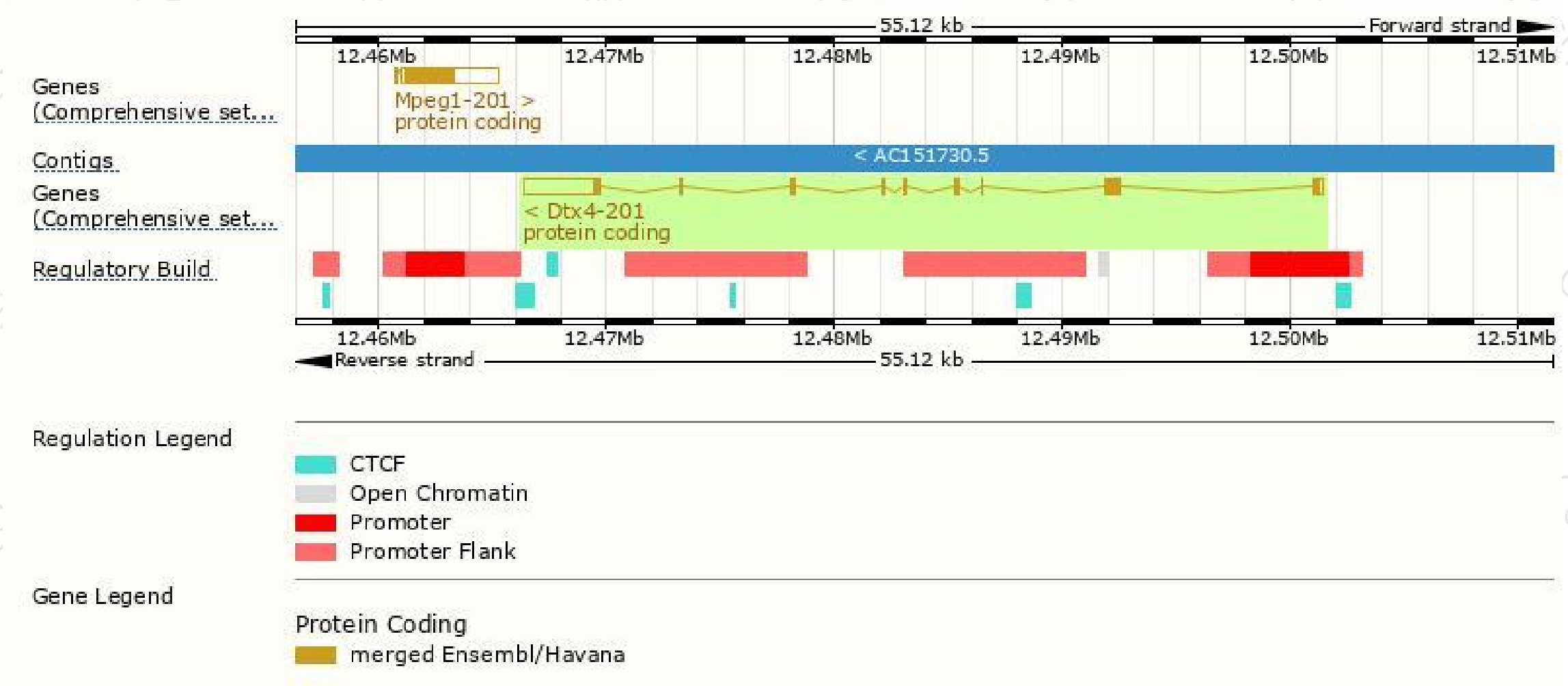
The gene has 1 transcript, and the transcript is shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Dtx4-201	ENSMUST00000045521.8	5226	616aa	Protein coding	CCDS29631	Q6PDK8	TSL:1 GENCODE basic APPRIS is a system to annotate alternatively spliced transcripts based on a range of computational methods to identify the most functionally important transcript(s) of a gene. APPRIS P1

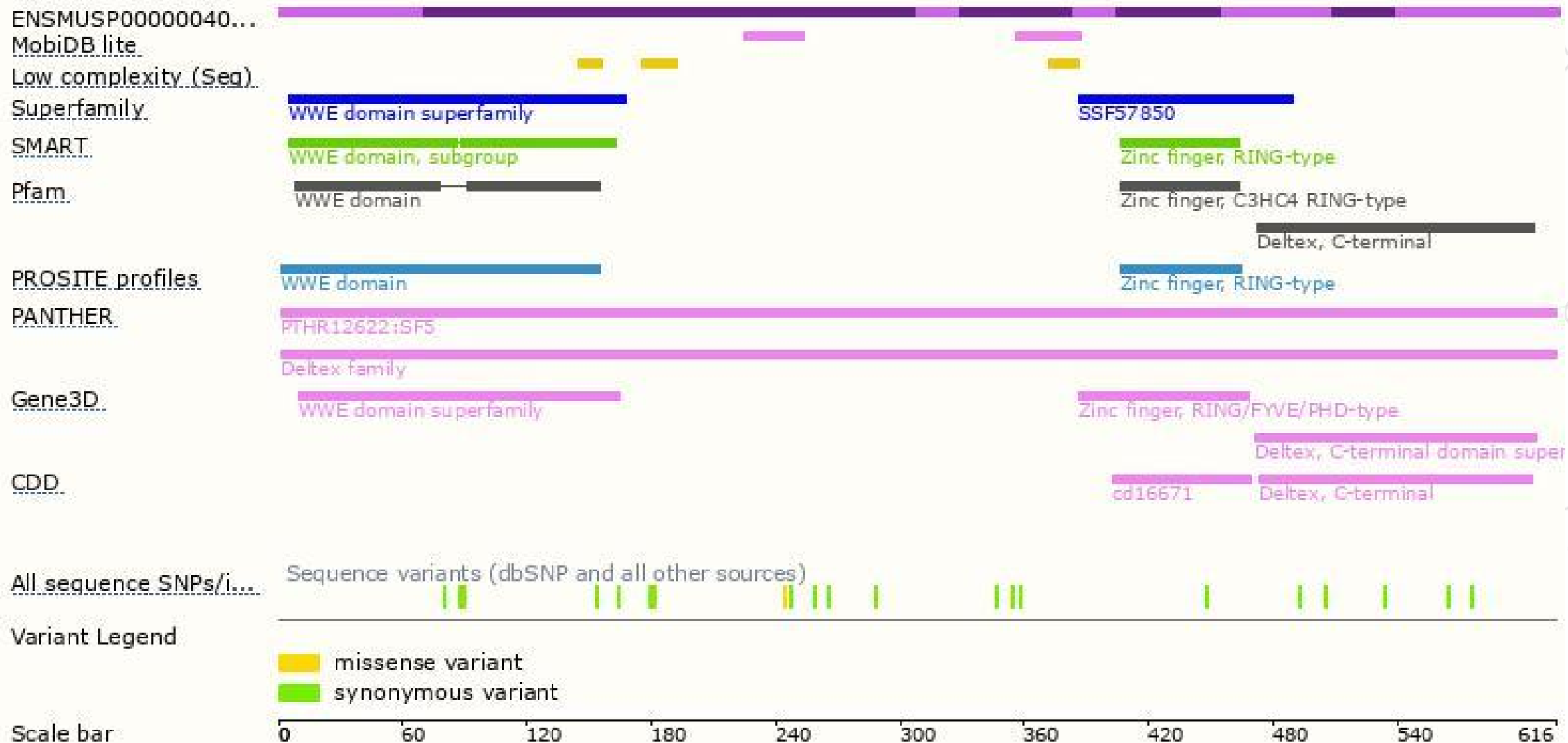
The strategy is based on the design of *Dtx4-201* transcript, the transcription is shown below:



Genomic location distribution



Protein domain



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

Tel: 400-9660890

